



**NATIONAL BOARD OF ACCREDITATION**

**SELF ASSESSMENT REPORT**

**(SAR)**

**FOR FIRST TIME ACCREDITATION OF UNDER GRADUATE  
ENGINEERING PROGRAM (TIER-II)**

**(MECHANICAL ENGINEERING)**



**IES COLLEGE OF TECHNOLOGY, BHOPAL (0177)**

Kalkheda, Ratibad Main Road,  
Bhopal-462044, Madhya Pradesh, India

**2020-2021**

## [SELF ASSESSMENT REPORT]

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## IES COLLEGE OF TECHNOLOGY

### Mechanical Engineering

#### Part A: Institutional Information

##### 1 Name and Address of the Institution

IES COLLEGE OF TECHNOLOGY, IES CAMPUS KALKHEDA RATIBAD MAIN ROAD, BHOPAL (M.P.) 462044

##### 2 Name and Address of Affiliating University

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

##### 3 Year of establishment of the Institution:

2007

##### 4 Type of the Institution:

<input type="checkbox"/> University	<input type="checkbox"/> Autonomous
<input type="checkbox"/> Deemed University	<input checked="" type="checkbox"/> <b>Affiliated</b>
<input type="checkbox"/> Government Aided	

##### 5 Ownership Status:

<input type="checkbox"/> Central Government	<input type="checkbox"/> Trust <input type="checkbox"/>
<input type="checkbox"/> State Government	<input type="checkbox"/> Society
<input type="checkbox"/> Government Aided	<input type="checkbox"/> Section 25 Company
<input checked="" type="checkbox"/> <b>Self financing</b>	<input type="checkbox"/> Any Other (Please Specify)

##### 6 Other Academic Institutions of the Trust/Society/Company etc., if any:

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Name of Institutions	Year of Establishment	Programs of Study	Location
IES PUBLIC SCHOOL, BHOPAL	2014	HIGHER SECONDARY SCHOOL (CBSE)	BHOPAL
IES INSTITUTE OF PHARMACY, BHOPAL	2017	PHARMACY	BHOPAL
IES UNIVERSITY, BHOPAL	2019	EDUCATION, NURSING, PARAMEDICAL, ENGG. ETC ETC	BHOPAL

### 7 Details of all the programs being offered by the institution under consideration:

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Mechanical Engineering	UG	2009	2009	60	Yes	120	Applying first time	--	--	Yes	4
Thermal Engineering	PG	2013	2013	18	No	18	Eligible but not applied	--	--	No	2
Mechanical Engineering	Diploma	2012	2012	60	Yes	120	Eligible but	--	--	No	3

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							not applied				
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### 8 Programs to be considered for Accreditation vide this application:

S No	Level	Discipline	Program
1	Under Graduate	Engineering & Technology	Computer Science & Engg.
2	Under Graduate	Engineering & Technology	Electrical & Electronics Engg.
3	Under Graduate	Engineering & Technology	Electronics & Communication Engg.
4	Under Graduate	Engineering & Technology	Mechanical Engg.

### 9 Total number of employees in the institution

#### A. Regular\*Employees (Faculty and Staff):

Items	2020-21		2019-20		2018-19		2017-18	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	96	96	83	83	80	80	85	85
Faculty in Engineering (Female)	16	16	20	20	22	22	22	22
Faculty in Maths, Science & Humanities (Male)	22	22	22	22	21	21	17	17
Faculty in Maths, Science & Humanities (Female)	23	23	21	21	19	19	20	20

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Non-teaching staff (Male)	44	44	45	45	46	46	46	46
Non-teaching staff (Female)	05	05	05	05	05	05	05	05

### B. Contractual\*Employees (Faculty and Staff):

Items	2020-21		2019-20		2018-19		2017-18	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering(Male)	04	04	08	08	04	04	03	03
Faculty in Engineering (Female)	0	0	0	0	0	0	0	0
Faculty in Maths, Science & Humanities (Male)	0	0	0	0	0	0	0	0
Faculty in Maths, Science & Humanities (FeMale)	0	0	0	0	0	0	0	0
Non-teaching staff (Male)	0	0	0	0	0	0	0	0
Non-teaching staff (FeMale)	0	0	0	0	0	0	0	0

### 10 Total number of Engineering Students:

Engineering and Technology-UG	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
Engineering and Technology-PG	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
Engineering and Technology- Polytechnic	<input type="checkbox"/> Shift1	<input checked="" type="checkbox"/> Shift2

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MBA	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
MCA	<input type="checkbox"/> Shift1	<input type="checkbox"/> Shift2

### Engineering and Technology- UGShift-1

Items	2020-21	2019-20	2018-19	2017-18
Total no. of Boys	481	630	615	624
Total no. of Girls	23	23	44	36
<b>Total</b>	<b>504</b>	<b>653</b>	<b>659</b>	<b>660</b>

### Engineering and Technology- PGShift-1

Items	2020-21	2019-20	2018-19	2017-18
Total no. of Boys	43	29	40	38
Total no. of Girls	9	8	11	5
<b>Total</b>	<b>52</b>	<b>37</b>	<b>51</b>	<b>43</b>

### Engineering and Technology- Polytechnic Shift-2

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Items	2020-21	2019-20	2018-19	2017-18
Total no. of Boys	137	200	234	293
Total no. of Girls	1	6	5	7
<b>Total</b>	<b>138</b>	<b>206</b>	<b>239</b>	<b>300</b>

### Engineering and Technology- MBA Shift-1

Items	2020-21	2019-20	2018-19	2017-18
Total no. of Boys	119	113	34	37
Total no. of Girls	61	67	26	23
<b>Total</b>	<b>180</b>	<b>180</b>	<b>60</b>	<b>60</b>

### 11 Vision of the Institution:

To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students

### Mission of the Institution:

**M1:** To provide the best facilities, environment, and infrastructure for the achievement of objectives.

**M2:** To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and managers.

**M3:** To put in dedicated efforts for inculcating human values in the students coupled with overall



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personality development.

**M4:** To provide value-added courses and projects through Industry-Institute interactions for effective learning and better career opportunities

**M5:** To tie up with Industries and Institutions for developing innovative and entrepreneurial skills of students.

### 12 Contact Information of the Head of the Institution and NBA coordinator, if designated:

Head of the Institution	
Name	Dr. Gyanendra Kumar Pandey
Designation	Principal
Mobile No.	9285009752
Email ID	iesbpl@gmail.com

### NBA Coordinator, If Designated

Name	Dr.Pallavee Bhatnagar
Designation	HOD, Department Electrical and Electronics Engg.
Mobile No.	9229251477
Email ID	nba.coordinator@iesbpl.ac.in

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<b>CRITERION 1</b>	<b>Vision, Mission and Program Educational Objectives</b>	<b>60</b>
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### 1.1 State the Vision and Mission of the Department and Institute (5)

#### A. Availability of Vision and Mission statements of the department

##### Vision of the Institute

“To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students”.

##### Mission of the Institute:

**M-1:** To provide the best facilities, environment, and infrastructure for the achievement of objectives.

**M-2:** To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and managers.

**M-3:** To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.

**M-4:** To provide value-added courses and projects through Industry-Institute interactions for effective learning and better career opportunities.

**M-5:** To tie-up with Industries and Institutions for developing innovative and entrepreneurial skills of students.

#### B. Vision of the Department

To develop the Department of Mechanical Engineering into an international repute in imparting quality education

##### Mission of the Department:

**M-1:** To impart highest quality education to the students to enhance their skills & make them globally competent

**M-2:** To create state-of-the-art research facilities & provide conducive environment that motivates faculty, staff and students to disseminate knowledge.

**M-3:** To develop alliance with reputed R&D organizations, educational institutions, & industries for excellence in teaching, research and consultancy practices.

**M-4:** To provide the students with excellent academic environment, leadership, ethical guidelines and lifelong learning for a successful productive career.

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### C. Consistency of the Department statements with the Institute statements

**Table 1.1: Justification of mapping of Institute vision with Department Vision**

	<p><b>Vision of the department:</b> To develop the Department of Mechanical Engineering into an international repute in imparting quality education.</p>	<p><b>Justification</b></p>
<p><b>Vision of the Institute:</b> To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students</p>	<p><b>Consistency: High</b></p>	<p>Quality education/ Effective teaching process</p>
		<p>Professional ethics/ human values</p>
		<p>Overall development/ competent</p>
		<p>Quality education/ analytical and design skills The department has well qualified faculties and infrastructures aligned with outcome based education through innovative teaching pedagogies which provide opportunity for students to emerge as technically strong entrepreneurs, leaders and socially responsible students.</p>

**Table 1.2: Justification of mapping of Institute Mission with department Mission**

<p>Mission of the Institute/Mission of the Department</p>	<p>To impart highest quality education to the students to enhance their skills &amp; make them globally competent</p>	<p>To create state-of-the-art research facilities &amp; provide conducive environment that motivates faculty, staff and students to disseminate</p>	<p>To develop alliance with reputed organizations, educational institutions, &amp; industries for excellence in R&amp;D</p>	<p>To provide the students with excellent academic environment, leadership, ethical guidelines and lifelong learning for a successful</p>
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		knowledge.	teaching, research and consultancy practices.	productive career
To provide the best facilities, environment, and infrastructure for the achievement of objectives.	<b>High</b> (Best facilities/ impart highest quality education, objective of effective teaching learning/ enhance their skills & make them globally competent) The department has the best infrastructures and environment which is utilized by well qualified faculty members who impart outcome based knowledge using innovative teaching pedagogies.	<b>High</b> (availability of best facilities/ create state-of-the-art research facilities & provide conducive environment, achieving objectives/ disseminate knowledge) The department has well equipped design labs and simulation tools which students use for application of knowledge on diverse problems.	<b>Medium</b> (achievement of objectives/ excellence in teaching, research and consultancy practices) The department invites various industry experts to conduct on campus interdisciplinary workshops and seminars for the achievement of objectives.	<b>Medium</b> ( provide best facilities/excellent academic environment, achievement of objectives/ethical guidelines and lifelong learning for a successful productive career) The department organizes various events to provide opportunities to students to emerge as technically strong entrepreneurs and leaders.
To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and	<b>Medium</b> (Provide intellectual assets/ impart highest quality education, developing competent engineers and managers/ globally competent) The faculty	<b>High</b> (provide best faculty/ create state-of-the-art research facilities, develop competent engineers/ disseminate knowledge )	<b>Medium</b> ( develop competent engineers and managers / excellence in teaching, research and consultancy practices) The department	<b>Medium</b> (Providing assets/ provide the students with excellent academic environment, developing competent engineers and managers/ successful productive career )

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managers.	members in the department encourage and guide students to enhance their skills and become global competent.	The faculties utilize existing assets (modern tools and technologies) that students use to have a strong foundation and conduct interdisciplinary research.	invites senior industry professionals to share their experiences which help students to imbibe leadership skills and needs of the society.	Students utilize intellectual assets to inculcate skills of life learning.
To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.	<b>Medium</b> (dedicated efforts / impart highest quality education, inculcate human values/ enhance their skills & make them globally competent) The faculty members in the department encourage and guide students to acquire good communication skills through various activities organized by soft skill professionals.	<b>Medium</b> (dedicated efforts /create state-of-the-art research facilities, developing overall personality/ disseminate knowledge) Students exhibit professionalism, ethicality, teamwork and leadership qualities and interpersonal skills	<b>Medium</b> (dedicated efforts/ develop alliance with reputed R&D organizations, inculcating human values/ excellence in teaching, research and consultancy practices) The department has various tie-ups with industry and academic which helps students to inculcate human values with overall personality development.	<b>Medium</b> (put in dedicated efforts/ provide the students with excellent academic environment, leadership, overall personality development/ successful productive career.) Various events organised by department helps students to gain human values to become lifelong learner.
To provide value-	<b>High</b> (Provide value	<b>High</b> (provide	<b>Medium</b> (provide	<b>High</b> (provide value-

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<p>added courses and projects through Industry-Institute interactions for effective learning and better career opportunities.</p>	<p>added courses/ impart highest quality education, effective teaching learning/ enhance their skills, better career opportunities/ globally competent ) Students exhibit problems solving skills through socially relevant project based learning</p>	<p>value-added courses and projects through Industry-Institute interactions/ create state-of-the-art research facilities, better career opportunities / disseminate knowledge) Different value added courses and industrial projects help students to disseminate knowledge and better career opportunities.</p>	<p>value-added courses projects through Industry-Institute interactions/ develop alliance with reputed R&amp;D organizations, educational institutions, &amp; industries, better career opportunities/ excellence in teaching, research and consultancy practices ) Various motivational lectures, industrial projects and co-curricular helps students to get benefit in higher studies and placements.</p>	<p>added courses and projects through Industry-Institute interactions/ provide the students with excellent academic environment, leadership, ethical guidelines, better career opportunities/ successful productive career )</p>
<p>To tie-up with Industries and Institutions for developing innovative and entrepreneurial skills of students.</p>	<p><b>Medium</b> (Provide facilities through industry institute tie-ups/ impart highest quality education, entrepreneurial skills of students/globally competent)</p>	<p><b>Medium</b> (tie-up with Industries and Institutions/ create state-of-the-art research facilities, developing innovative and</p>	<p><b>Low</b> (tie-up with Industries and Institutions/ develop alliance with reputed R&amp;D organizations)</p>	<p><b>Low</b> (entrepreneurial skills of students / lifelong learning) Existing industrial and academics tie-ups helps students to get entrepreneurial skill and lifelong learner.</p>

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	Students gain the knowledge of different modern tools in the laboratories that help them to transform their ideas into reality.	entrepreneurial skills/ disseminate knowledge)		
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### 1.2. State the Program Educational Objectives (PEOs) (5)

#### A. Listing of the Program Educational Objectives of the program.

**PEO1.** Work as a **Mechanical engineer professional** in the area of design, manufacturing, power plant or allied fields by applying practical & fundamental knowledge.

**PEO2.** Engage in **research** or take up **higher studies** in any of the emerging technologies and contribute towards enhancement of scientific knowledge.

**PEO3.** Develop start-up using innovative ideas or solution for societal problems turning into an **entrepreneur**

### 1.3. Indicate where the Vision, Mission and PEOs are published and disseminated among stakeholders (10)

The Mission and Vision and PEOs have been published by using strengths, weaknesses and opportunities in wide number platforms so that these get adequate publicity amongst the stakeholders. The vision and mission are exclusively explained to the newly enrolled students and their parents during orientation program. The alumni are updated about the Mission and Vision during alumni interaction. The statements are communicated to the industry/employers through introductory presentation during industrial visits, placement drives and other industry-institute interactions. Faculty and staff members recruited newly are also informed and explained about Mission and Vision and PEOs at the time of orientation program. In addition, the dissemination of PEOs to various stakeholders is also done through faculty meetings and Department Academic Advisory Committee (DAAC) meeting. Various platforms where Vision & Mission and PEOs are disseminated are given as under:

- Web-site of the institute
- News letters published by the institute: QUEST
- Admission brochure of the institute
- Notice board of the Institute

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- Handbook of the Institute
- Display boards
- Classrooms & labs
- Seminar hall
- HOD room and faculty rooms

**Table: 1.3. The Vision and Mission and PEOs are published**

Particulars	Internal Stake Holders	External Stake Holders
Web-site of the institution (www.icot.co.in)	✓	✓
News Letters published by the Institution: QUEST	✓	✓
Admission brochure of the Institution	✓	✓
Handbook of the Institution	✓	

**Table 1.4: The Vision & Mission and PEOs are disseminated**

S.No.	Where published/disseminated	Target stake holders
1	Institute website	Students, parents, faculty; alumni, Industry and Management.
2	Annual Functions	Students, parents, faculty, alumni and industry.
3	Prospectus	Management, Governing Body Members, faculty, students and parents
4	Display boards	Students, Faculty, Parents and Management
5	Department main corridor, notice board and HOD cabin	Students, Faculty, Parents, Industry, Alumni, Employers, Management, Governing Body Members and Department Advisory
6	Principal room, Faculty rooms, Laboratories and Seminar hall	Students, Parents and Faculty



### **1.4 State the process for defining the Vision and Mission of the Department, and PEOs of the program (25)**

#### **A. Description of process involved in defining the Vision, Mission of the Department**

The department established Vision and Mission through consultative process involving stakeholders, faculty, industry persons and many other relevant areas considering scope and growth of the college, future societal needs & also following points in view:

1. Vision and Mission of the institute
2. Need of industry and society
3. Changing technical environment
4. Requirement of academia
5. NBA - Program Outcomes
6. Recruiters and Employers
7. Stakeholders/Management
8. Parents, Alumni
9. Guest speakers of industry experts
10. Brainstorming sessions in faculty meetings
11. Students and staff
12. Periodic review of vision, mission and PEOs are prepared through the suggestion from faculty meetings.

#### **Following process adopted in developing Departmental Vision and Mission statements:**

**Step 1:** Vision and Mission of the institution were taken as the guiding base.

**Step 2:** A detailed survey was conducted on various college websites & salient points like Vision & Mission of the institute, need of industry and society, & changing technical environment etc. were also given consideration.

**Step 3:** Through discussions & deliberations with internal stakeholders, the department drafted its first stage of Vision and Mission and sent it to external stake holders for their views/ opinions.

**Step 4:** The feedback from all stake holders was obtained and given due consideration.

**Step 5:** The views were analyzed and reviewed to check the consistency with the vision and mission of the institution as a whole; the departmental faculty developed and improved the departmental Vision and Mission.

**Step 6:** Departmental Academic Advisory Committee finalized the Vision & Mission statements

**Step 7:** IQAC endorsed the final vision and mission statements.

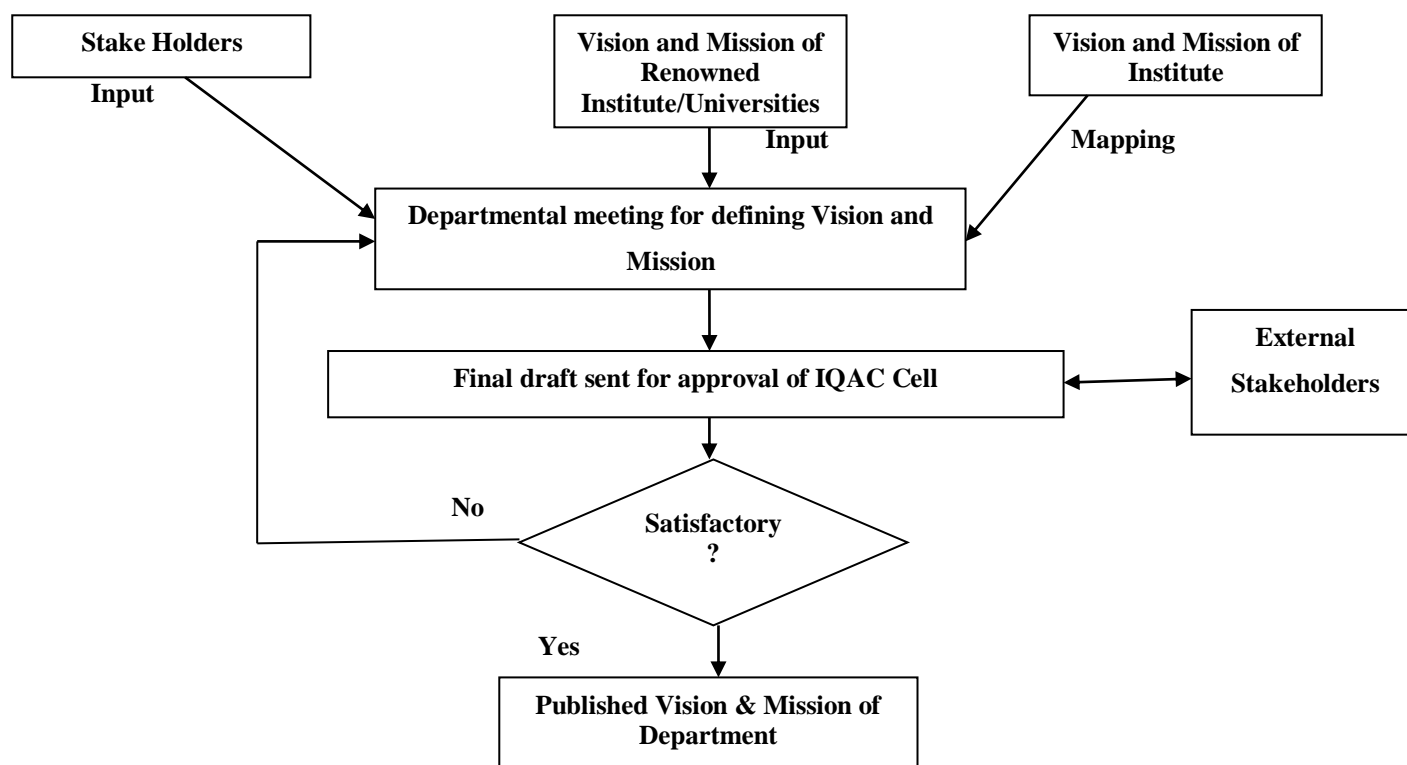


Figure 1.1. Flow chart of defining Vision and Mission of the department

### B. Description of process involved in defining the PEOs of the program.

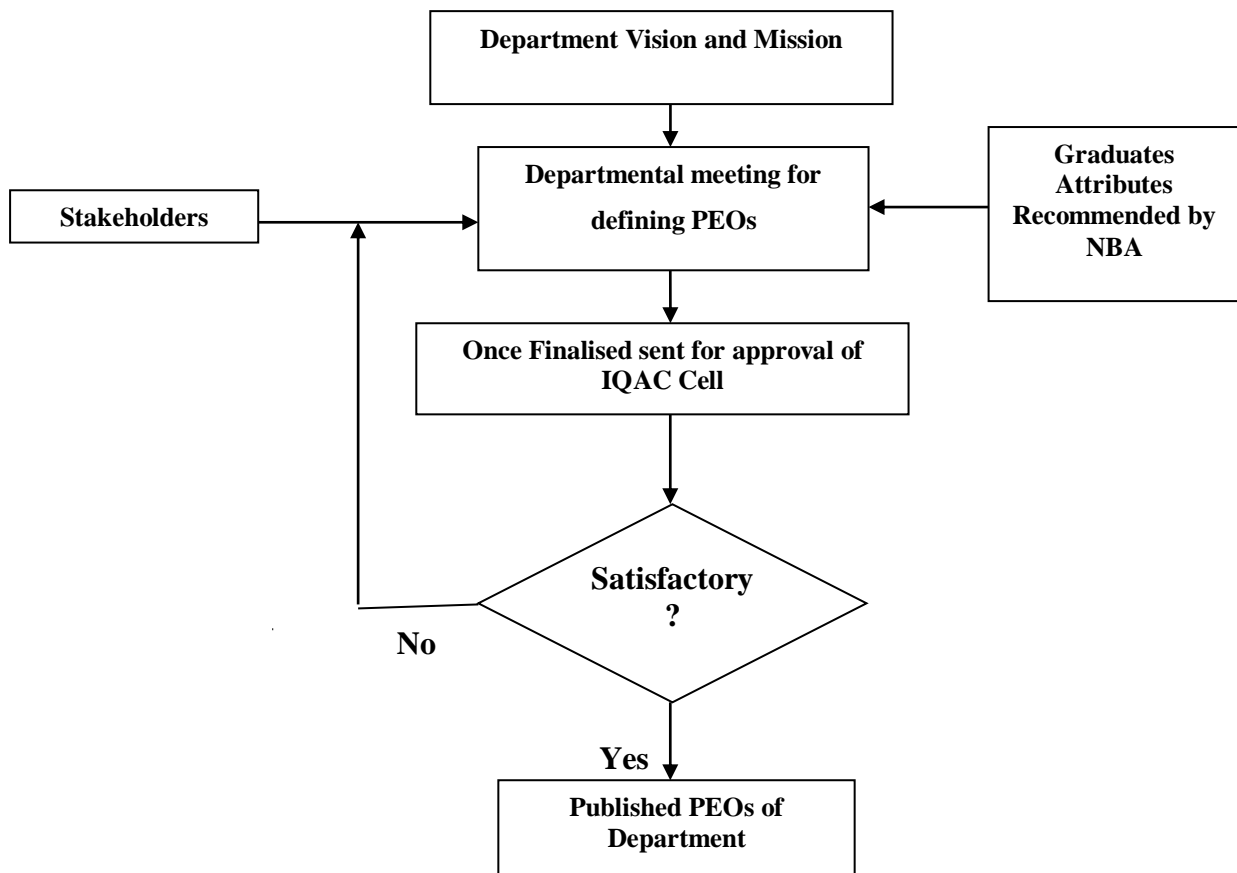
The program educational objectives (PEOs) were formulated / reviewed through a consultative process among faculty members, alumni representatives, Industry experts, Training experts and Departmental Academic Advisory Committee.

#### The PEOs are established through the following steps:

- Step-1:** Program outcomes from NBA as well as Vision and Mission of the Institute and Department were taken as guidelines for consultation with various stakeholders.
- Step-2:** All documents relating to the program were reviewed. These include instructional material, which is collected for all the courses. The outcomes in all courses were listed for the program and graduate attributes were taken into account.
- Step-3:** The inputs from all stake holders were collected and draft of PEOs was prepared and circulated among all stake holders for feedback.
- Step-4:** In the light of current status of the institute, teaching-learning environment, and based on the review of feedback, PEOs were formulated by the staff and sent to Departmental Academic Advisory Committee. The proposed PEOs were reviewed and recommended at the institution level to IQAC committee.

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**Step-5:** After approval by the IQAC, the PEOs were finalized & given wide publicity.



**Figure.1.2. Flow chart of defining PEOs**

### 1.5 Establish consistency of PEOs with Mission of the Department (15)

#### A. Preparation of a matrix of PEOs and elements of Mission statement.

**Table: 1.5 Mapping of PEOs with Mission of the Department**

PEOs	M1	M2	M3	M4
PEO1	3	3	2	2
PEO2	2	2	3	3
PEO3	2	1	3	3

Slight (Low):1

Moderate (Medium):2

Substantial (High):3

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### B. Justify the academic factors involved in achievement of the PEO's

**Table: 1.6 Justifications of Mapping of PEOs with Mission of the Department**

PEOs	M1	M2	M3	M4
<b>PEO1</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>
	M1 Fulfils PEO1 to a large extend by imparting a strong foundation in core principles of Mechanical Engineering through problem solving, practical approach to meet the demands of skill development globally.	M2 Substantially support PEO1 as the faculties with rich experience in their domain coupled with labs with modern tools like rapid prototyping give students a great learning environment which is conducive for bringing innovation in them.	M3 supports PEO1 as the seminars, workshops, industrial visits, short term training programs and talks from various experts from industries and academia make students updated of the latest technologies with enhancement of their skill set and domain knowledge.	During the course of study students demonstrate their team work, professionalism through their contribution towards development of societal needs.
<b>PEO2</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>
	Students demonstrate their skill of solving complex engineering problems by solving industry related projects through CAD/CAE software's.	This is achieved via conduction of additional labs, hands-on sessions on technical concepts, and thus imparting good theoretical foundation to the students apart from the teaching	M3 fulfils PEO2 since high ethical standards to undertake R&D strongly helps in fulfilling needs of industries and society. The department has professional student chapters/clubs which organizes technical	M4 imparts professionalism, leadership and entrepreneurship skills through rich teaching curriculum followed in the program thus enabling the eligible candidates to good job opportunities.

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		curriculum for future research and studies	events and seminars. Students are exposed to multi-disciplinary research ambience that includes cross platform projects, workshops and seminars	
<b>PEO3</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>3</b>
	Students are groomed through various forms of communication of their practical work which also enhances their entrepreneurship skills.	Students are trained in various design morphologies with the help of various software's. Students first develop a working prototype bringing their ideas of solving problems to reality using their practical knowledge.	M3 aims at creating research ambience to the students through socially relevant industry integrated field projects as an integral part of the curriculum. M3 aims to transform students to adapt Information technologists by conducting workshops, seminars on emerging trends & technology thus building core competencies of the graduates.	Students are trained to look for a sustainable approach of solving engineering problems. The department conducts co-curricular activities and extra-curricular activities which influences the behaviour and develops the personality of the students, and helps them to be corporate ready.

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<b>Criterion 2</b>	<b>Program Curriculum and Teaching Learning Processes</b>	<b>120</b>
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### 2.1 Program Curriculum and Teaching Learning Processes

#### 2.1.1 A. Process used to identify extent of compliance of university curriculum for attaining POs and PSOs

##### **Program Curriculum:**

The college is affiliated to Rajiv Gandhi Proudyogiki Vishwavidyalaya, (RGPV) Bhopal, and the curriculum of the Department is framed as per university guidelines. The curriculum comprises of Basic Sciences, Humanities and Social Sciences including Engineering Sciences, Professional core and elective subjects, Project work and industrial training related to the field

##### **Basic Sciences and Humanities:**

The stream includes courses like Engineering Mathematics, Engineering Physics, Engineering Chemistry, professional ethics and Environmental studies.

##### **Basic Engineering Courses:**

The stream includes courses like Basic electronics, Basic electrical engineering, Programming in C, Computer-aided engineering drawing, Elements of mechanical engineering and Elements of civil engineering. These courses provide fundamental knowledge on all engineering disciplines.

##### **Professional Core Courses:**

The stream includes courses like Fluid Mechanics, Machine Drawing & CAD, Machine Design, Turbo Machinery, Mechanical Measurement & Control, Design of Machine Elements, Dynamics of Machines, Thermal Engineering and gas dynamics, Metal Cutting & Machine Tools, Industrial Engineering, etc. Project work and technical seminars are included in the final year to provide the opportunity for students to develop an understanding of the inter relationship between courses, develop and demonstrate higher-order skills, and to apply the gained knowledge.

##### **Management Courses:**

The stream includes courses like Management and Entrepreneurship. These are essential to create awareness on **managerial** & entrepreneurial skills, finance management, project management and quality control techniques.

##### **Elective Courses:**

The stream includes courses like Entrepreneurship & Management, Metrology & Inspection, Engineering Economics & Management, Mechatronics, Total Quality Management & Statistical Quality Control, Finite Element Method, Power Plant Engineering, IPR (Intellectual Property Rights) etc.

As per the R.G.P.V Bhopal regulations, the first year Bachelor of Engineering (BE) course is on Grading System (GS) (The academic year 2017-18) system and II, III and IV years' Bachelor of

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Engineering (BE) courses are on CBGS system / BE Grading system (as shown in Table: 2.1 to table 2.2). Total semesters under consideration are eight (08). The contents of each theory subject are well defined and the experiments are specified for each laboratory. The university included assignments and quizzes. These are scientific in nature and aimed at supplementing the gaps in the syllabus. Although it is difficult to identify gaps, however each faculty has thoroughly understood the needs of the student and identified the gaps and attempted to fill them with relevant teaching-learning methods, to further strengthen the program educational objectives (PEO's) and program outcomes (PO's). Subjects are mapped with (POs), Programme Specific Outcomes (PSOs) and gaps are identified. The process to fill the gap after identifying the same and feedback from various stakeholders like students, alumni, parents, industry, and academia by the departmental academic advisory committee. Thereafter contents are identified and taught along with the university syllabus in order to fill the gap to update knowledge and thus prepare students with knowledge, skills and abilities expected in the current scenario of industry, research & academia. These are then referred to IQAC committee. Such an effort allows the college to be branded and stakeholders would appreciate the needs. Thus the college attempted to rise above the benchmarking level. Each subject is dealt with against the (POs) envisaged by NBA.

### Program Educational Objectives (PEOs)

PEO1. Work as a **Mechanical engineer professional** in the area of design, manufacturing, power plant, or allied fields by applying practical & fundamental knowledge.

PEO2. Engage in **research** or take up **higher studies** in any of the emerging technologies and contribute towards enhancement of scientific knowledge.

PEO3. Develop start-up using innovative ideas or solutions for societal problems turning into an **entrepreneur**.

### Program Specific Outcomes (PSOs)

**PSO-1:** To enhance the students' knowledge base with theory and practice in Mechanical Engineering and prepare them to solve real-life mechanical engineering problems with innovative solutions.

**PSO-2:** To inculcate in-depth knowledge and training in Mechanical Engineering to ensure that the students acquire core competency to be ready for the industry, industry and research organizations.

**PSO-3:** To enrich an academic environment for the students to inculcate lifelong learning skills along with ethics for the benefit of society.

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## **Program Outcomes (POs)**

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulates, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.



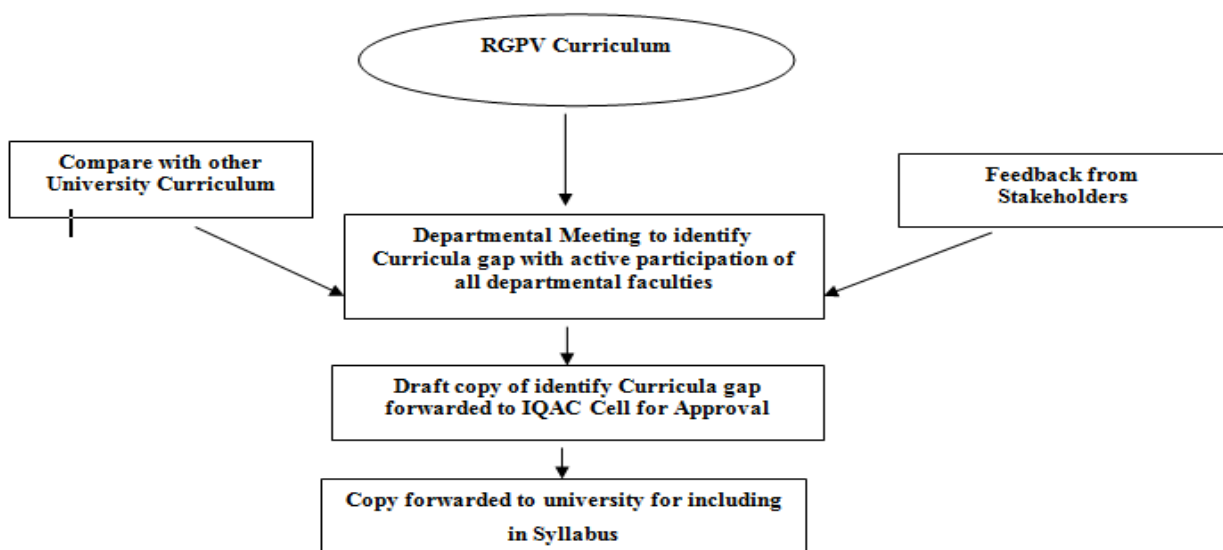
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11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

The following process is adopted to identify the extent of compliance of the University curriculum for attaining the Program Outcomes (POs) and Program Specific Outcomes (PSOs):

- Define Program Specific Outcomes (PSOs)
- Define Course Outcomes for each subject.
- Map each COs with POs and PSOs.
- Categorize entire Curriculum into Core Courses, Science & Humanities, Inter-Disciplinary Projects / Lab Practices; Map each category with POs and PSOs.
- Feedback is given by Recruiters in Campus Placements and by prospective Employers.
- Inputs are given by the Principal/Management in Departmental academic advisory meetings.
- Feedback is given by industry experts visiting for guest lecture / technical fests/ Workshops/ other events organized by the Department from time to time.
- Feedback by visiting expert members during departmental Advisory Committee meetings & during an expert lecture to the students.
- Feedback is given by faculty members handling the courses
- Feedback is given by alumni.

The feedback obtained as above is reviewed Departmental Academic Advisory meetings in particular and the curricular gaps are identified.



**Fig. 2.1 Curriculum gap identify process**

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Various Streams of program curriculum are shown in the table below:

<b>Program Curriculum Grouping based on Course Component</b>	<b>Number of subjects</b>	<b>PO</b>	<b>PSO</b>
Basic Sciences & Humanities	11	1,2,3,4, 5,6,7,8,9,10,11, 12	1,2,3
Basic Engineering Courses	11	1,2,3,5,6,7,9,12	1,2,3
Professional Core Courses	8	1,2,3,5,6,7,8,9,10,12	1,2,3
<b>All/Total</b>	<b>30</b>	1,2,3,5,6,7,8,9,10,11, 12	1,2,3

<b>Program Curriculum Grouping based on Course Component</b>	<b>Number of subjects</b>	<b>PO</b>	<b>PSO</b>
Professional Core Courses	20	1,2,3,5,6,7,8,9,10,12	1,2,3
Management Courses	5	1,2,8,9,10,12	3
Elective Courses	6	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
<b>All/Total</b>	<b>31</b>	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3

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**Table: 2.2 (A): B.E. (Grading) (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> Semester )**

<b>Program Curriculum Grouping based on Course Component</b>	<b>Number of subjects</b>	<b>PO</b>	<b>PSO</b>
Basic Sciences & Humanities	8	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
Basic Engineering Courses	9	1,2,3,5,6,7,9,12	1,2,3
Professional Core Courses	30	1,2,3,5,6,7,8,9,10,12	1,2,3
Management Courses	7	1,2,8,9,10,12	3
Elective Courses	3	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
<b>All/Total</b>	<b>57</b>	<b>1,2,3,4,5,6,7,8,9,10,11,12</b>	<b>1,2,3</b>

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**Table: 2.2.B. Evaluation Sheet (Analysis of Course components)**

Department of Mechanical Engineering																		
Evaluation Sheet (Analysis of Course components)																		
Batch: 2015-2019 Batch [B.E. CBCS (Choice Based Credit System)] [1st, 2nd, 3rd and 4th SEM]																		
S.No.	Program Curriculum Grouping based on Course Component	Subject Code	Subject Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	Basic Sciences & Humanities	MA110	Maths-I	1.2	1.8	3.0	1.0	-	1.0	1.0	-	-	-	1.0	1.0	1.2	1.0	1.0
2		PH110	Physics	1.4	1.0	-	-	1.0	-	-	-	1.1	-	-	1.1	1.0	1.0	1.0
3		MA111	Maths-II	1.6	2.4	-	-	-	-	-	-	-	-	-	1.0	1.0	1.0	1.0
4		CY110	Chemistry	2.4	2.1	1.0	1.0	1.0	1.0	-	-	1.5	-	1.0	1.0	1.0	1.0	1.0
5		HU112P	Rural outreach	2.2	2.2	-	-	1.0	1.0	-	-	1.5	1.0	-	1.0	1.2	1.0	1.2
6		ML 110P	Environmental Sciences	2.0	1.0	3.0	-	1.0	1.3	1.3	-	1.3	-	-	1.0	1.4	1.3	1.7
7		MA220	Maths-III	3.0	2.0	-	-	-	2.0	2.0	2.0	2.0	2.0	-	2.0	2.0	1.0	1.0
8		HU221	Idea Generation	3.0	2.0	-	-	-	1.0	1.0	1.0	1.0	1.5	1.0	1.0	2.0	1.5	1.0
9		HU110	English	2.4	1.8	-	-	-	1.0	-	-	1.0	-	-	1.3	1.1	1.0	1.3
10		HU220	Communication Skills	2.0	1.0	-	-	-	1.0	1.0	1.0	1.0	2.2	-	1.0	2.0	1.0	1.0
11		HU 111P	Communication	2.0	1.4	-	-	-	1.0	1.0	1.0	-	1.3	-	1.5	1.0	1.0	1.3
1	Basic Engineering Courses	ME113P	Manufacturing practices	2.2	2.2	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0	1.6	1.0	1.0
2		ES220T	Material Sciences	3.0	2.0	-	-	-	1.0	1.0	1.0	1.0	1.0	-	1.0	3.0	-	1.0
3		ME111	Engg. Graphics	2.4	2.0	-	-	-	1.0	1.0	-	-	-	-	1.5	1.0	1.0	1.0
4		CE110	Engg Mechanics	2.2	2.2	-	-	-	1.7	1.0	-	-	-	-	1.3	1.1	1.0	1.0
5		ME 110P	Introduction to Mechanical Engineering	2.4	2.0	-	-	-	1.0	1.0	1.0	-	-	-	1.5	1.0	1.0	1.0

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6		ME112	Concepts in engg. Design	2.0	1.4	1.0	1.0	1.0	1.0	-	-	1.5	-	1.0	1.0	1.6	1.0	1.0
7		EE111	Fundamentals of Electrical Engg.	2.2	1.9	1.0	1.0	1.0	1.0	-	-	1.5	-	1.0	1.0	1.6	1.3	1.0
8		EC 111	Fundamentals of Electronics Engineering	2.3	2.0	3.0	-	-	1.3	1.0	1.0	-	-	-	1.3	1.5	1.3	1.0
9		ES221T	System Engg.	2.0	2.0	3.0	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6	1.0	1.0
10		CS110P	Computer programming	1.8	1.8	1.0	-	1.3	1.0	1.0	-	1.5	1.0	-	1.0	1.6	1.0	1.0
11		ME 229	Computer Programming	3.0	2.0	1.0	-	2.4	2.0	2.0	2.0	2.0	2.0	-	1.6	3.0	1.0	1.0
1	Professional Core Courses	ME 221	Strength of Materials	2.5	3.0	1.7	1.0	-	2.0	2.0	2.0	2.0	1.0	-	1.5	3.0	1.8	1.5
2		ME 222	TOM	2.5	2.2	-	-	-	1.0	1.0	1.0	1.5	1.0	-	-	3.0	1.2	1.0
3		ME 223	Thermodynamics	3.0	3.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	2.6	1.0	1.0
4		ME 224	Manufacturing Process	3.0	2.0	1.0	1.0	-	1.0	1.0	1.0	1.0	1.5	1.0	1.0	2.5	1.8	1.0
5		ME 225	Fluid Mechanics	3.0	2.5	1.0	3.0	-	-	-	-	-	1.0	-	-	2.1	1.2	1.0
6		ME 226	Machine Drawing & CAD	2.5	2.5	2.0	1.0	1.0	1.0	1.0	1.0	1.4	1.0	-	1.0	2.6	1.1	1.0
7		ME 227	Energy Conversion	3.0	2.0	1.0	1.0	-	1.0	1.5	1.0	1.0	1.8	-	1.0	3.0	1.1	1.0
8		ME 228	Machine Design-I	3.0	2.0	1.4	1.0	-	2.0	2.0	2.0	2.0	2.0	-	2.0	2.0	1.3	1.0
Batch: 2015-2019 Batch [B.E. CBGS (Credit Based Grading System)] [5th, 6th, 7th and 8th SEM]																		
1	Professional Core Courses	ME-5001	Turbo Machinery	3.0	2.0	-	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	3.0	1.0	1.0
2		ME-5002	MM&C	2.0	2.4	1.2	1.0	1.0	1.0	1.0	1.0	1.2	1.4	-	1.1	2.0	1.1	1.0
3		ME-5003	DME	3.0	3.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	3.0	2.0	1.0
4		ME-5004	DOM	3.0	2.5	1.0	1.0	-	1.0	2.0	1.5	2.0	1.8	1.5	1.8	3.0	1.3	1.0
5		ME-5006	CAE lab	2.4	2.0	1.0	2.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.2	1.8	1.7
6		ME-6001	Industrial Engineering	1.8	1.4	-	-	-	1.0	1.0	1.0	1.0	1.0	1.3	1.0	2.2	1.6	1.4
7		ME-6002	TE&GD	2.7	2.4	-	-	-	2.0	2.0	2.0	2.0	1.7	-	1.0	2.1	1.3	1.0
8		ME-6003	Heat & Mass Transfer	2.6	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	2.4	1.3	1.2
9		ME-6004	MC&MT	2.5	1.8	-	-	1.3	1.0	1.0	1.0	1.2	1.0	-	1.0	2.1	1.1	1.0
10		ME-7001	Mechanical Vibration	2.6	2.1	-	-	1.0	1.0	1.3	1.0	1.0	1.0	1.0	1.2	2.0	1.4	1.0
11		ME-7002	Automobile Engineering	2.8	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	1.8	1.2	1.2
12		ME-7003	OR & Supply Chain	2.4	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.8	1.0	1.7

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13		ME-7006	Project-I	3.0	2.0	1.0	1.0	1.0	1.0	1.5	1.8	1.2	1.2	1.0	1.0	2.6	1.4	1.2
14		ME-7007	Industrial Training (2 weeks)	3.0	2.0	1.0	-	1.0	1.0	1.5	1.8	1.2	1.2	1.0	1.0	2.6	1.4	1.2
15		ME-8001	AMD	3.0	2.0	-	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	3.0	1.4	1.0
16		ME-8002	RAC	1.8	1.6	1.0	-	1.2	1.0	1.0	1.0	1.0	1.0	-	1.0	1.6	1.3	1.0
17		ME-8005P	Project-II	2.2	2.0	-	-	1.0	1.2	1.5	1.3	1.6	1.4	1.4	1.0	1.6	1.4	2.2
18		ME-5006 P	CAE lab	2.4	1.8	-	-	1.0	1.0	1.5	1.3	1.0	1.3	-	1.3	2.2	1.6	1.4
19		ME-6006 P	CFD/FEM/Sci lab	2.6	2.4	2.8	1.6	3.0	2.0	2.0	2.0	1.2	1.0	1.0	1.0	3.0	1.4	1.0
20		ME-8006P	Automobile Engineering	2.4	1.8	-	-	1.0	1.0	1.5	1.3	1.0	1.3	-	1.3	2.2	1.6	1.4
1		Management Courses	ME-5007P	Management skill development	2.4	2.0	1.0	2.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.2	1.8
2	ME-5008P		Innovative Thinking	2.4	2.0	1.0	2.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.2	1.8	1.7
3	ME-6007 P		Creativity and Entrepreneurship development	2.6	2.4	-	-	-	1.0	1.0	2.0	1.2	1.0	-	1.0	2.6	1.4	1.4
4	ME-6008 P		startup/Industrial lectures	2.6	2.4	-	-	-	1.0	1.0	1.5	1.2	1.0	-	1.0	2.6	1.4	1.2
5	ME 8007P		Group Discussion	2.4	1.8	-	-	1.0	1.0	1.5	1.3	1.0	1.3	-	1.3	2.2	1.6	1.4
1	Elective Courses	ME-5005	Entrepreneurship & Management (Elective-I)	1.0	1.0	-	-	1.0	1.0	-	2.0	2.0	1.4	1.2	1.0	1.0	1.4	2.4
2		ME -6005	Power Plant Engineering (Elective-II)	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	1.2	3.0	1.0	1.0
3		ME-7004	Elective-III (Ergonomics)	2.4	2.0	-	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2
4		ME-7005	Elective-IV (Power Technology.)	2.6	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	2.0	1.2	1.4
5		ME-8003	Elective-V (Advance Machining Process)	2.4	1.4	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.4	1.0	1.3
6		ME-8004	Elective-VI (Product Design.)	2.2	1.0	-	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	1.6	1.3	1.2

**B. List of curricular gaps for the attainment of defined POs and PSOs**

The courses and the course contents prescribed in the curriculum are mapped to the relevant POs and PSOs through individual course outcomes (COs). Curriculum gaps are identified through consolidation of average CO – PO/PSO mapping of all courses. The identified curricular gaps are as listed below in **Table: 2.3**.

**Table: 2.3 Curricular Gaps  
2020-21**

Gap No.	Gaps Identified	Relevance to	
		POs	PSOs
Gap1	Inadequate ability to apply practical problems in real life	2,3	1
Gap2	Exposure to Equipment and Software currently used in the industry	3,4,5	1,2,3
Gap3	Electric vehicles	2,3,4,5	1,2,3
Gap4	Quantitative & Verbal Aptitude	1,2	1

**2019-20**

Gap No.	Gaps Identified	Relevance to	
		POs	PSOs
Gap1	Lack of Entrepreneur skills	6,9,10,12	3
Gap2	Inadequate ability to apply practical problems in real life	2,3	1
Gap3	Servo mechanism solenoid valve	1,2,3	1,2
Gap4	Exposure to Equipment and software currently used in the industry	3,4,5	1,2,3
Gap5	Quantitative & Verbal Aptitude	1,2	1

**2018-2019**

Gap No.	Gaps Identified	Relevance to	
		POs	PSOs
Gap1	Inadequate ability to apply theory to practical problems	1,2,3,4,5	1,2,3
Gap2	Students lack in creating a linkage between social and professional aspects	6,7,8,9	2,3
Gap3	Quantitative & Verbal Aptitude	1,2	1
Gap4	ANSYS software	3,4,5	1,2,3

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### 2.1.2 State the delivery details of the content beyond the syllabus for the attainment of POs and PSOs (10) 2020-21

S.No	Gap	Action taken	Date- Month- Year	Resource Person with Designation	% of stude nts	Relevance to POs, PSOs
1	Gap1- (Inadequate ability to apply practical problems in real life )	E- industry visit of CRISP Bhopal on CNC Machine training	12/01/2021	Mr. Avaninder Kumar, CNC Trainer, CRISP, Bhopal	65%	PO2, PO3. PSO1
2	Gap2- (Exposure to Equipment and software currently used in the industry)	Expert lecture on “Emerging Trends in Automotive Industry - Digital Age”	08/07/ 2020	Ms. Preeti Sakhre, HR Professional, Pune	74%	PO3, PO4, PO5 PSO1, PSO2, PSO3
3	Gap 3- (Electric Vehicles)	Expert lecture on “Electric vehicles”	02/22/2020	Dr. B.S. Chauhan, GLA university, Mathura	78%	PO2, PO3, PO4, PO5, PSO1, PSO2, PSO3
4	Gap 4- ( Quantitative & Verbal Aptitude)	Expert lecture on “Preparation for service selection board interview and tips”	07/11/2020	Caption Arun Kumar Srivastava	70%	PO2, PO5, PO10,PO11, PO12 PSO3

### 2019-20

S.No	Gap	Action taken	Date- Month- Year	Resource Person with Designation	% of stude nts	Relevance to POs, PSOs
1.	Gap1- Lack of Entrepreneur skills	Online webinar on entrepreneurship	1/5/2020	Mr. Sahil Aggarwal, Educationist and social entrepreneur, Co-founder, Rishihood	72%	PO6,PO9,PO10,PO12, PSO3



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				University		
2.	Gap2- Inadequate ability to apply practical problems in real life	Expert lecture on “Industry 4.0 future skills”	21/01/2020 to 22/01/2020	Mr.Rajeev Kumar secretary AICTE INDIA	60%	PO2,PO3,PSO 1
3	Gap3- Servo mechanism solenoid valve	Expert lecture on “Servo control valves”	11/02/2020	Dr. Praveen Singh, BUIT, Bhopal	70%	PO1, PO2, PO3 PSO1, PSO2
4	Gap3- Exposure to Equipment currently used in the industry	MSME workshop on CNC technology	17/02/2020	Mr. Devjyoti, Manager, MSME, Bhopal	64%	PO3, PO4, PO5 PSO1, PSO2, PSO3
5	Gap 4 – (Quantitative & Verbal Aptitude)	Training and placement classes	Throughout the semester	Internal and external experts	83%	PO3, PO4, PO5, PO6, PO7, PO12, PSO1, PSO2, PSO3

### 2018-19

S.No	Gap	Action Taken	Date-Month-Year	Resource Person with Designation	% of students	Relevance to POs, PSOs
1	GAP1 – (Inadequate ability to apply theory to practical problems)	CII Industrial Visit C.A.R.-Central Institute of Agricultural Engineering (CIAE Bhopal)	23/08/ 2018	Mr. G.R.. Raute, Assistant trainer, CIAR, Bhopal	64	PO1,PO2,PO4, PO5,PO6,PO10,PO12
2	GAP 2 – (Students lack in creating a linkage between social and professional aspects)	Expert lecture on Cyber offence	9/2/2019	Mr. Sudeep Goyenka, AIG, Cyber crime branch, Bhopal	92	PO6,PO7,PO8, PO9,PSO2,PSO3
3	GAP 3 – (Quantitative & Verbal Aptitude )	Training and placement classes	Throughout the semester	Internal and external experts	83	PO3, PO4, PO5, PO6, PO7, PO12, PSO1, PSO2, PSO3
4	GAP 4 – (ANSYS Software)	Short term training on “ANSYS”	15/10/2018 to 19/10/2018	Mr. Neeraj Bhalerao, CAD trainer, Advanced computing and design	69	PO3, PO4, PO5, PSO1, PSO2, PSO3

# [SELF ASSESSMENT REPORT]

				solutions, Bhopal		
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## 2.2 Teaching-Learning Processes (100)

### 2.2.1 Describe Processes followed to improve the quality of Teaching & Learning (25)

The Teaching and Learning process is given the foremost importance in the department. The initiatives for Quality improvement in teaching and learning are achieved through a well-defined system of academic components and procedures which are explained as follows:


- A. Well defined Academic Calendar and Adherence to Academic Calendar
- B. Improved and Innovative Instruction Methods/ Pedagogy
- C. Implementation of Mentor teaching-learning system: Methodology to support weak students and encourage bright students
- D. Initiatives and Implementation of improving quality of classroom teaching
- E. Initiatives and Implementation of improving quality of Laboratory Experiments
- F. Student feedback of teaching-learning process and action taken
- G. Initiatives and Implementation of learning through Co-curricular activities.

#### **A. Well defined Academic Calendar and Adherence to Academic Calendar**

The institutional calendar is prepared and aligned with the academic calendar of RGPV. In addition to events proposed by the college in the academic calendar, the department introduces many other events and activities that are beneficial in the overall development of the students with concern of Covid-19 Guidelines. The academic calendar is implemented as per schedule with respect to the commencement of classes, Mid-I and Mid-II examinations, Last working day, End semester exams (theory) and (Practical) in each semester/year. In addition, Co-curricular and extracurricular activities, FDPs, guest lectures, workshop/symposia, industrial visits, tech fest, competition and sports etc., are also implemented by the faculty members under the review and guidance of the HOD and Departmental Academics Advisory Committee. Academic Calendar for July-December session, 2020 is as shown below.

# [SELF ASSESSMENT REPORT]

IES COLLEGE OF TECHNOLOGY, BHOPAL (0177)

	<b>ACADEMIC CALENDER</b>
	<b>IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)</b>
	<b>BE/B.TECH ODD SEMESTER</b>
	<b>SESSION:2020-2021 ( JULY-DEC 2020)</b>

S.NO	NAME OF ACTIVITY	SCHEDULE DATE
		3rd /5th/7th Sem
1	Commencement of Academic Session	6th August 2020
2	End of Teaching	28th Nov 2020
<b>Assignments:-</b>		
3	1st Assignment Submission	17th to 21st august 2020
4	2nd Assignment Submission	1st to 5th Sept.2020
5	3rd Assignment Submission	17th to 22nd Sept.2020
6	4th Assignment Submission	12th to 16 oct. 2020
7	5th Assignment Submission	2nd to 7th Nov. 2020
<b>Internal Examination:</b>		
8	Mid Semester-I	12th to 16th Oct.2020
9	Mid semester II	23rd to 27th Nov. 2020
	<b>Institute Events: Orientation</b>	Presentation of Internship from 1st day
10	Motivational Lecture	Every Monday in week
11	Visit	Industrail Visit according to Dept Activity
12	External Exmintation	Accoding to RGPV
13	Theory Examination	Accoding to RGPV
14	<b>Holiday: 1.Rakashabandhan</b>	3 Aug.2020
	2..Independance Day	15th Aug 2020
	3.Dashera	25th Oct. 2020
	4.Deepawali	12th to 18th Nov. 2020
	5.Gurunanak Jayanti	30th Nov.2020
15	<b>Sem Break</b>	<b>15 days after RGPV Examination</b>
16	<b>ACADEMIC WORKING DAYS</b>	
	<b>Month</b>	<b>Working days</b>
	July	0
	August	16
	September	22
	October	19
	November	14
	<b>Total</b>	<b>71</b>

  
**PRINCIPAL**  
 IES College of Technology  
 BHOPAL

  
**HEAD OF DEPARTMENT**  
 Head of Department  
 (ICOT) Engineering  
 Mechanical  
 IES College of Technology, Bhopal  
 6th August 2020  
 (0177)

## [SELF ASSESSMENT REPORT]

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The subject allotment is done well in advance for the staff to prepare lesson plans and hard/soft copies of the lecture notes. Lesson plan with course outcomes are prepared by the faculty handling the subject before the commencement of the semester and is duly approved by the Head of the department and made available to the students. Execution of lesson plan has been documented in the academic file to ensure coverage of syllabus, monitored by Head of the department.

### **Subjects allotment/ Workload:**

Faculty is offered with preferred courses. Considering their options, the Head of the department will allot the course for the individual faculty and the workload is finalized. Faculty members are given the choice to give options 1, 2, 3... etc. for the subject's allotment. Mostly faculty will be allotted one subject of their 1st choice. The second subject is also given as per the choice of the faculty, subject to the needs of the Department.

### **Time Table:**

A structured timetable will also have an impact in the proper planning of work. A well- organized timetable basically helps the faculty to take control of the day from one hour to the next. Time table consists mainly of four domains: students, faculty, timing and venue.

### **Course File:**

All faculty members prepare course file after subject allotment for the course that they handle. Department Vision, Mission statements, timetable, syllabus, lesson plan, subject notes, record of attendance, Analyze the performance of students, previous year University question papers, Assignment Question papers, laboratory experiments etc.

### **Quality Lecture notes**

Faculty members prepare/update lecture notes/ppt/e-board lecture/video lecture etc. for allotted subjects by consulting various prescribed text books, Question banks of previous examinations, relevant NPTEL courses and other e-resources from Google.

### **Lesson Plan**

Lesson plans are prepared by faculty members, based on the Academic calendar, syllabus and weekly load, which is reviewed and approved by HOD.

### **Instruction Delivery**

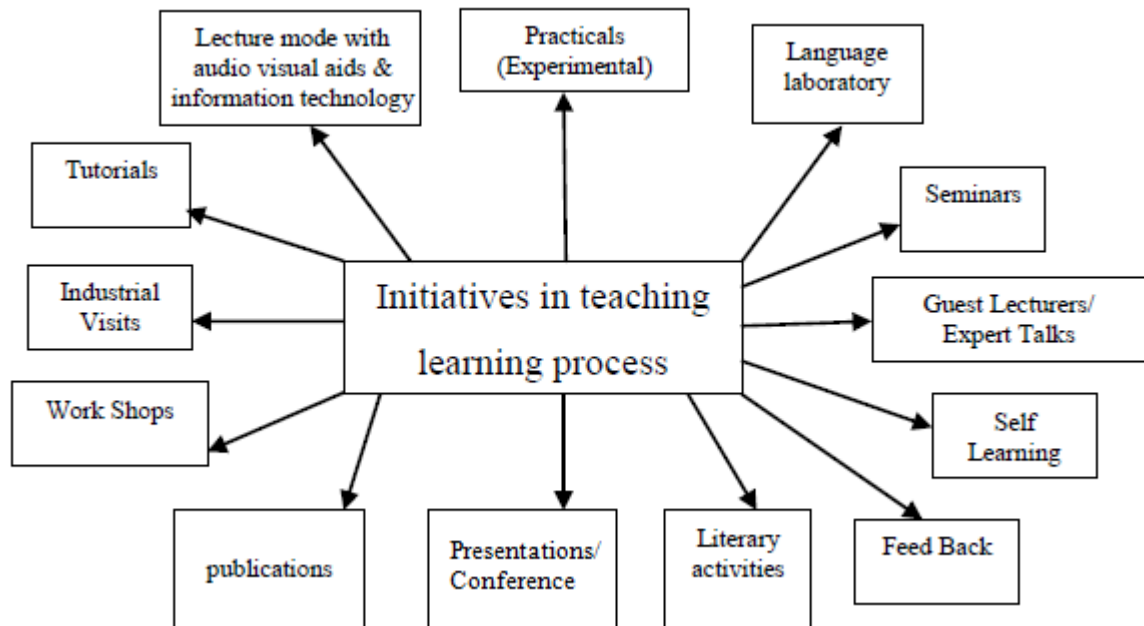
Faculty members take classes as per time table and lesson plan, duly compensating for lost classes due to leaves, unexpected holidays, and following various teaching-learning techniques, methods etc.

### **B. Improved and Innovative Instructional Methods/ Pedagogy**

Apart from basic teaching requirements, the Department has adopted various initiatives to improve instructional pedagogy methods for the attainment of POs. The faculty members are oriented towards Outcome-based Education (OBE) and are actively utilizing the OBE to cater the learning need of students by innovative methods. The faculty of the department adopts various innovative Teaching & Learning methodologies to create the best learning environment for students. These methodologies

## [SELF ASSESSMENT REPORT]

include traditional black board teaching, presentations, video lecturing, collaborative learning methods etc. as given below.



**Fig 2.2: Different initiatives in the teaching and learning process.**

### 1. Improved/Innovative Classroom Teaching learning method

- The faculty use chalk and board and audio-visual aids in teaching.
- Students are encouraged to actively interact during the lecture hour by getting the doubts clarified.
- Further, students are also encouraged to give seminars/presentations relevant to the subjects which add to their presentation and communication skills.
- Revising the topics covered in the previous class through simple questions and answers at the beginning of each class
- Repeating important points in each class
- Conducting Tutorial sessions for problematic content.
- Revision of syllabus before examinations
- Identifying the uniqueness of each student, understanding the variations among students
- Equal attention on the student, his strengths and limitations, along with the subject matter
- Effective counselling based on the student's individual social and financial background.
- Motivating students to set multiple career goals to sustain their interest in the learning process.
- Assigning complex design problems individually to enhance the problem skills of students
- Giving assignments to the students on topics beyond curriculum.

## 2. Improvement through Project-based learning

During pre-final year, the students are encouraged to carry out minor projects and in the final year, major projects are executed under the guidance of faculty. The aim of project based learning is:

- Exposing students to real-world through Examples
- Presenting the real-life engineering problems.
- Implementing the solutions of engineering problems using models and charts for better subject understanding.
- Providing exposure to real-world of Engineering by taking students to on-going projects within and outside the campus
- Building entrepreneurship skills

## 3. Improvement through Computer-assisted learning

The department is equipped with the sufficient number of computers, LCD projectors, internet facilities, application software and system software which are effectively used for teaching and learning.

- e-boards
- Faculty members are making effective use of **virtual labs** for effective teaching.
- Use of e-resources.
- Using electronic presentations (PPT) on difficult topics for better understanding.
- Use of e-learning - resources from the **National Programme on Technology Enhanced Learning (NPTEL)**.
- Presenting videos that show recent technologies.
- PPT is incorporated as an item in Course Plan in all subjects wherever relevant
- The **Google Classroom** is an innovative tool that is very effectively used in our campus for every course. Faculty members add all students to it before the commencement of every semester for every course. They also upload course plans, course materials, video lectures, question banks etc. It helps the students to come prepared to the class. The tools in the Google class room facilitate online assessment of students, which can be used to measure the outcomes of each course.

## 4. Guest Lectures

Guest lectures are organized by industry, academic experts & by alumni which provide industry exposure, entrepreneurship skills and exposure for higher studies to the students beyond the

class room learning and curriculum. The details are provided in Sec.2.1.2

### **5. Students Participation in Workshops /symposia**

Students are encouraged to participate in workshops and technical symposia organized by IES and various engineering colleges including IITs and NITs etc. This adds to the knowledge and enhances their knowledge, aptitude and communication skills. The details are provided in Sec.2.1.2.

6. **Special Classes:** - Communication skill classes are organized for the students, news paper distribution, and online test is conducted for placement preparation.

7. **Expert classes:** - T&P classes are organized, Experts lectures from industry and academia are invited to deliver lectures on the latest trends and thrust areas to improve the employability of students.

8. **Collaborative Learning:** - Through collaborative learning students are exposed to learn various topics and hands-on experience under different laboratories related to program curriculum

### **Impact analysis of Initiatives and Implementation of Improving Quality of Teaching and Learning**

The following are the positive outcomes observed after adopting the innovative TLP:

- Improved attendance of students for every class.
- Active participation of students in OBE (Outcome Based Education) activities.
- New view points and new project ideas are derived in class.
- Better bonding between students and faculty.
- Appreciation from the parents.
- A better outcome in terms of projects.

### **C. Implementation of Mentor teaching-learning system: Methodology to support slow learner students and encourage bright students**

Department adopts Mentor Teaching Learning system to support slow learner and bright students equally. Mentoring is to support and encourage students to manage their own learning so that they may maximize their potential, develop their skills, improve their performance and become the person they want to be. Mentoring is a powerful personal development and empowerment tool. It is an effective way of helping students to progress in their careers and is becoming increasingly popular as its potential is realized. Faculty members are assigned with the responsibility of mentorship. Each mentor is allotted with 20-30 students. In first year, students on the basis of their percentage are grouped into two categories: students below 50% marks in 12<sup>th</sup> board are classified as slow learner students and students above 50% as brighter students. From second year onwards the students who secure less than 5-CGPA in their Continuous Assessment or with more than 3 backlogs are identified and considered as academically weak students. Others are considered as academically bright students. Weak students are given counselling for their career guidance. Bright students are encouraged to take up new challenges time to time. The parents are also informed about the progress report like result, attendance and performance of the students. The students needing improvement are groomed not only for improving academic performance, but also given opportunity to showcase their skills through events, competitions etc and this helps to improve academic performance also.

#### **1. Assistance for slow learner students:**

- Mentors from time to time follow their progress and counsel them to attend the classes
- Subject handling Faculty members conduct remedial classes.
- Faculty members inculcate theoretical concepts through model specimen/charts/video lectures/ online lectures.
- Confidence is boosted by motivating them to participate in sports, NCC, NSS and other activities.
- Slow learners are supported in difficult areas of learning; like encouraging students to sharpen their listening, writing skills and improving communication skills.

#### **2. Encouraging bright students**

- Students securing First and Second rank in end semester examination are awarded with certificate of merit.



## [SELF ASSESSMENT REPORT]

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- Student securing 100% attendances are also awarded by certificate.
- Students are motivated for attending workshops, seminars and technical contests.
- Students are encouraged to undergo Industrial Internships.

### **Impact analysis of Initiatives and Implementation of Mentor Teaching-Learning system**

- Based on the extra care/ initiatives taken for weak students their academic performance improves.
- Based on the action taken, not only the academic performance is improved but they are also selected by the recruiters.
- Students participated in various activities and performed outstandingly in various national level technical and nontechnical contests.
- Improvement is seen in the assessment of weaker students.

### **D. Initiatives and Implementation of improving quality of class room teaching:**

Teaching-Learning process is a crucial part of outcome-based education and implements/employs as the set of activities engaging with students to enable them to acquire the knowledge, skills and attitudes.

The basic and primary activities adopted at IES College of technology for the Teaching-Learning basis consists of:

1. Providing Infrastructure, E-boards, projectors, well equipped labs/Procurement of Quality Equipment
2. Faculty Recruitment
3. Academic calendar/Adherence to Academic calendar
  - Subjects allotment
  - Time Table
  - Course File
  - Quality lecture notes
  - Lesson Plan
  - Instruction Delivery
4. Continuous Evaluation
5. Review of Syllabus Coverage
6. End Semester Exams, class tests, unit tests, presentations, quiz etc.
7. Results Analysis
8. Assessment of CO-PO Attainment /Action for unattained COs/POs/PSOs
9. Faculty Annual Appraisal

## [SELF ASSESSMENT REPORT]

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The institution develops and deploys action plans for effective Outcomes-Based Education (OBE) implementation in the following manner:-

### **1. Providing Infrastructure /Procurement of Equipments**

The resources needed for Teaching-Learning process are met by a suitable Budget.

The equipments are procured by the Department. Similarly, the infrastructure requirements of the Department are also proposed by the Department and provided/ approved by the IQAC.

### **2. Faculty Recruitment**

Effective Teaching-Learning process requires qualified and competent faculty members.

Eligible and qualified candidates are selected through the proper selection process.

### **3. Academic calendar/Adherence to Academic calendar**

The institutional calendar is prepared and aligned with the academic calendar of RGPV as described in detail in section A of 2.2.1

### **4. Continuous Evaluation**

This consists of Mid Semester exams and Assignments/quiz for theory courses and viva voce, Observation and Record evaluation and internal lab exam for Laboratory courses.

### **5. Review of Syllabus Coverage**

HOD reviews the coverage of the syllabus on a regular basis in faculty meetings. Class Review meetings with regular students of the class along with class faculty is organized before each Mid Semester Examination.

### **6. End Semester Exams**

These are conducted as per the Academic calendar.

### **7. Results Analysis**

Analysis of Results is done by concerned faculty.

### **8. Assessment of CO-PO Attainment/Action for unattained COs/POs/PSOs**

The procedure for assessment of CO-PO attainment has been evolved over a period of time in the Department. CO and PO attainment is done by the concerned subject faculty.

An action plan for unattained POs/PSOs is drafted.

### **9. Faculty Annual Appraisal**

Faculty members submit an appraisal of their performance annually, in a prescribed format, which is further reviewed by HOD and Principal for appraisal/ corrective action.

## [SELF ASSESSMENT REPORT]

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### **E. Initiatives and Implementation of improving quality of Laboratory Experiments**

- Faculty members of respective subjects prepare lab manual before the commencement of semester.
- The practicals are conducted as per university scheme.
- Every batch consists of around 30 students. Each batch is further split into smaller batches of 4 to 5 students per team.
- Lab manuals are given to students before start of the experiment.
- Students perform the experiments under the guidance of the staff, so that doubts if any related to the experiments can be clarified in the lab itself.
- Viva voce is conducted at the end of every experiment to check the students' understanding level
- The student writes complete experiment along with observation results and these are checked by faculty.
- Virtual labs are also included in few labs for performing experiments.
- The college organizes intra and inters college contests (Tech Fest), to encourage students to demonstrate their Practical and programming skills.

### **Continuous Assessment in the Laboratory**

- Observation notebooks are maintained by the students in which they record the values related to their experiments.
- The calculation is done based on the observation made which is checked and verified by the concern faculty.
- Viva questions are asked to check the understanding level of the students
- Marks are awarded based on the level of understanding of each experiment.
- Student records the experiment in the record note book and submit it to the concerned faculty.
- Rubrics are used for continuous assessment of students in each lab class.

## [SELF ASSESSMENT REPORT]

### Lab Performance Evaluation Rubric

Student Name: -----

Enrollment Number: -----

-----

Evaluation Date: -----

S. N	Method of Evaluation	Rubrics	Exceeds expectation(3)	Meets expectation(2)	Doesn't meet expectation (0-1)	Marks
1	Conduction of Experiments (Hardware)	Lab Participation	Student demonstrates an accurate understanding of the lab objectives and concepts. The student can correctly answer questions and if appropriate, can explain concepts to fellow classmates. Student is eager to participate and assists when needed.	Student arrives on time to lab, but may be unprepared. Answers to questions are basic and superficial suggesting that concepts are not fully grasped.	Student tardiness or unpreparedness makes it impossible to fully participate. If able to participate, The student has difficulty explaining key lab concepts. OR Student was absent from lab	
2		Equipment operation	The student has made correct equipment/component operation as per standard diagrams.	Student needed guidance to make correct equipment/component diagrams.	Student was unable to make correct equipment/Component diagrams as per standards	
3		Data Recording/Collection	Student has correctly measured the relevant parameters	Student has performed incorrect measurement of relevant parameters	Student was unable to identify /measure relevant parameters	
4		Results	Accurate results have been achieved	The achieved results are not accurate but are within tolerance range	No results are achieved OR The achieved results are meaningless	
5		Troubleshooting	Student has ability to detect and correct the	Student can detect the error but	Student was unable to	

## [SELF ASSESSMENT REPORT]

			errors	unable to correct it	detect the error	
6	Conduction of Experiments (Hardware)	Lab Report	Student demonstrates an accurate understanding of the lab objectives and concepts. Questions are answered completely and correctly. Graphs are neat, creative and include complete titles and accurate units. Errors, if any are minimal	Student has a basic knowledge of content, but may lack some understanding of some concepts. Questions are answered fairly well and/or graphs could have been done more neatly, accurately or with more complete information.	Student has problems with both the graphs and the answers. Student appears to have not fully grasped the lab content and the graph(s) possess multiple errors. OR Student turns in lab report late or the report is so incomplete	
7	Ethics	Safety	Student carefully observes the safety rules and procedures during practical work	Student observes safety rules and procedures with minor deviation during practical work	Student does not care about safety rules during practical work.	
8		Punctuality	Student was on time and stay till the completion of task	Student was on time but wasted time outside the work place during the experiment.	Student was not on time and left class before time.	
9		Workplace Clearance	The student uses the equipment responsibly and clears the leftovers at the work place on completion of lab work	The student has shown responsibility towards using the equipment while he didn't care about the cleanliness of workplace.	The student has shown irresponsibility using the equipment and didn't clear the leftovers at the workplace on completion of lab work	
10	Team Work	Research & gather information	Student has collected a great deal of information which goes beyond the	The student has collected basic information	Student has not collected any	

## [SELF ASSESSMENT REPORT]

			basics.	related the topic.	information that relates to the topic	
<u>11</u>		Fulfil team role's duties	Student has performed the duties assigned and actively assisted others.	Student has shown limited performance in the duties that are assigned.	Student has not performed any duties of assigned team role.	
<u>12</u>		Listen to other teammates	Consistently listens and responds to other appropriately	Usually doing most of the talking rarely allowed others to speak.	Student shows an assertive behaviour and was unable to show respect towards other teammates.	
<u>13</u>	Conduction of Experiments (Software)	Familiarity with software	Student has full command on the basic tools of the software.	Student has limited command on the basic tools of the software.	Student has no idea how to use the basic tools of the software.	
<u>14</u>		Simulation Steps	Has applied all the steps in correct sequence to obtain the results.	Some steps are followed but not in proper sequence.	Student has no idea regarding the steps to be followed to perform simulation	
<u>15</u>		Coding Skills	The code is completely functional and responds correctly producing the correct outputs.	The Code is correct with regard to syntax but required output is not correct.	The code has several syntax errors. Important parts of code are missing.	
<u>16</u>	Conduction of Experiments (Software)	Schematic of the process	Schematic of flow diagram	Schematic of flow diagram is made with proper boundary conditions	Found some error in boundary conditions	

### **Impact analysis for the Initiatives and Implementation of Improving Quality of Laboratory Experiments**

- The completion of the experiments by the students is ensured.
- Improvement in the analytical abilities of students thus improves their skills.
- The students are encouraged to result better in university practical examination.
- Improvement in analytical abilities of students which helps in their placements.
- Simulating environment make students to learn other programming languages.
- Stimulate the problem solving approach to real time engineering problems.

### **F. Student feedback of teaching-learning process and action taken**

Feedback is taken from students on the effectiveness of teaching and subject learning twice during the semester. Feedback is taken from representative students which have attended more than 90 % of each class by HOD / senior faculty member after 15 to 20 days of commencement of classes. If students are facing difficulty in any subject, the concerned faculty member is informed of the same. Necessary guidance and support is given by HOD and another senior subject faculty member. This consists of asking the faculty member to give a mock class in presence of HOD and another senior subject faculty, giving guidelines for improvement, reviewing the lecture notes and offering necessary support in the subject. At the end of the semester, the feedback is again taken from students in that subject for necessary action. In extreme cases, where the faculty member is unable to improve up to the minimum desired standard, the action is taken accordingly. The feedback is summarized and communicated to all faculty members. This feedback is considered part of the Annual Performance Appraisal of the faculty member.

### **G. Initiatives and Implementation of learning through Co-curricular and extra-curricular activities**

Various technical and non-tech. events are organized under community development through intra and inter-college tech fests like poster presentation, models, tech Rangoli fests, essay writing, presentation, quiz, robotics, web design LAN gaming etc as per the table given below. Apart from indoor and outdoor sports activities, College fest etc. are conducted during the academic year. Students participate in various activities and achieve distinctions as under.

## [SELF ASSESSMENT REPORT]

**Table: 2.3.1 Co-curricular activities**

### 1. E learning

S. N.	Roll No.	Participant	Year	Participants Details	Relevance with POs and PSOs
1	0177ME161117	Utkarsh Shrivastava	2019-2020	NPTEL Certification Course (Inspection and Quality Control in Manufacturing)	PO1,PO2,PO6, PO8,PO10,PO12, PSO1, PSO 2, PSO3

**Table: 2.3.2 Students participation of national/state/district/city level competitions**

Sn.	NCC Activity	Details	Date	Person	ME
1	Army Attachment Camp, Gwalior	Attachment of NCC Cadets with regular Army Unit	4/9/17 to 20/9/2017	Gwalior military Station	1
2	NCC 'B' Certificate Examination 2017-18	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR, Bhopal	20/02/ 2018 to 21/02/ 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2
3	NCC 'C' Certificate Examination 2017-18	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	27/02/2018 to 28/02/2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	4
4	International yoga day	10 Cadets of IES College Participated in Yoga Day program of Chief minister at Lal Parade ground	6/6/2018	Akhilesh Dwivedi (NCC Caretaker), R S Dhumketi (PI Staff)	2
5	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	10/06/2018 to 19/06/2018	under 2 MP Air Squadron	0
6	Enrollment of NCC 2018 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	14/08/2018	Akhilesh Dwivedi (NCC Caretaker), Sub S D Pandey, JCO, Sub R P Chavan	5



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				NCO	
7	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15/9/2018 to 02/10/ 2018	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	7
8	NCC 'B' Certificate Examination 2018-19	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	23/02/ 2019 to 24/02/ 2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2
9	NCC 'C' Certificate Examination 2018-19	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	19/02/2019 to 20/02/2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2
10	Enrollment of NCC 2019 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	12/8/2019	Akshay Varkale (NCC Incharge) & PI Staff	3
11	No Plastic Awareness Campaign	Under Unnat Bharat Abhiyaan the NCC & NSS Volunteers team of IES College of Technology organized No Plastic Awareness Campaign at adopted village Berkhedhi Vzyaft	16/09/2019	Akhilesh Dwivedi (NCC Caretaker), Prof. R C Maheshwari	4
12	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14/01/2020 to 23/01/ 2020	2 MP AIR SQN NCC Bhopal	1
13	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15/09/2019 to 30/09/2019	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	5

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14	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14/03/2019 to 23/06/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & IMPCTR Bhopal (Col. N P Semalti, Commanding Officer )	1
15	Firing Practice	Firing by .22 Rifle at firing range Sukhi Sevaniya Bhopal	13/12/2019 to 14/12/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & NCC Unit - IMPCTR Bhopal (Col. N P Semalti, Commanding Officer )	4
16	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	20/12/2019 to 29/12/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & IMPCTR Bhopal (Col. N P Semalti, Commanding Officer )	3
17	Army Attachment Camp	Attachment of NCC Cadets with regular Army (68 Engineers regiments, Bairagarh)	14/01/2020 to 29/01 2020	68 Engineers Regiment Bhopal	1
18	NCC 'B' Certificate Examination 2019-20	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	18/02/2020 to 19/02/ 2020	Under Supervision of Col. N P semalti (Commanding Officer) 1 MP CTR	4
19	NCC 'C' Certificate Examination 2019-20	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	25/02/2020 to 26 /02/ 2020	Under Supervision of Col. N P Semalti (Commanding Officer) 1 MP CTR	2

## [SELF ASSESSMENT REPORT]

20	Enrollment of NCC 2020 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit IMP-CTR Bhopal (To maintain the enrolled strength 50)	13/08/2020	Akhilesh Dwivedi (Associate NCC Officer) & IMPCTR Bhopal (Col. N P Semalti, Commanding Officer )	4
21	Online Inauguration Ceremony of National Constitution Day	Organized by Ministry of Defence & Youth and sports ministry at Directorate NCC (MP&CG) Chief Guest : Rajnath Singh (Defence Minister) & Guest of Honour : Kiran Rijju (Youth & Sports Minister)	18/11/2020	Akhilesh Dwivedi (Associate NCC Officer) & ADG NCC Directorate Bhopal (MP&CG)	1
22	Online Webinar on National Constitution Day	Online Webinar on National Constitution Day, Expert; Justice Alok Verma (Judge High Court	26/11/2020	Akhilesh Dwivedi (Associate NCC Officer) & Senior Faculty Member of IES College of Technology	5

### **Impact analysis of Initiatives and Implementation of learning through Co-curricular and Extra-curricular activities**

- Students learn to work in team
- Professional and ethical learning
- Learn to apply their knowledge for Societal and environmental cause
- Helps in boosting confidence, improving communication, widening ones scope of knowledge
- Develop certain hobbies or skills, learning manners.
- Self-discipline, build confidence, leadership

#### **2.2.2 Quality of internal semester Question papers, Assignments and Evaluation (20)**

##### **A. Process for internal semester question paper setting and evaluation and effective process implementation**

The assessments are designed in a relevant manner in order to ensure that the learner achieves the intended learning outcomes. Thus, the evaluation of assessment tasks with regards to both content and form is necessary. Our Institution has well-defined guidelines for question paper setting and preparing key points for answers with mark distribution. While setting question papers the

## [SELF ASSESSMENT REPORT]

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following guidelines are kept in mind and strictly adhered to enhance quality.

The department conducts two internal assessment tests in one semester before appearing in the final exam for each course. This procedure enhances the confidence level for the students to prepare for the end term exam and also provides a better understanding in the respective course.

- The department conducts two mid semester tests in one semester for a maximum of 20 marks each.
- Mid semester 1 covers 40% coverage of COs and remaining 60% coverage of COs is covered in mid semester 2.
- Duration of the test is two hours and question papers are set in such manner that it makes the students to learn time management.
- The question papers are prepared based on course outcomes. Each question is mapped with the corresponding course outcome.
- While setting the question paper previous university exam papers are taken into consideration.
- The HOD/ Exam coordinator review the Mid semester exam question paper for validation with respect to COs and Bloom's taxonomy of learning objectives before submission in the exam section.
- If any question paper is not satisfying, then it is not accepted and resent to the faculty for improving the quality of questions level.
- Marks are recorded in the exam cell after valuation and are finally considered for calculation of internal marks.
- The valued answer scripts are shared with the students.
- Students affix their signature on the answer script after scrutiny.
- Average of the two assessments marks is chosen in mid semester examination (MSE) at the time of awarding internal marks.

Evaluation Process of Question paper setting

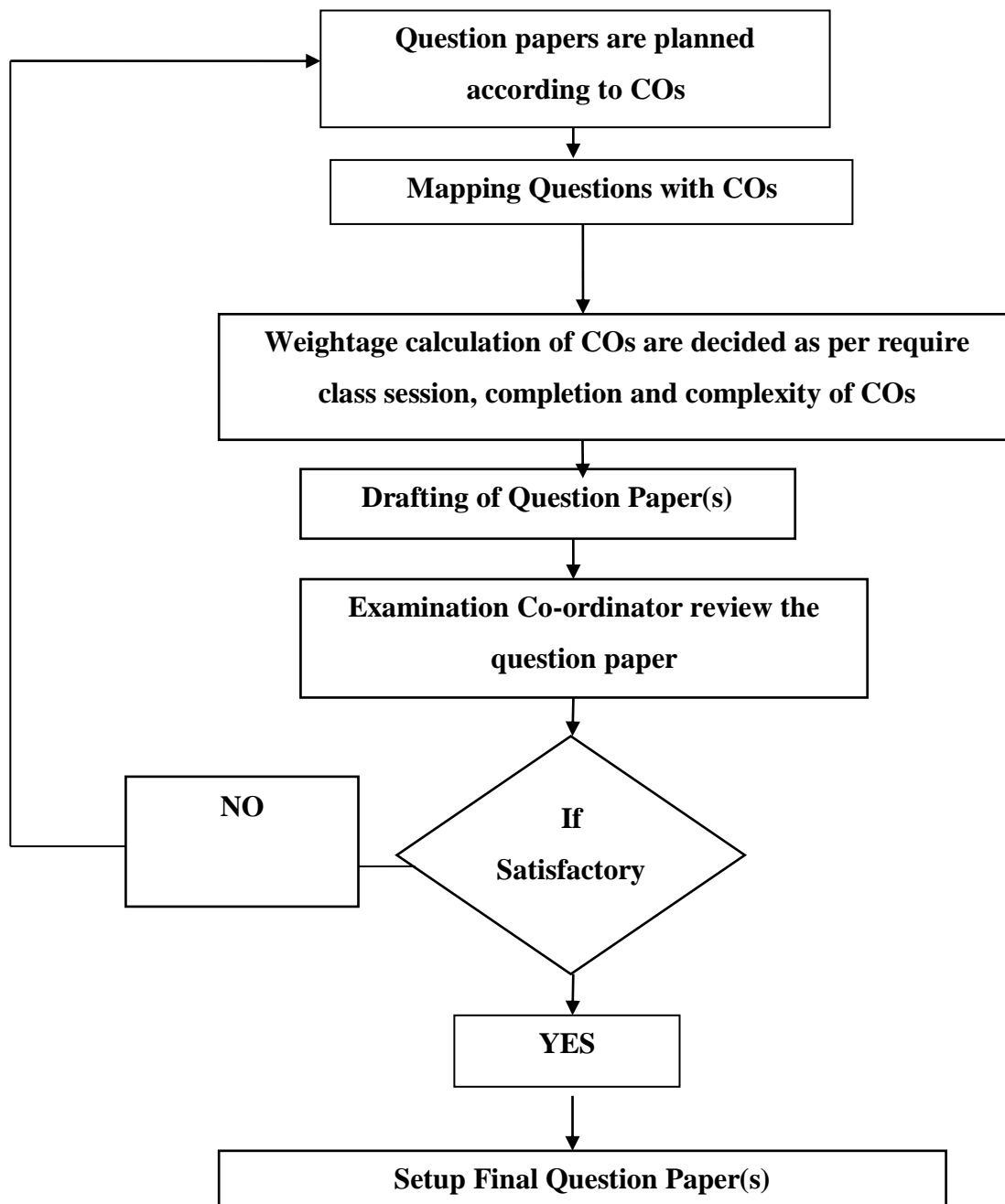


Figure 2.3 Evaluation Process


**B. Process to ensure questions from outcomes/ learning levels perspective**

- Direct attainment of COs is determined from the performances of students in 30% of Internal Evaluation (IE) and 70% of Semester End Examination (SEE)
- 30% of Internal Evaluation (IE) is calculated from 67% of Mid Semester Examination and 33% of Assignment/theory quizzes.

## [SELF ASSESSMENT REPORT]

- For assessment of Mid Semester Examination marks, two Mid Semester are conducted and final marks is consider as an average of two mid marks. Mid semester 1 covers 40% coverage of COs and remaining 60% coverage of COs is covered in mid semester 2.
- First Mid Semester Examination includes four to six questions with respect to COs.
- Second Mid Semester Examination includes four to six questions with respect COs.
- The examination section reviews the Mid semester exam question paper on the above basis and the report is submitted to HOD for further action.
- If any question paper is not satisfying, then it is not accepted and resent to the faculty for improving the quality of questions level.

### C. Evidence of COs coverage in class test/mid-term tests

	<b>Total No. of Questions: 06</b> <b>Enrollment No. _____</b> <b>IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)</b>		
<b>MID SEMESTER EXAMINATION- I</b> <b>Session</b>			
<b>Branch :</b>	<b>Mechanical Engineering</b>		
<b>Semester:</b>	<b>IV<sup>TH</sup></b>	<b>Max. Marks: 40</b>	
<b>Subject :</b>	<b>Fluid Mechanics</b>	<b>Sub Code: ME-4002</b>	<b>Time: 2Hrs</b>

#### Course Outcome:

**C4002.1 Define various fluid properties and characteristics of fluid like density, viscosity, weight density etc.**

**C4002.2: Apply the various mathematical approaches to visualize the fluid kinematics.**

**C4002.3: Determine various dynamics constants for fluid in motion.**

**C4002.4: Compare the flow of various natures like laminar, turbulent, viscous flow through the pipe with their gradient as friction and Reynolds number.**


**C4002.5: Develop boundary layer parameter for laminar and turbulent flow by applying Von Karman momentum equation.**

Question No.	Question	Marks	CO Mapping
	<b>UNIT I (Attempt any two)</b>		
1(A)	<b>Define with mathematical expression: 7 i) Uniform and Non-</b>	10	<b>C4002.1</b>

**[SELF ASSESSMENT REPORT]**

	<b>uniform flow ii) Steady and unsteady flow iii) One, two and three dimensional flow.</b>		
1(B)	<b>A rectangular plane surface is 2m wide and 3m deep. It lies in vertical plane in water. Determine the total pressure and position of centre of pressure on the plane surface when its upper edge is horizontal and i) Coincides with water surface ii) 2.5m below the free water surface.</b>	10	<b>C4002.1</b>
1(C)	<b>An inverted differential manometer containing an oil of sp. gr. 0.9 is connected to the difference of pressure at two points of a pipe containing water. If the manometer reading is 40cm, find difference of pressure.</b>	10	<b>C4002.1</b>
	<b>UNIT II (Attempt any two)</b>		
2(A)	<b>Derive Euler's equation for flow along stream line and deduce the Bernoulli's Equation for the same.</b>	10	<b>C4002.2</b>
2(B)	<b>The velocity components in a two dimensional flow field for an incompressible fluid are as follows: <math>u = \frac{y^3}{3} + 2x - x^2y</math> and <math>v = xy^2 - 2y - \frac{x^3}{3}</math> obtain an expression for stream function <math>\psi</math>.</b>	10	<b>C4002.2</b>
2(C)	<b>How the notches and weir are classified.</b>	10	<b>C4000.2</b>

## [SELF ASSESSMENT REPORT]

	<b>Total No. of Questions: 09</b>	<b>Enrollment No. _____</b>	
<b>IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)</b>			
<b>MID SEMESTER EXAMINATION- II</b> <b>Session</b>			
<b>Branch :</b>	<b>Mechanical Engineering</b>		
<b>Semester:</b>	<b>IV<sup>TH</sup></b>		<b>Max. Marks: 60</b>
<b>Subject :</b>	<b>Fluid Mechanics</b>	<b>Sub Code: ME-4002</b>	<b>Time: 2Hrs</b>

**Course Outcome:**

**C4002.1 Define various fluid properties and characteristics of fluid like density, viscosity, weight density etc.**

**C4002.2: Apply the various mathematical approaches to visualize the fluid kinematics.**

**C4002.3: Determine various dynamics constants for fluid in motion.**

**C4002.4: Compare the flow of various natures like laminar, turbulent, viscous flow through the pipe with their gradient as friction and Reynolds number.**

**C4002.5: Develop boundary layer parameter for laminar and turbulent flow by applying Von Karman momentum equation.**

Question No.	Question	Marks	CO Mapping
	<b>UNIT III (Solve any 2)</b>		
1(A)	<b>The inlet and throat diameters of horizontal venturimeter are 30cm and 10cm respectively. The liquid flowing through the meter is water. The pressure intensity at inlet is 13.734 kN/m<sup>2</sup> while vacuum pressure head at the throat is 37cm of mercury. Find the rate of flow. Assume that 4% of the differential heads is lost between the inlet and outlet. Find also value of Cd for venturimeter.</b>	10	<b>C4002.3</b>
1(B)	<b>A liquid with specific gravity 0.9 flows at the rate of 5 l/s through a venture meter of diameters 7 cm and 5 cm. If the manometer fluid is mercury, determine the value of manometer reading, h.</b>	10	<b>C4002.3</b>



## [SELF ASSESSMENT REPORT]

1(C)	<b>Explain how velocity of fluid flow is measured with the help of a Pitot tube?</b>	10	<b>C4002.3</b>
	<b>UNIT IV (Solve any 2)</b>		
2(A)	<b>(a) Define and explain the terms: (i) Hydraulic gradient and (ii) Total energy line.</b>	10	<b>C4002.4</b>
2(B)	<b>Explain Stoke's law for laminar flow</b>	10	<b>C4002.4</b>
2(C)	<b>A pipe 1 m diameter and 15 km long transmits water of velocity of 1 m/sec. The friction coefficient of pipe is 0.005. Calculate the head loss due to friction?</b>	10	<b>C4002.4</b>
	<b>UNIT V (Solve any 2)</b>		
3(A)	<b>Define the following terms and write relevant equations for the same: i) Stagnation temperature ii) Stagnation pressure</b>	10	<b>C4002.5</b>
3(B)	<b>Derive the Von Kaman momentum integral equation.</b>	10	<b>C4002.5</b>
3(C)	<b>Explain the laminar boundary layer and Turbulent boundary layer.</b>	10	<b>C4002.5</b>

## [SELF ASSESSMENT REPORT]



IES COLLEGE OF TECHNOLOGY, BHOPAL  
DEPARTMENT OF MECHANICAL ENGINEERING

Branch/Semester	ME/IV	Session	2019-2020
Name of Faculty			
Subject	Fluid Mechanics	Sub Code	ME-4002
Date of Submission			

### ASSIGNMENT-II

Course Outcome:

**C4002.1 Define various fluid properties and characteristics of fluid like density, viscosity, weight density etc.**

**C4002.2: Apply the various mathematical approaches to visualize the fluid kinematics.**

**C4002.3: Determine various dynamics constants for fluid in motion.**

**C4002.4: Compare the flow of various natures like laminar, turbulent, viscous flow through the pipe with their gradient as friction and Reynolds number.**

**C4002.5: Develop boundary layer parameter for laminar and turbulent flow by applying Von Karman momentum equation.**

S.No	Question	Marks	CO Attained
1	Define density, specific volume, weight density and specific gravity of fluid	10	C4002.1
2	2 liter petrol weighs 14N. Calculate the specific weight, mass density, specific volume and specific gravity of petrol with respect to water.	10	C4002.1
3	An inverted differential manometer containing an oil of sp. gr. 0.9 is connected to the difference of pressure at two points of a pipe containing water. If the manometer reading is 40cm, find difference of pressure.	10	C4002.1
4	Determine the resistance offered to the downward sliding of a shaft of 400mm diameter and 0.1m length by the oil film between the shaft and a bearing of ID 402mm. The kinematic viscosity is $2.4 \times 10^{-4} \text{m}^2/\text{s}$ and density is $900 \text{kg}/\text{m}^3$ . The shaft	10	C4002.1

## [SELF ASSESSMENT REPORT]

	is to move centrally and axially at a constant velocity of 0.1m/s.		
5	What is a manometer? How are they classified?	10	C4002.1

### D. Quality of Assignments and its relevance to COs

- For assessment of assignment three to five assignments are given and each assignment includes three to five questions with respect to concern COs.
- The questions framed in the assignments are taken from multiple sources (previous question papers, text books, etc).
- Mapping is done for all questions of the assignment with the CO's of the course.
- The assignments are evaluated within two weeks after submission and the valued assignments are returned to the students for their scrutiny and improvement.
- Assignment issue and submission dates are mentioned in academic calendar and announced by respective faculty members.
- Assignment questions are prepared as per COs, Bloom's Taxonomy process and previous years' university question papers.
- Sample copies of checked assignments are analyzed by the HOD.

#### Evaluation of assignments:

The assignments are assigned to the students to cover the important concepts in a particular subject. Assignments are vital in the process of learning and continuous evaluation of a student. It is the mode of active learning in opposition to passive receiving of knowledge. Strategies include brief question and answer or in depth reading of advanced topic or a topic in syllabus. Writing assignment, seminars and PPT presentation enhance the teaching learning process. Subject in charge finalizes the modes of assignment and the time frame for the assignments.

The Formative assessments and Summative assessments are used to evaluate the student's performance to achieve the targets. The Rubrics are designed to judge performance indicators and shared with the faculty of department. This helps faculty to understand against which parameter they should be judged for their own assessment. These rubrics can be used by students in revising, and judging their own work and progress.

- Assignments are used as a tool for practice.
- Assignments are given to the students before the start of any unit and submission date is fix mostly after the completion of unit.
- Assignments are displayed on notice boards or given through Google class rooms.

## [SELF ASSESSMENT REPORT]

- Students who submit assignment on time will usually see higher grades than students who miss the deadline.
- Doing assignments is a compulsory academic activity.
- Assignments are checked within two weeks after submission by students.
- Marks are recorded in the exam cell after valuation and are finally considered for calculation of internal marks.
- Evaluation of assignments are done as under

**Table 2.7 Evaluation of Assignments and Allocation of Marks  
Evaluation Components (Grading System)\***

S. No	COMPONENT	MARKS	
<b>I</b>	<b>INTERNAL ASSESSMENTS</b>		
<b>1</b>	<b>Mid Semester Tests</b>	<b>20</b>	<b>30</b>
<b>2</b>	<b>Quiz/ Assignment</b>	<b>10</b>	
<b>II</b>	<b>END SEMESTER EXAMINATION</b>		<b>70</b>
<b>TOTAL</b>			<b>100</b>

**Evaluation Components (CBCS)\***

S. No	COMPONENT	MARKS	
<b>I</b>	<b>INTERNAL ASSESSMENTS</b>		
<b>1</b>	<b>Mid Semester Test</b>	<b>30</b>	<b>40</b>
<b>2</b>	<b>Quiz/ Assignment</b>	<b>10</b>	
<b>II</b>	<b>END SEMESTER EXAMINATION</b>		<b>60</b>
<b>TOTAL</b>			<b>100</b>

## [SELF ASSESSMENT REPORT]

### Evaluation Components (CBGS)\*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		30
1	Mid Semester Test	20	
2	Quiz/ Assignment	10	
II	END SEMESTER EXAMINATION		70
TOTAL			100

### Impact analysis of initiative of improving the quality of internal semester Question papers, Assignments and Evaluation

- Results are observed in end- semester examination and in overall performance of students according to the POs, COs and PSO.
- Stimulating environment make students to plan their study for better performance.
- At the end of every semester the feedback form from the students give feedback for the course taught this feedback given by students help the department to judge effectiveness of course taught in achieving POs.
- The Formative assessments and Summative assessments help the students to overcome his/her difficulties and achieved the outcome of course and program.

#### 2.2.3 Quality of student projects (25)

##### A. Identification of projects and allocation methodology to faculty members

At the end of seventh semester and at the beginning of eighth semester HOD / project coordinator addresses the students about how to choose the project domain. The students are also encouraged to do projects in industries and are guided to choose projects that are creative, innovative and offering solution to real world problems. Projects are selected based on various considerations like application, product and research. Factors such as environment, safety, ethics and cost are also taken into account for choosing the topic.

Each Project to be carried out by a group of students of the department is selected by matching with department Vision & Mission, POs and PSOs and mandated to make project based on University based curriculum. Faculty member can supervise at most 3 projects in an academic year. However, as a special case HODs can permit a faculty member to supervise more than 3 projects.

## [SELF ASSESSMENT REPORT]

The group size preferably made is 3 to 5 students. Formation of student group is done in such a way so that they can get the knowledge related to their field and fulfil industry scenario. After formation of group any left out student is randomly attached to any group. Students are provided with brief idea of various fields for selecting project ideas. The list of previous year projects is displayed at notice board which ensures no repetition of project work and also encourages students to improve the previous works. The faculties encourage the students to carry out projects and support is provided with all necessary software, hardware & finance. The faculties encourage students to participate in project exhibitions. The aim of such activities is to provide common platform to exhibit their innovations and work towards excellence in latest technology.

### B. Course Outcomes for Student Projects

The quality of student projects is ensured and assured through the achievement of the well articulated Course outcomes, as given in Table 2.2.3.1. All student project works consider the factors such as environment, safety, ethics, cost and standards. This is ensured through proper instruction by the Project guides as well as through Project reviews, where focus is on attainment of COs.

**Table: 2.8 Course Outcomes for student Projects**

CO No.	Course Outcomes for student Projects	Relevance to POs/PSOs	
		POs	PSOs
C8005.1	Find the total work to be done in the project.	PO2, PO9, P11	PSO1
C8005.2	Explain the whole engineering knowledge of the branch in the project.	PO1, PO3,	PSO1, PSO2
C8005.3	Developed project must be socio-economic.	PO5, PO6, PO7	PSO3
C8005.4	Analyze the feasibility of the task taken under project.	PO2, PO4, PO9	PSO3
C8005.5	Asses the every steps of the project starting from abstract, introduction, literature survey, methodology, observation (if any) , calculations, results, suggestions and recommendations, references etc to be followed.	PO4, PO9, PO12	PSO3

### C. Process for monitoring and evaluation

## [SELF ASSESSMENT REPORT]

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Guide will give ideas and suggestions for conceptualization and development of projects. Based on the given ideas, students will start their project work. To ensure proper conduction of each project, progress of each project is monitored regularly on a continuous basis by the supervisor and also by HOD. The process is carried out as per following steps:

### **Step1: Interaction with supervisor**

1. Students select area of work based on their area of interest.
2. The maximum limit of the group size can vary from 3 to 5.
3. Students are allowed to select faculty members based on their specialization.
4. Mapping process is carried out between student team and faculty members' specialization.

### **Step2: Project identification**

1. The Projects may be selected to the area based on industrial visits and training.
2. The new ideas of work can be identified by expert lectures, seminars, industrial visits; workshops were conducted by the faculty members association and professional societies.
3. On each area of project students perform the literature review.
4. Finally, project methodology is confirmed based on literature review.

### **Step3: Monitoring mechanism:**

1. The students have to show their report to the concerned supervisor periodically.
2. After conducting primary review and further more reviews are conducted.
3. A brief viva voce examination on project work is conducted before the end semester examination.
4. The students should give a power point presentation during the review.
5. Review panel consists of supervisor and faculty experts.
6. A project team will submit the project report in the prescribed format.
7. Students prepared the power point slides and report based on the guidelines.
8. An end semester project viva voce is conducted with the panel of internal and external examiners.
9. The external examiner from other institution / university is appointed by the RGPV.

### **Step4: Demonstration of prototypes:**

1. The students will demonstrate the working prototype models during the project review and end semester examination.
2. Enhancing relevance of the project: Outcomes of the projects are encouraged to publish as a paper in conference / journals.

## **D. Evaluation of Project and Process to assess individual and team performance**

## [SELF ASSESSMENT REPORT]

Assessment of individual or team performance is based on

1. Innovative ideas
  2. Literature Survey
  3. Knowledge about the working model
  4. Application of tools and software
  5. File report
  6. Group activity
  7. Question & answers
  8. Presentation skill and Teamwork
  9. Oral Presentation & working condition of the model
  10. Fabrication & Testing
  11. Society Application
- A project coordinator appointed by the Head of the department who is responsible for planning, scheduling and execution of all the activities related to the student project work.
  - Project progress is assessed after each project class by respective guide.
  - The project seminar should be given by all the project team members according to the division of project.
  - Each student in the project team is assessed to their skill set to deliver the seminar, explain the concept and way to make project assess team to understand their work.
  - Each individual and team performance is purely based on this project seminar presentation and the viva voce and progress work they show to their guide.

### Project Work Evaluation Rubrics

Student Name: .....

Enrollment Number: .....

.....

Evaluation Date: .....

Evaluation Parameters	Max. Marks	Rubric Parameters	Level of Achievement				
			Excellent (9-10)	Very Good (7-8)	Good (5-6)	Average (3-4)	Poor (1-2)
Attendance	10	Continuity	85% above Attendance	70-85% Attendance	60-70% Attendance	40-60% Attendance	40% Below Attendance
Design Methodology	20	Conceptual design,	Properly followed &	Properly Followed &	Properly followed &	Partially Followed	Not followed



## [SELF ASSESSMENT REPORT]

		Division of problem into modules, Selection of design Framework	Properly Justified	Justified Partially	Not Justified	and Partially justified	and Not justified
<b>Implementation</b>	<b>20</b>	Design Circuit Model, Algorithm, Coding	Properly Followed & Properly implemented	Properly Followed & Implemented Partially	Properly followed & Not implemented	Partially Followed and Partially Implemented	Not followed and Not implemented
<b>Presentation</b>	<b>10</b>	Preparation of Slides, Presentation Consistency	Relevant and consistent	Relevant & partially consistent	Partially relevant & consistent	Partially relevant & partially consistent	Not relevant & inconsistent
<b>Demonstration</b>	<b>10</b>	Hardware & Software modules, Working and results	Properly demonstrated & Properly Justified Results	Properly Demonstrated & Partially Justified Results	Partially demonstrated & Justified	Partially demonstrated and Partially Justified	Not demonstrated and no justification
<b>Viva</b>	<b>10</b>	Handling Questions	Answered all questions with proper justification	Answered 80% questions	Answered 60% questions	Answered 40% Question	Answered 20% questions
<b>Project Report</b>	<b>20</b>	Contain of Reports	Excellent	Very Good	Good	Average	Poor

## [SELF ASSESSMENT REPORT]

**Table: 2.9 2020-21 (Major Project)**

**Best and average project**

<b>IES College of Technology, Bhopal(0177)</b>				
<b>Department of Mechanical Engineering</b>				
<b>ME 8th SEM Major Project (ME-8005)</b>				
<b>BATCH:2016-2020</b>				
<b>S.N</b>	<b>Enrollment no.</b>	<b>Student Name</b>	<b>Project Name</b>	<b>Project Guide</b>
1	0177ME161041	Kanhaiya Kumar Sah	Battery Charger With Sterling Engine	Mr.Ravindra Mohan
	0177ME161043	Krishna Kumar		
	0177 EC161049	Mahafuj Ansari		
	0177ME161004	Aditya Kumar Puri		
	0177ME161005	Aditya Sharma		
2	0177ME161001	Aakash Gupta	Design And Fabrication Of Automated Drain/Gutter Cleaner Machine	Mr. Deepen Banoriya
	0177ME161013	Anshu Kumar		
	0177ME161015	Arman Husain		
	0177ME161020	Azharuddin Khan		
3	0177ME161018	Azahrudin Khan	Footstep Power Generator	Mr. Ramesh Bokde
	0177ME161032	Hariom Kumar Singh		
	0177ME161046	Manish Kumar		
	0177ME161049	Md Aftab Alam		
	0177ME161010	Aman Kumar Singh		
4	0177ME161053	Md Fardeen	“360 Degree Flexible Rotating Light Drill Machine	Mr. Padmakar Pachorkar
	0177ME161054	Md Jahangir		
	0177ME161058	Md Mohib Ansar		
	0177ME161064	Md Sazzad		
	0177ME161065	Md Shafique Equbal		
	0177ME161068	Mrityunjay Kumar		
5	0177ME161029	Durgesh Singh	Hybrid Energy Generator	Mr. Chhatar Singh Mewada
	0177ME161033	Harsh Raj		
	0177ME161038	Jawed Akhtar		
	0177ME161040	Kamlesh Kumar Parit		
	0177ME161044	Krishna Kumar		
	0177ME161045	M Laxman Rao		

## [SELF ASSESSMENT REPORT]

**Table: 2.10 2019-20 (Major Project)**

**Best and average project**

IES College of Technology, Bhopal(0177)				
Department of Mechanical Engineering				
ME 8th SEM Major Project (ME-8005)				
<b>BATCH:2015-2019</b>				
S.N	Enrollment no.	Student Name	Project Name	Project Guide
1	0177ME151112	Subodh Thakur	Motorized Jack	Gurjeet Singh
	0177ME151113	Sumit Shrivastava		
	0177ME151103	Sanu Kumar Thakur		
	0177ME151091	Ramesh Kumar		
2	0177ME151117	Anish Kumar Giri	Sensor control braking system	Neeraj Agarwal
	0177ME151033	Chandan Kumar		
	0177ME151036	Dayanand Kumar		
	0177ME163D03	Shahrukh Mansuri		
	0177ME151051	Kundan Kumar		
3	0177ME151058	Kumar Sanu Ojha	Pneumatic punching machine	Deepen Banoriya
	0177ME151023	Ashok Kumar Mehra		
	0177ME151011	Aakash Kumar		
	0177ME151027	Ashwini Prasad		
4	0177ME151121	Wasim Ahmed Ravi	Conveyor Belt	Yogendra Thakur
	0177ME151100	Shankar Singh		
	0177ME151118	Vikash Kumar		
	0177ME151114	Suraj Kumar		
5	0177ME151056	Mayank Dongere	Automatic operated hydraulic bridge	Ramesh Bokde
	0177ME151003	Abhijeet Kumar		
	0177ME151067	Randhir Kumar		

## [SELF ASSESSMENT REPORT]

**Table: 2.11 2018-19 (Major Project)**

**Best and average project**

IES College of Technology, Bhopal(0177)				
Department of Mechanical Engineering				
ME 8th Sem Major Project (ME-805)				
SYNOPSIS PRESENTATION				BATCH:2014-2018
S.N	Enrollment no.	Student Name	Project Name	Project Guide
1	0177ME141066	Nikesh Kumar	To design ,manufacture & fabricate a single sitter go-cart	Ravindra Mohan
	0177ME141044	Krishna Kumar Singh		
	0177ME141061	Md.Hussain		
	0177ME141088	Ravish Ranjan		
	0177ME141105	Sahail Tanveer		
	0177ME141113	Susheel Kumar		
2	0177ME141009	Amir Azam	Shaking machine	Naresh Dashore
	0177ME141035	Imran Ansari		
	0177ME141037	Indrajeet Singh		
	0177ME141051	Md.Quasim Ali		
3	0177ME141012	Anand Kumar Singh	Solar Tree	Yogendra Thakur
	0177ME141017	Anurag Mishra		
	0177ME141028	Chetan Chavan		
	0177ME141082	Rajesh Kumar		
	0177ME141063	Mukul Sheode		
4	0177ME141018	Arman Ali	Electricity	Gurjeet Singh

## [SELF ASSESSMENT REPORT]

	0177ME141049	Md Asif Khan Suri	generation by busy traffic	
	0177ME141050	Arfan Ali		
	0177ME141055	Md.Shabbir Ansari		
5	0177ME141048	Md Akil	Automatic tyre inflation	Neeraj Agarwal
	0177ME141032	Gyasuddin Alam		
	0177ME141078	Rahmatullah Ansari		
	0177ME141089	Reyaz Ansari		

## [SELF ASSESSMENT REPORT]

**Table: 2.12 2017-18 (Major Project)**

**Best and average project**

<b>IES College of Technology, Bhopal(0177)</b>				
<b>Department of Mechanical Engineering</b>				
<b>ME 8th Sem Major Project (ME-805)</b>				
<b>SYNOPSIS PRESENTATION</b>				<b>BATCH:2013-2017</b>
<b>S.N</b>	<b>Enrollment no.</b>	<b>Student Name</b>	<b>Project Name</b>	<b>Project Guide</b>
1	0177ME131065	Md.Imroz Ahmad	Electricity regenerative power by brake	Neeraj Aggarwal
	0177ME131041	Jai Shankar Singh		
	0177ME131019	Aslam Ansari		
	0177ME131064	Md. Imran		
	0177ME131062	Md.Shamsuddin		
2	0177ME131004	Adarsh Kumar Sharma	Power generation by shock absorber	Ravindra Mohan
	0177ME131011	Ankit Gupta		
	0177ME131023	Chandrakant Dubey		
3	0177ME131099	Satyaprakash Yadav	Automatic cycle stand retrieval system	Naresh Dashore
	0177ME131044	Jaydeep Dogney		
	0177ME131022	Chandan Kumar Singh		
4	0177ME131050	Manish Kumar Upadhyay	Hydraulic JCB	Satya Narayan Yadav
	0177ME131047	Krishna Kamal Gupta		
	0177ME131081	Prince Kumar		
	0177ME131031	Dilip Kumar		
5	0177ME131106	Sheikh Anzar Hussain	Pedal operated hacksaw machine	Yogendra Thakur
	0177ME131072	Neelesh Patel		

## [SELF ASSESSMENT REPORT]

	0177ME131059	Md Meraj Ansari		
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### **Impact analysis**

- The project work of the student will develop discipline and interdisciplinary skill of the students
- New innovative ideas floated by students form the basis of their projects and improved understanding.
- Knowledge on various aspects of project management and finance were developed.
- Improved individual and teamwork skills.
- Enhance skill of Implementation and application of the project for Environment and Society benefits.
- Improvement in document preparation and presentation skills.
- Design and development of the project also improved lifelong learning and ethics.

### **2.2.4 Initiatives related to industry interaction (15)**

Industry institute interaction is effected through

- A. MOUs with industries
- B. Industrial visits by students
- C. Guest lectures by industry experts
- D. Workshops
- E. Representation of industry experts in IQAC
- F. Representation of industry experts in Department Academic Advisory committee (DAAC)
- G. Student Project works with involvement of industry

#### **A. MOUs with industries**

To build up interaction with industries and to keep our students updated with the latest trends in their field, our Institute has signed a number of MOUs with different industries and organizations which are detailed as under:

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**Table: 2.13 Tie-Up / MOU's**

S No	Year	Company Name	PO
1	2020	B-Nest Smart City Bhopal	PO1, PO2, PO5, PO12
		AIC RNTU, Bhopal	PO1, PO3, PO5, PO12
2	2019	Central Institute of Plastic Engineering & Technology	PO2, PO3, PO5, PO6, PO 11
3		Centre for Research and Industrial Staff Performance (CRISP)	PO1, PO3, PO5, PO11
4		VASPL Initiatives P.ltd	PO2, PO3, PO5, PO6, PO11
5	2016	CII-Education Excellence Forum	PO1, PO3, PO5, PO11
6	2015	CII_YI	PO1, PO2, PO5, PO12

### B. Industrial visits

Industrial visits are conducted which enable students to integrate theory and practical knowledge. Industrial visit has its own importance in a career of a student who is pursuing a professional degree. It is considered as a part of college curriculum. Industrial visits provide students an insight regarding internal working of companies. We know theoretical knowledge is not enough for making a good professional career. With an aim to go beyond academics, industrial visit provides student a practical perspective on the world of work. It provides students with an opportunity to learn practically through interaction, working methods and employment practices.

**Table: 2.14 Industrial visits**

S.No	Industry & place	Date	Outcome	PO
1	I.C.A.R.- Central Institute of Agricultural Engineering (CIAE Bhopal)	23 /08/2018	Students of mechanical engineering visited to CIAE where they come across various agriculture equipment and knew their working through the instructor of organization.	PO1,PO2,PO3,PO5,PO11
2	MSME Technology Centre Bhopal	20/01/2020	Students of mechanical engineering visited to MSME Centre where students had gone through various CNC and Conventional machines.	PO1,PO3,PO5,PO11



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			Also the engineer of centre explains the working of the machines and use of CAD/CAM Software.	
3	CIPET	29/08/2019	Students of mechanical engineering visited to CIPET industry, where they saw various injection molding process used for plastic material and saw the infrastructure of the industries.	PO2,PO3,PO5,PO6,PO11
4	Liquid Nitrogen Plant	October 2019	Students of mechanical engineering visited to the plant where the Liquid Nitrogen is generated which has got minus 188 degree temperature and is 99.99% pure. Students saw various machineries like compressor refrigeration unit & chilling unit.	PO1,PO3,PO5,PO11
5	Industry Engineering Expo Govindpura ,Bhopal	9/03/ 2019	Students of mechanical engineering visited to Engineering Expo where many industries organized trade fair and brought their latest developed machine. Students saw them and tried to understand machines and their working.	PO2,PO3,PO5,PO6,PO11
6.	CRISP INDUSTRY ,Bhopal	12 /01/2021	Students of mechanical engineering visited to CRIPS Industry to understand the importance of CNC , codes (G-code and M Code) used in CNC machines for programming and Develop Programming skills so that students can create a component for required drawing, Simulate the prepared part programme using available simulation software's and prepare the	PO1,PO2,PO5,PO12

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			parts on CNC.	
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**Fig. 2.4 3<sup>rd</sup> Sem Mechanical Engineering Students visit to I.C.A.R on 23<sup>rd</sup> August 2018 (2017-2021)**



**Fig.2.5 3<sup>rd</sup> Sem Mechanical Engineering Students visit to CIPET on 29 Aug 2019 (2018-2022)**

### C. Guest lectures

The Guest lectures are organised with eminent persons from industries and reputed Institutions. They are invited for updating student's knowledge for latest developments in industry and also in their respective fields. Guest lectures are organized by industry experts who provide industry exposure to the students beyond the class room learning and curriculum.

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**Table: 2.15 Expert lectures organized by the Department:**

S. No.	Resource Person	Topics	Date	Relevance to POs
1	Dr. G.S.JariAal Senior Advisor MPCON	MSME(Entrepreneurs hip Program)	11 /01/2018 to 13 /01/ 2018	PO1, PO2, PO3, PO4,
2	Capt. Partha Samai	TNP Session	03/02/ 2018 to 04/02/2018	PO1, PO2, PO3, PO4, PO5, P12, PO8,PO9
3	Dr. Savitha Rani- MSRIT,Bangalore	TNP Session	7 /02/ 2018	PO1, PO2, PO3, PO5, PO6,PO7,PO8
4	MR.SUDHIP GOYENKA, AIG of cyber Crime	CYBER offence/crime	9/02/ 2019	PO1, PO2,PO3, PO5, PO8,
5.	Prof. Thillai Ranjan, IIT Madras	On Start-ups	16/02/2019	PO2, PO3, PO5, PO6,PO7,PO8
6.	Rajeev Agrawal	On Start Up	19/03/2020	PO2,PO3, PO5, PO8
7.	Dr. Praveen K Singh	“Homogeneous Charge Compression Ignition (HCCI) Combustion Engines”	27/03/ 2021	PO1, PO2, PO3, PO5, PO7
8.	Prof. Neeraj Agarwal	“Expert Lecture on "CNC Machines"”	03/04/2021	PO1, PO2, PO3, PO5

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**Fig.2.6** MR.SUDHIP GOYENKA, AIG of cyber Crime (9<sup>th</sup> Feb 2019), Bhopal, addressing the audience in expert lecture cyber Crime@ IES College of Technology Bhopal for all semester Assot. Prof. Dr Amit Udawat (A I T R Indore) addressing the audience in expert lecture @ IES College of Technology Bhopal

### D. Workshops:

Several workshops are conducted to improvise students in different aspects such as

- Workshops on Entrepreneurship development skills.
- Workshops on MPCON under the Sponsorship of NSTEBD.
- Workshop on Emotional Intelligence.

**Table: 2.16 Workshops**

S,N o	Title	Date	Resource person	POs mapped
1	MPCON Under the Sponsorship of NSTEBD	27/09/2018 to 29/09/2018	Dr. G.S. Jarial Advisor MPCON & Director	PO1,PO2,PO3 ,PO5
2	Workshop on “ Emotional	17/04/2018 to	Shri Vinay Partale, Member, AICTE New Delhi	PO7, PO11, PO12

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Intelligence”	18/04/2018		
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**Fig. 2.7 IES Students Participated in National Student Startup & Innovation Summit 2019 at LNCT Bhopal**



**Fig. 2.8 IES Students Participated in HR Enclave 4.0 at IES College of Technology Bhopal**

### **Impact analysis of Initiatives related to industry interaction**

- New innovative ideas from students form the basis of some projects.
- Students gained from this exposure to incorporate an entrepreneurial spirit and project based thinking.
- Skills or abilities of students improved.
- Knowledge on various aspects of project management was developed.
- Confidence level of the students was boosted.
- Improved teamwork spirit.
- Implementation and deployment of the project for social benefits.
- Document preparation and presentation.
- Opportunities to showcase their project work in project exhibition.

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- Students picked up what they learnt at the workshops to implement their own mini project and also final year projects.

### 2.2.5 Initiatives related to industry internship/summer training (15)

#### A. Industry supported Laboratories

Institute has tie-ups/ MOUs with different industries as mentioned in section 2.2.4 for training/visits/ workshops etc. The Mechanical engineering department has supported laboratories with IIT Bombay.

#### B. Industrial training / summer training

Provided to the students after 4th and 6th Semester helps the student's in gaining knowledge. It also allows them to gain practical knowledge, to work on real world problem and develops confidence in them. The students are encouraged to take up internship programs during their semester break. Faculty members give them guidance, suggestions scope and contact details for an internship. Department helps the students by interacting with the industry experts, provides recommendation letters and other necessary supports. The alumni coordinator constantly interacts with those alumni who are working in the industries and request them to provide necessary guidelines and supports to their junior. The internship is the one of the process to develop domain specified and domain independent skill of program outcomes. The internship is play major role to overcome the gap between curriculum and industry needs.

This will enable the students

- To gain hands-on experience in implementing whatever they have learnt in their curriculum.
- To train themselves on the state of the art equipments and standards used by the industries.
- To present themselves as complete professionals when they go for placements.

**Table: 2.17 Curriculum based Industrial Training (Academic Year 2020-2021)**

S.No.	Name of Student	Industry Name	Relevance to POs
1	Abdul Wahid	SOFCON India Pvt.Ltd	PO1, PO2, PO3,PO5, PO9, PO12.
2	Parvej Musharrau	Automotive Skills Development Council	PO1, PO2, PO3,PO5, PO9, PO12.
3	Neshar Khan	Creative Professional Drawing Institute Bhopal	PO1, PO2, PO3,PO5, PO9, PO12.

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4	Gaurav Singh	Sinchai Karyshala, Khand Gorakhpur	PO1, PO2, PO3,PO5, PO9, PO 11.
5	Saddam Ali	Pantech Prolabs India Pvt Ltd	PO1, PO2, PO3,PO5, PO9, PO12.
6	Saddam Ali	Creative Professional Drawing Institute, Bhopal	PO1, PO2, PO3,PO5, PO9, PO12.
7	Binay Kumar Mahto	Interdisciplinary Data Analytics & Predictive Technology (Idapt) At IIT (Bhu)	PO1, PO2, PO3,PO5, PO9, PO12.
8	Nihal Kumar Srivastav	Tonar Systems	PO1, PO2, PO3,PO5, PO9, PO12.
9	Sohail Rizwani	SOFCON India Pvt.Ltd	PO1, PO2, PO3,PO5, PO9.
10	Wasim Akram	SOFCON India Pvt.Ltd	PO1, PO2, PO3,PO5, PO9.
11	Manjeet Kumar Dubey	TCS ion digital learning hub	PO1, PO2, PO3,PO5, PO9, PO12

**Table: 2.18 Curriculum based Industrial Training (Academic Year 2019-2020)**

S.No.	Name of Student	Industry Name	
1	Shubham Kumar	TAFE Motors and Tractors Limited	PO1, PO2, PO3,PO5, PO9, PO12

**Table: 2.19 Curriculum based Industrial Training (Academic Year 2018-2019)**

S.No.	Students' Name	Industry Name	Relevance to Pos
1	Masoom Sohail	N.T.P.C.	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
2	Irshad Ahmad	Euro Bearings India Pvt.Ltd.Faridabad,Haryana	PO2, PO3, PO5, PO12,PSO1,PSO2
3	Ajit Kumar	B.H.E.L., Bhopal	PO1, PO2, PO3,
4	Partosh Kumar Kamat	Paramobile Automotive Technical	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
5	Md.Ashif Anjum	Sanghi Bros.Pvt.Ltd.Bhopal	PO2, PO3,PO5, PO8,PO12
6	Anis Kumar	B.H.E.L., Bhopal	PO2, PO3, PO8,PO12
7	Abrar Alom	Harinagar Sugar Mills Ltd.	PO2, PO3, PO4, PO5
8	MD. Akhtar Raj	TATA Steel Tube Division	PO2,

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		Jamshedpur	PO3, PO5, PO8, PO12,PSO1,PSO2
9	Washim Ahmad	TATA Motors	PO2, PO3, PO5, PO12,PSO1,PSO2
10	Anupam Kumar	National Institute Of Technology, Durgapur	PO1, PO2, PO3,
11	Bishal Shah	Sanghi Bros.Pvt.Ltd.Bhopal	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
12	MD.Rizwan Beg	Mechanical Workshop N.E. Railway,Gorakhpur	PO2, PO3, PO8,PO12
13	MD. Imran	Rail Wheel Plant Bela Saran (Bihar)	PO2, PO3,PO5, PO8,PO12
14	Pankaj Kumar	B.H.E.L., Bhopal	PO2, PO3, PO4, PO5
15	Shiv Jee Kumar	Indian Oil Corporation Ltd.	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
16	Vikas Kumar Singh	B.H.E.L., Bhopal	PO2, PO3, PO5, PO12,PSO1,PSO2
17	Prabhat Kumar Chaudhary	B.H.E.L., Bhopal	PO1, PO2, PO3,
18	Ajay Kumar Gupta	Maruti Suzuki	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
19	MD.Sharique Arman	Euro Bearning India Pvt.Ltd.Faridabad,Haryana	PO2, PO3,PO5, PO8,PO12
20	Arman Ali	B.H.E.L., Bhopal	PO2, PO3, PO8,PO12
21	Abdullah Hussain	N.T.P.C.	PO2, PO3, PO4, PO5
22	Sumit Srivastava	C&W HBJ,W.C.R.	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
23	Sanu Kr.Thakur	C&W HBJ,W.C.R.	PO2, PO3, PO5, PO12,PSO1,PSO2
24	Subodh Thakur	C&W HBJ,W.C.R.	PO1, PO2, PO3,
25	Imran Ansari	Sanghi Bros.Pvt.Ltd.Bhopal	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
26	Krishna Kumar Sahu	Tata Automobile Engineering	PO2, PO3, PO8,PO12



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27	Abhishek Kumar Sharma	Prumatech Services Pvt.Ltd.Nungambakkam,Chennai	PO2, PO3, PO5, PO8,PO12
28	Abhinav Tiwari	Hyundai,Mathura Road,New Delhi	PO2, PO3, PO4, PO5
29	Shahnawaz Ansari	Mechanical Workshop N.E. Railway,Gorakhpur	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
30	Vimlesh Kumar	Paramobile Automotive Technical	PO2, PO3, PO5, PO12,PSO1,PSO2
31	Ajay Harkesh Singh	Prumatech Services Pvt.Ltd.Nungambakkam,Chennai	PO1, PO2, PO3,
32	MD. Osama Aslam	Dreeshti Airtech Solutions, New Delhi	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
33	Masoom Raza	Mechanical Workshop N.E. Railway,Gorakhpur	PO2, PO3,PO5, PO8,PO12
34	Ashutosh Kumar Thakur	Ultra Tech Cement Limited Khor,Neemuch	PO2, PO3, PO5, PO8,PO12
35	Ashwani Kumar Shukla	Usha Martin Ltd.	PO2, PO3, PO4, PO5
36	Chandra Kant Singh	Electrical Solar Vehicle	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
37	Manish Mandal	TATA Motors	PO2, PO3, PO5, PO12,PSO1,PSO2
38	Hari Kumar	Maruti Suzuki	PO1, PO2, PO3,
39	Devashish Asati	B.H.E.L., Bhopal	PO1, PO2,PO3 PO5 PO12,PSO2,PSO3
40	Pramod Kumar	Maruti Suzuki	PO2, PO3, PO5, PO8,PO12
41	Omprakash Vishwakarma	Grasim Industries Limited	PO2, PO3, PO5, PO8,PO12
42	Abid Hussain	NPTC & KBUNL FARIDABAD,U.P.	PO2, PO3, PO4, PO5
43	Himanshu Singh	B.H.E.L., Bhopal	PO2, PO3, PO5, PO8, PO12,PSO1
44	Aalok Kumar	B.H.E.L., Bhopal	PO2, PO3, PO5, PO12,PSO1,PSO2

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45	Mukesh Kumar Singh	B.H.E.L., Bhopal	PO1, PO2, PO3,
46	MD.Parwez Kalam	Hanuman Motors ,Piaggio Vehicles Pvt.Ltd.	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,
47	Pavan Kumar Gupta	Reliance Cement Company Pvt.Ltd.	PO2, PO3, PO5, PO8,PO12
48	Mayank Dongre	Satpura Thermal Power Station	PO2, PO3, PO5, PO8,PO12
49	Shailendra Kumar Yadav	B.H.E.L., Bhopal	PO2, PO3, PO4, PO5
50	Rashid Anwer	Carriage Repair Workshop (E.C.R.)Harnaut	PO2, PO3,PO8, PO12,PSO1,PSO2
51	Sushil Kumar	B.H.E.L., Bhopal	PO2, PO3, PO5, PO12,,PSO2
52	Mukesh Kumar	Tata Motors	PO1, PO2, PO3,
53	Shivsagar Yadav	Mechanical Workshop N.E. Railway,Gorakhpur	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
54	Vikas Yadav	Salvani Mould Industries	PO2, PO3, PO5, PO8,PO12
55	Ravibhushan Kumar	B.H.E.L., Bhopal	PO2, PO3, PO8,PO12
56	Chandra Kant Singh	Tata Motors	PO2, PO3, PO4 PO5
57	Anil Kumar Singh	Satpura Thermal Power Station	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
58	Abhijeet Kumar	N.T.P.C.	PO2, PO3, PO5, PO12,PSO1,PSO2
59	Kamaruddin Ansari	B.H.E.L., Bhopal	PO1, PO2, PO3,
60	Aliullah	B.H.E.L., Bhopal	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
61	Sandeep Kumar	TATA Motors	PO2, PO3, PO5, PO8,PO12
62	Anil Kumar	Era Infra Engineering Ltd.	PO2, PO3, PO8,PO12
63	Satendra Kumar	TATA Motors	PO2, PO3, PO4, PO5

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64	Pawan Kumar	M/S Sanghi Bros. (I) Pvt. Ltd., Tata Motors, Bhopal	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
65	Ravi Kumar Ray	TATA Motors	PO2, PO3, PO5, PO12,PSO1,PSO2
66	Chhotu Kumar	Hyundai,Mathura Road,New Delhi	PO1, PO2, PO3,
67	Dayanand Kumar	Siddharth Industrial Design And Development.	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
68	Masiullah Siddique	Sanghi Bros.Pvt.Ltd.Bhopal	PO2, PO3, PO5, PO8,PO12

**Table: 2.20 Curriculum based Industrial Training (Academic Year 2017-2018)**

S.No.	Students' Name	Industry Name	Relevance to Pos
1	Abhishek Kumar Snehi	N.T.P.C. Limited.Kahalgaon	PO2, PO3, PO5, PO8, PO12,PSO1
2	Reyaz Ansari	B.H.E.L., Bhopal	PO2, PO3, PO5, PO12,PSO1,PSO2
3	Keshav Mishra	Ashok Leyland, Mandideep, Bhopal	PO1, PO2, PO3,
4	Mithlesh	Ashok Leyland,Mandideep,Bhopal	PO1, PO2,PO3 PO5 PO8, PO12,PSO2
5	Abhishek Kumar	N.T.P.C.Limited.Kahalgaon	PO2, PO3, PO5, PO8,PO12
6	Mojahid Hussain	TATA Motors Bhopal	PO2, PO3, PO8,PO12
7	Sudhir Kumar Pandey	Central Repair Shop	PO2, PO3, PO4, PO5
8	Kanhaiya Kumar	Indian Oil Corporation Ltd.	PO2, PO3, PO4, PO5,
9	Krishna Kumar Singh	Bharat Wagon & Engineering Company Ltd.	PO2, PO3, PO8,PO12
10	Nayab Afsar	Weartech Engineer Pvt. Ltd.	PO2, PO3, PO4, PO5
11	Brijendra Kumar	H E G Limited Mandideep Bhopal	PO2, PO3, PO5, PO8,PO12
12	Md.Rizwan Alam	West Central Railway Bhopal	PO2,

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			PO3, PO4, PO5
13	Tarique Aziz	B.H.E.L., Bhopal	PO2, PO3, PO5, PO8,PO12
14	Nitesh Kumar	B.H.E.L., Bhopal	PO2, PO3, PO5, PO8,
15	Gyasuddin Alam	Maruti Suzuki	PO2, PO3, PO8,PO12
16	Amir Azam	Railway Coaching Dept. Habibganj, Bhopal	PO2, PO3, PO5, PO8, PO12,PSO1,PSO2
17	Sushil Kumar	N.T.P.C.Limited. Kahalgaon	PO2, PO3, PO5, PO12,PSO1,PSO2
18	Saurav Kumar	N.T.P.C.Limited. Kahalgaon	PO2, PO3, PO5, PO8,PO12
18	Rudrik Raina	Nirmal Overseas Limited	PO1, PO2, PO3,
19	Md Quasim Ali	Maruti Suzuki	PO1, PO2,PO3 PO8, PO12,PSO2,PSO3
20	Nitesh Kumar Singh	Bhartiya Rail Bijee Company Ltd., Nabinagar	PO2, PO3, PO5, PO8,PO12
21	Shashi Kumar Paswan	N.T.P.C.Limited.Kahalgaon	PO2, PO3, PO5, PO8,PO12
22	Rahmatullah Ansari	Railway Coaching Dept.Habibganj Bhopal	PO2, PO3, PO4, PO5
23	Vikash Kumar	B.H.E.L., Bhopal	PO2, PO3, PO4, PO5,
24	Abhijeet Kumar	West Central Railway Bhopal	PO2, PO3, PO5, PO8,PO12
25	Raj Kishore	West Central Railway Bhopal	PO2, PO3, PO4, PO5
26	Mohd. Ahrarul Haq	Maruti Suzuki	PO2, PO3, PO5, PO8,PO12
27	Aadil Raja Ansari	Institutions of Engineers Training, New Delhi	PO2, PO3, PO4,PO5

**Table: 2.21 Curriculum based Industrial Training (Academic Year 2016-2017)**

S.No.	Students' Name	Industry Name	Relevance to POs
1	Ravendra Singh	Madhya Pradesh Power	PO2,

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		Generating Company Ltd.	PO3, PO5, PO8,PO12
2	Rahul Singh Patel	Madhya Pradesh Power Generating Company Ltd.	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
3	Shubham Patle	Madhya Pradesh Power Generating Company Ltd.	PO2, PO3, PO5, PO8,PO12
4	Saket Kumar	East Central Railway Harnaut (Bihar)	PO2, PO3, PO5, PO8,PO12
5	Satya Prakash Yadav	Heidelberg Cement India Ltd..Jhansi (U.P.)	PO2, PO3, PO4, PO5
6	Satyam Kumar	CRISP	PO2, PO3, PO4, PO5,
7	Pavan Kumar	Indian Oil Corporation Ltd.	PO2, PO3, PO5, PO8,PO12
8	Mohammad Saif Khan	B.H.E.L, Bhopal	PO2, PO3, PO4, PO5
9	Prahlad Kumar	Maruti Suzuki Jeevan Motors Pvt.Ltd.	PO2, PO3, PO8,PO12
10	Mohammad Imran	Central Institute Of Plastics Engineering & Tech.	PO2, PO3, PO4, PO5
11	Md.Meraj Ansari	Tata Motors, Bhopal	PO2, PO3, PO5, PO8,PO12
12	Himanshu Raj	Maruti Suzuki India Limited	PO1, PO2,PO3 PO5 PO12,PSO2,PSO3
13	Aditya Deshmukh	B.H.E.L, Bhopal	PO2, PO3, PO5, PO8,PO12
14	Shafique Alam	Tata Motors Bhopal	PO2, PO3, PO8,PO10
15	Devendra Kumar Sharma	Orient Paper Mills	PO2, PO3, PO4, PO5
16	Jaishankar Singh Somvanshi	B.H.E.L, Bhopal	PO2, PO3, PO4, PO5,
17	Jaydeep Dogney	Rail Wheel Plant (Rwl),Bela	PO2, PO3, PO8,PO12
18	Prince Kumar	Maruti Suzuki India Limited	PO2, PO3, PO4, PO5
19	Adarsh Kumar	B.H.E.L, Bhopal	PO2, PO3, PO8,PO12

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20	Aamir Hussain	B.H.E.L, Bhopal	PO2, PO3, PO4, PO5
21	Amarkant Kumar	Excel Vehicles Pvt.Ltd.Bhopal	PO2, PO3, PO5, PO8,PO12
22	Pushkar Raj Thakur	Sanghi Brothers Pvt.Limited,Bhopal	PO2, PO3, PO8,PO12
23	Dilip Kumar	TATA Motors Bhopal	PO2, PO3, PO5, PO8,PO12
24	Manish Kumar Upadhyaye	Mechanical Workshope.C.Railway Harnaut(Bihar)	PO2, PO3, PO4, PO5
25	Ishaan Khan	TATA Motors Bhopal	PO2, PO3, PO4, PO5,
26	Durgesh Kumar	CRISP	PO2, PO3, PO8,PO12
27	Pappu Kumar	Ford Motor Company	PO2, PO3, PO4, PO5
28	Md.Imroz Ahamad	Central Institute Of Plastics Engineering & Tech.	PO2, PO3, PO8,PO12
29	Md. Shamsuddin	Jeevan Motors Pvt.Ltd.	PO2, PO3, PO4, PO5
30	Md.Wasim Ansari	TATA Motors Bhopal	PO2, PO3, PO5, PO8,PO12
31	Niraj Kumar	Railway Wheel Plant, Bela	PO1, PO2,PO3 PO5 PO8, PO12,PSO2,PSO3
32	Manish Kumar Singh	B.H.E.L, Bhopal	PO2, PO3, PO5, PO8,PO12
33	Manish Kumar Pandey	Rehabilitation Workshop Bhopal	PO2, PO3, PO8,PO12
34	Ankit Kumar	B.H.E.L, Bhopal	PO2, PO3, PO4, PO5
35	Manoj Kumar	B.H.E.L, Bhopal	PO2, PO3, PO4, PO5,
36	Ritesh Sinha	B.H.E.L, Bhopal	PO2, PO3, PO5, PO8,PO12
37	Akash Kumar	Rwp, Bela	PO2, PO3, PO4, PO5
38	Manjeet Kumar Nandan	TATA Motors Bhopal	PO2,

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			PO3, PO5, PO8,PO12
39	Aman Thantrahatay	Bhilai Steel Plant	PO2, PO3, PO4, PO5
40	Harishankar Singh	Mycem Cement	PO2, PO3, PO5, PO8,PO12
41	Ashish Raj	B.H.E.L, Bhopal	PO2, PO3, PO5, PO8,PO12
42	Chandan Kumar Singh	RWP, Bela	PO2, PO3, PO8,PO12
43	Krishna Kamal Gupta	RWP, Bela	PO2, PO3, PO4, PO5
44	Vikas Singh	SAIL, Bokaro	PO2, PO3, PO4, PO5,
45	Vikash Kumar	Bharat Wagon & Engineering Company Ltd.	PO2, PO3, PO5, PO8,PO12
46	Kamlesh Kumar	T V S Automobile	PO2, PO3,PO5, PO8,PO12

### **Impact Analysis of Initiatives related to industry internship/summer training**

- Students are exposed to real time practical experience of the concepts studied in the classrooms and realized the practical importance of the subjects.
- Industrial visit creates more interest in the subjects.
- Students are inspired to do hard work and get placed in such industries.
- Students were exposed to the industry standards and workplace culture.
- Students learn professional and ethical behaviour
- Students can correlate the theoretical knowledge and its practical implementation

### **D. Student feedback on initiative**

Students going for internships are instructed before going to prepare a detailed report on the training and submit it to the HOD after completion of the training also Department organises a presentation of all the students where each and every student gives a power point presentation on the internship. The students are asked to fill feedback forms also for the same.

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## [SELF ASSESSMENT REPORT]

<b>CRITERION 3</b>	<b>Course Outcomes and Program Outcomes</b>	<b>120</b>
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### 3.1. Establish the correlation between the courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs) (20)

#### A. Program Outcomes (POs)

##### Engineering Graduates will be able to:

- PO-1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO-2: Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO-3: Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- PO-4: Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO-5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- PO-6: The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO-7: Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO-8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO-9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO-10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to



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comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO-11: Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**PO-12: Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### **B. Program Specific Outcomes (PSOs):**

**PSO-1:** To enhance the students' knowledge base with theory and practice in Mechanical Engineering and prepare them to solve real-life mechanical engineering problems with innovative solutions.

**PSO-2:** To inculcate in-depth knowledge and training in Mechanical Engineering to ensure that the students acquire core competency to be ready for the industry, industry and research organizations.

**PSO-3:** To enrich an academic environment for the students to inculcate lifelong learning skills along with ethics for the benefit of society.

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**3.1.1. Course Outcomes (COs) (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses and made available as evidence, if asked) (05)**

<b>Subject &amp; Code</b>	<b>BE- 3<sup>rd</sup> Semester</b>
<b>ME-3002 Strength of Materials</b>	Students will be able to: C3002.1 Define the concepts of stress and strain. C3002.2 Plot the beam of different cross sections for shear force, bending moment, slope and deflection. C3002.3 Evaluate the various characteristics of torsion of shafts and its properties. C3002.4 State various theories of failure for material testing. C3002.5 Design the structural elements like column & struts.

<b>Subject &amp; Code</b>	<b>BE- 4<sup>th</sup> Semester</b>
<b>ME-4002 Fluid Mechanics</b>	Students will be able to: C4002.1 Define various fluid properties and characteristics of fluid like density, viscosity, weight density etc. C4002.2: Apply the various mathematical approaches to visualize the fluid kinematics. C4002.3: Determine various dynamics constants for fluid in motion. C4002.4: Compare the flow of various natures like laminar, turbulent, viscous flow through the pipe with their gradient as friction and Reynolds number. C4002.5: Develop boundary layer parameter for laminar and turbulent flow by applying Von Karman momentum equation.

<b>Subject &amp; Code</b>	<b>BE- 5<sup>th</sup> Semester</b>
<b>ME-5003 Design of Machine Elements</b>	Students will be able to: C5003.1: Outline basic morphology of machine design C5003.2: Design transmission shaft, key and coupling C5003.3: Design various belt, rope and chain drives C5003.4 Design brakes & clutches C5003.5: Design various gears based on a particular given condition

<b>Subject &amp; Code</b>	<b>BE- 6<sup>th</sup> Semester</b>
<b>ME-6003 Heat and Mass Transfer</b>	Student will be able to: C6003.1 Explain various laws of heat transfer and its modes. C6003.2 Apply concept of extended fins for heat transfer from straight and annular fins two solve the problem based on conduction convection and radiation. C6003.3 Apply free and forced convection mode of heat transfer. C6003.4 Apply the working principle of various types of heat exchangers. C6003.5 Outline the concept of boiling and condensation.

## [SELF ASSESSMENT REPORT]

Subject & Code	BE- 7th Semester
<b>ME-7001</b> <b>Mechanical Vibration</b>	Student will be able to: C7001.1 Determine the natural frequency of undamped free vibrations of single degree of freedom systems by formulating mathematical model of physical systems. C7001.2 Analyses the response of damped systems for different amount of damping and compute the natural frequency of damped free vibration of mechanical systems. C7001.3 Evaluate the natural frequencies and mode shapes of two degrees of freedom vibration systems and design vibration absorbers. C7001.4 Solve a problem related to whirling of shaft with rotor having some eccentricity. C7001.5 Determine the natural frequencies and mode shapes for multi-degree of freedom vibrating systems.

Subject & Code	BE- 8th Semester
<b>ME-8002</b> <b>Refrigeration and air conditioning</b>	Student will be able to: C8002.1 Illustrate the various refrigeration system to produced friezing effect such as air refrigeration cycles- Joule’s cycle Boot-strap cycle, reduced ambient cycle. C8002.2 Plot various vapour compression cycles, multi-pressure system etc. C8002.3 Classify various vapour absorption system & steam jet refrigeration C8002.4 Draw Psychometric chart to estimate the property of air C8002.5 Estimate year round air conditioning load for summer and winter

### 3.1.2. CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)

#### 3<sup>rd</sup> Semester

<b>ME-3002</b> <b>Strength of Materials</b>	Students will be able to: C3002.1 Define the concepts of stress and strain. C3002.2 Plot the beam of different cross sections for shear force, bending moment, slope and deflection. C3002.3 Evaluate the various characteristics of torsion of shafts and its properties. C3002.4 State various theories of failure for material testing. C3002.5 Design the structural elements like column & struts.
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POs  COs	PO-1: Engineering knowledge	PO-2: Problem analysis	PO-3: Design/development of solutions	PO-4: Conduct investigations of complex problems	PO-5: Modern tool usage	PO-6: The engineer and society	PO-7: Environment and sustainability	PO-8: Ethics	PO-9: Individual and team work	PO-10: Communication	PO-11: Project management and finance	PO-12: Life-long learning
C3002.1	3	3	2	1	-	2	-	2	-	1	-	-
C3002.2	3	3	2	-	-	-	-	-	2	-	-	2

## [SELF ASSESSMENT REPORT]

POs  COs	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning
	<b>PO-1:</b>	<b>PO-2:</b>	<b>PO-3:</b>	<b>PO-4:</b>	<b>PO-5:</b>	<b>PO-6:</b>	<b>PO-7:</b>	<b>PO-8:</b>	<b>PO-9:</b>	<b>PO-10:</b>	<b>PO-11:</b>	<b>PO-12:</b>
C3002.3	3	3	2	1	-	-	2	2	2	-	-	2
C3002.4	3	3	2	-	-	-	-	-	-	-	-	-
C3002.5	3	3	2	-	-	2	-	2	-	1	-	-
Avg.	3	3	2	1	-	2	2	2	2	1	-	2

Subject Name /Code	COs	PSO1	PSO2	PSO3
<b>ME-3002 Strength of Material</b>	C3002.1	3	-	-
	C3002.2	3	2	2
	C3002.3	3	2	-
	C3002.4	3	-	2
	C3002.5	3	-	-
<b>Avg.</b>		<b>3</b>	<b>2</b>	<b>2</b>

## [SELF ASSESSMENT REPORT]

4<sup>th</sup> Semester

<b>ME-4002</b> <b>Fluid Mechanics</b>	Students will be able to: C4002.1 Define various fluid properties and characteristics of fluid like density, viscosity, weight density etc. C4002.2: Apply the various mathematical approaches to visualize the fluid kinematics. C4002.3: Determine various dynamics constants for fluid in motion. C4002.4: Compare the flow of various natures like laminar, turbulent, viscous flow through the pipe with their gradient as friction and Reynolds number. C4002.5: Develop boundary layer parameter for laminar and turbulent flow by applying Von Karman momentum equation.
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POs  COs	PO-1: Engineering knowledge	PO-2: Problem analysis	PO-3: Design/development of solutions	PO-4: Conduct investigations of complex problems	PO-5: Modern tool usage	PO-6: The engineer and society	PO-7: Environment and sustainability	PO-8: Ethics	PO-9: Individual and team work	PO-10: Communication	PO-II: Project management and finance	PO-12: Life-long learning
C4002.1	3	3	-	-	-	-	-	-	-	1	-	-
C4002.2	3	3	-	-	-	-	-	-	-	1	-	-
C4002.3	3	3	1	-	-	-	-	-	-	1	-	-
C4002.4	3	3	-	-	-	-	-	-	-	1	-	-
C4002.5	3	3	1	-	-	-	-	-	-	1	-	-
Avg.	3	3	1	-	-	-	-	-	-	1	-	-

Subject Name /Code	COs	PSO1	PSO2	PSO3
ME-4002 Fluid Mechanics	C4002.1	2	-	-
	C4002.2	1	-	-
	C4002.3	1	-	-
	C4002.4	1	-	1
	C4002.5	1	1	-
Avg.		1.2	1	1

## [SELF ASSESSMENT REPORT]

5<sup>th</sup> Semester

<b>ME-5003</b> <b>Design of Machine</b> <b>Elements</b>	<b>Students will be able to:</b> C5003.1: Outline basic morphology of machine design C5003.2: Design transmission shaft, key and coupling C5003.3: Design various belt, rope and chain drives C5003.4 Design brakes & clutches C5003.5: Design various gears based on a particular given condition
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POs  COs	Engineering knowledge PO-1:	Problem analysis PO-2:	Design/development of solutions PO-3:	Conduct investigations of complex problems PO-4:	Modern tool usage PO-5:	The engineer and society PO-6:	Environment and sustainability PO-7:	Ethics PO-8:	Individual and team work PO-9:	Communication PO-10:	Project management and finance PO-11:	Life-long learning PO-12:
C5003.1	3	3	2	2	1	-	-	1	-	1	-	1
C5003.2	3	3	2	2	1	-	1	1	1	1	-	1
C5003.3	3	3	2	2	1	1	1	1	1	1	-	1
C5003.4	3	3	2	2	1	-	-	-	-	1	-	1
C5003.5	3	3	2	2	1	-	-	-	-	1	-	1
Avg.	3	3	2	2	1	1	1	1	1	1	-	1

Subject Name /Code	COs	PSO1	PSO2	PSO3
ME-5003 Design of Machine Elements	C5003.1	3	-	-
	C5003.2	3	2	-
	C5003.3	3	-	-
	C5003.4	3	2	1
	C5003.5	3	2	1
Avg.		3	2	1

## [SELF ASSESSMENT REPORT]

6<sup>th</sup> Semester

<b>ME-6003</b> <b>Heat and Mass</b> <b>Transfer</b>	Student will be able to C6003.1 Explain various laws of heat transfer and its modes. C6003.2 Apply concept of extended fins for heat transfer from straight and annular fins two solve the problem based on conduction convection and radiation. C6003.3 Apply free and force convection mode of heat transfer. C6003.4 Apply the working principle of various types of heat exchangers. C6003.5 Outline the concept of boiling and condensation.
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POs  COs	Engineering knowledge PO-1:	Problem analysis PO-2:	Design/development of solutions PO-3:	Conduct investigations of complex problems PO-4:	Modern tool usage PO-5:	The engineer and society PO-6:	Environment and sustainability PO-7:	Ethics PO-8:	Individual and team work PO-9:	Communication PO-10:	Project management and finance PO-11:	Life-long learning PO-12:
<b>C6003.1</b>	3	2	-	-	-	1	-	1	1	1	-	1
<b>C6003.2</b>	3	2	-	-	1	-	1	1	1	1	-	1
<b>C6003.3</b>	3	2	1	1	-	1	-	-	-	-	-	1
<b>C6003.4</b>	3	2	-	-	1	1	-	-	-	-	-	1
<b>C6003.5</b>	3	2	1	-	-	-	-	-	-	-	-	1
<b>Avg.</b>	3	2	1	1	1	1	1	1	1	1	-	1

Subject Name /Code	COs	PSO1	PSO2	PSO3
<b>ME-6003</b> <b>Heat and Mass Transfer</b>	<b>C6003.1</b>	3	1	1
	<b>C6003.2</b>	2	1	-
	<b>C6003.3</b>	3	1	-
	<b>C6003.4</b>	2	1	1
	<b>C6003.5</b>	3	1	-
<b>Avg.</b>		2.6	1	1

## [SELF ASSESSMENT REPORT]

7<sup>th</sup> Semester

<b>ME-7001</b> <b>Mechanical</b> <b>Vibration</b>	Students will be able to: C7001.1 Determine the natural frequency of undamped free vibrations of single degree of freedom systems by formulating mathematical model of physical systems. C7001.2 Analyses the response of damped systems for different amount of damping and compute the natural frequency of damped free vibration of mechanical systems. C7001.3 Evaluate the natural frequencies and mode shapes of two degrees of freedom vibration systems and design vibration absorbers. C7001.4 Solve a problem related to whirling of shaft with rotor having some eccentricity. C7001.5 Determine the natural frequencies and mode shapes for multi-degree of freedom vibrating systems.
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POs  COs	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning
	<b>PO-1:</b>	<b>PO-2:</b>	<b>PO-3:</b>	<b>PO-4:</b>	<b>PO-5:</b>	<b>PO-6:</b>	<b>PO-7:</b>	<b>PO-8:</b>	<b>PO-9:</b>	<b>PO-10:</b>	<b>PO-11:</b>	<b>PO-12:</b>
C7001.1	3	2	-	-	1	-	-	-	1	-	-	1
C7001.2	3	2	-	-	1	1	1	1	-	1	-	2
C7001.3	2	2	-	-	-	1	-	-	1	-	1	1
C7001.4	2	2	-	-	-	-	1	1	-	-	-	1
C7001.5	2	2	-	-	-	-	-	-	-	-	-	1
Avg.	2.4	2	-	-	1	1	1	1	1	1	1	1.2

Subject Name /Code	COs	PSO1	PSO2	PSO3
<b>ME-7001</b> <b>Mechanical Vibration</b>	<b>C7001.1</b>	2	1	1
	<b>C7001.2</b>	1	1	1
	<b>C7001.3</b>	1	1	-
	<b>C7001.4</b>	1	-	-
	<b>C7001.5</b>	2	-	-
<b>Avg.</b>		1.4	1	1



## [SELF ASSESSMENT REPORT]

8<sup>th</sup> Semester

<b>ME-8002</b> <b>Refrigeration and air conditioning</b>	Student will be able to C8002.1 Illustrate the various refrigeration system to produced friezing effect such as air refrigeration cycles- Joule’s cycle Boot-strap cycle, reduced ambient cycle. C8002.2 Plot various vapour compression cycles, multi-pressure system etc. C8002.3 Classify various vapour absorption system & steam jet refrigeration C8002.4 Draw Psychometric chart to estimate the property of air C8002.5 Estimate year round air conditioning load for summer and winter
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POs  COs	Engineering knowledge PO-1:	Problem analysis PO-2:	Design/development of solutions PO-3:	Conduct investigations of complex problems PO-4:	Modern tool usage PO-5:	The engineer and society PO-6:	Environment and sustainability PO-7:	Ethics PO-8:	Individual and team work PO-9:	Communication PO-10:	Project management and finance PO-11:	Life-long learning PO-12:
C8002.1	1	2	-	-	-	1	-	1	-	-	-	1
C8002.2	2	2	-	-	-	-	-	-	1	1	-	1
C8002.3	1	2	-	-	1	-	1	-	-	-	-	1
C8002.4	2	2	-	-	2	-	-	1	-	1	-	1
C8002.5		1	1	-	1	-	-	-	-	-	-	1
Avg.	1.5	1.8	1	-	1.333	1	1	1	1	1	-	1

Subject Name /Code	COs	PSO1	PSO2	PSO3
ME-8002 Refrigeration and air conditioning	C8002.1	2	1	-
	C8002.2	1	1	1
	C8002.3	1	1	1
	C8002.4	2	1	-
	C8002.5	1	2	1
Avg.		1.4	1.2	1

**1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)**

## [SELF ASSESSMENT REPORT]

### 3.1.3 Program level course-PO and PSO matrix of all courses including first year courses (10)

#### PO Matrix

IES COLLEGE OF TECHNOLOGY ,BHOPAL (0177)												
PROGRAM LEVEL PO MATRIX MECHANICAL ENGINEERING 2016-2020 BATCH												
PO												
COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
MA 110	1.2	1.8	3.0	1.0	-	1.0	1.0	-	-	-	1.0	1.0
EE 111	2.2	1.9	1.0	1.0	1.0	1.0	-	-	1.5	-	1.0	1.0
ME 112	2.0	1.4	1.0	1.0	1.0	1.0	-	-	1.5	-	1.0	1.0
HU 110	2.4	1.8	-	-	-	1.0	-	-	1.0	-	-	1.3
CY 110	2.4	2.1	1.0	1.0	1.0	1.0	-	-	1.5	-	1.0	1.0
ME 110	2.4	2.0	-	-	-	1.0	1.0	1.0	-	-	-	1.5
CS 110	1.8	1.8	1.0	-	1.3	1.0	1.0	-	1.5	1.0	-	1.0
HU 112	2.2	2.2	-	-	1.0	1.0	-	-	1.5	1.0	-	1.0
MA 111	1.6	2.4	-	-	-	-	-	-	-	-	-	1.0
EC 111	2.3	2.0	3.0	-	-	1.3	1.0	1.0	-	-	-	1.3
CE 110	2.2	2.2	-	-	-	1.7	1.0	-	-	-	-	1.3
ME 111	2.4	2.0	-	-	-	1.0	1.0	-	-	-	-	1.5
PH 110	1.4	1.0	-	-	1.0	-	-	-	1.1	-	-	1.1
ME 113	2.2	2.2	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
ML 110	2.0	1.0	3.0	-	1.0	1.3	1.3	-	1.3	-	-	1.0
HU 111	2.0	1.4	-	-	-	1.0	1.0	1.0	-	1.3	-	1.5
ES 3001	2.4	2.2	-	-	-	1.0	1.0	-	-	1.0	-	1.0
ME 3002	2.5	3.0	1.7	1.0	-	2.0	2.0	2.0	2.0	1.0	-	1.5
ME 3003	2.5	2.2	-	-	-	1.0	1.0	1.0	1.5	1.0	-	-
ME 3004	3.0	2.0	1.0	1.0	-	1.0	1.0	1.0	1.0	1.5	1.0	1.0
ME 3005	3.0	3.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-
ME 3006	3.0	2.0	1.0	-	2.4	2.0	2.0	2.0	2.0	2.0	-	1.6
ME 3007	2.6	2.8	1.0	-	-	1.0	1.0	1.3	1.8	1.5	-	1.0
ME 3008	1.0	3.0	-	-	1.0	-	-	-	1.0	-	-	1.0
BE 3001	3.0	2.0	-	-	-	2.0	2.0	2.0	2.0	2.0	-	2.0
ME 4002	3.0	2.5	1.0	3.0	-	-	-	-	-	1.0	-	-
ME 4003	2.5	2.5	2.0	1.0	1.0	1.0	1.0	1.0	1.4	1.0	-	1.0
ME 4004	3.0	2.0	1.0	1.0	-	1.0	1.5	1.0	1.0	1.8	-	1.0
ME 4005	3.0	2.0	1.4	1.0	-	2.0	2.0	2.0	2.0	2.0	-	-
ME 4006	3.0	2.0	1.0	-	2.4	2.0	2.0	2.0	2.0	2.0	-	1.6
ME 4007	3.0	2.4	2.0	-	1.8	-	-	-	2.0	2.0	2.0	2.0
ME 4008	1.0	2.0	-	-	-	2.0	1.3	2.4	1.0	1.0	-	1.8
ME 5001	3.0	2.0	-	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0

## [SELF ASSESSMENT REPORT]

ME 5002	2.0	2.4	1.2	1.0	1.0	1.0	1.0	1.0	1.2	1.4	-	1.1
ME 5003	3.0	3.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0
ME 5004	3.0	2.5	1.0	1.0	-	1.0	2.0	1.5	2.0	1.8	1.5	1.8
ME 5005	1.0	1.0	-	-	1.0	1.0	-	2.0	2.0	1.4	1.2	1.0
ME 5006	2.4	2.0	1.0	2.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ME 5007	2.4	2.0	1.0	2.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ME 5008	2.4	2.0	1.0	2.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ME 6001	1.8	1.4	-	-	-	1.0	1.0	1.0	1.0	1.0	1.3	1.0
ME 6002	2.7	2.4	-	-	-	2.0	2.0	2.0	2.0	1.7	-	1.0
ME 6003	2.6	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2
ME 6004	2.5	1.8	-	-	1.3	1.0	1.0	1.0	1.2	1.0	-	1.0
ME 6005	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	1.2
ME 6006	2.6	2.4	2.8	1.6	3.0	2.0	2.0	2.0	1.2	1.0	1.0	1.0
ME 6007	2.6	2.4	-	-	-	1.0	1.0	2.0	1.2	1.0	-	1.0
ME 6008	2.6	2.4	-	-	-	1.0	1.0	1.5	1.2	1.0	-	1.0
ME 7001	2.6	2.1	-	-	1.0	1.0	1.3	1.0	1.0	1.0	1.0	1.2
ME 7002	2.8	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0
ME 7003	2.4	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ME 7004	2.4	2.0	-	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ME 7005	2.6	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0
ME 7006	3.0	2.0	1.0	1.0	1.0	1.0	1.5	1.8	1.2	1.2	1.0	1.0
ME 7007	3.0	2.0	1.0	-	1.0	1.0	1.5	1.8	1.2	1.2	1.0	1.0
ME 8001	3.0	2.0	-	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0
ME 8002	1.8	1.6	1.0	-	1.2	1.0	1.0	1.0	1.0	1.0	-	1.0
ME 8003	2.4	1.4	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ME 8004	2.2	1.0	-	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0
ME 8005	2.2	2.0	-	-	1.0	1.2	1.5	1.3	1.6	1.4	1.4	1.0
ME 8006	2.4	1.8	-	-	1.0	1.0	1.5	1.3	1.0	1.3	-	1.3
ME 8007	2.4	1.8	-	-	1.0	1.0	1.5	1.3	1.0	1.3	-	1.3
<b>AVG.</b>	<b>2.4</b>	<b>2.0</b>	<b>1.4</b>	<b>1.3</b>	<b>1.3</b>	<b>1.2</b>	<b>1.3</b>	<b>1.3</b>	<b>1.3</b>	<b>1.2</b>	<b>1.1</b>	<b>1.2</b>

**1: Slight (Low)      2: Moderate (Medium)      3: Substantial (High)**

## [SELF ASSESSMENT REPORT]

### PSO- Matrix

IES COLLEGE OF TECHNOLOGY ,BHOPAL (0177)				
PROGRAM LEVEL PSO MATRIX MECHANICAL ENGINEERING 2016-2020 BATCH				
		PSO		
	COURSE	PSO1	PSO2	PSO3
I	MA 110	1.2	1.0	1.0
	EE 111	1.6	1.3	1.0
	ME 112	1.6	1.0	1.0
	HU 110	1.1	1.0	1.3
	CY 110	1.0	1.0	1.0
	ME 110	1.0	1.0	1.0
	CS 110	1.6	1.0	1.0
	HU 112	1.2	1.0	1.2
II	MA 111	1.0	1.0	1.0
	EC 111	1.5	1.3	1.0
	CE 110	1.1	1.0	1.0
	ME 111	1.0	1.0	1.0
	PH 110	1.0	1.0	1.0
	ME 113	1.6	1.0	1.0
	ML 110	1.4	1.3	1.7
	HU 111	1.0	1.0	1.3
III	ES 3001	1.2	1.0	1.0
	ME 3002	3.0	1.8	1.5
	ME 3003	3.0	1.2	1.0
	ME 3004	2.5	1.8	1.0
	ME 3005	2.6	1.0	1.0
	ME 3006	3.0	1.0	1.0
	ME 3007	1.2	1.0	1.0
	ME 3008	1.0	1.0	1.0
	BE 3001	2.0	1.0	1.0
IV	ME 4002	2.1	1.2	1.0
	ME 4003	2.6	1.1	1.0
	ME 4004	3.0	1.1	1.0
	ME 4005	2.0	1.3	1.0
	ME 4006	3.0	1.0	1.0
	ME 4007	3.0	2.0	2.0
	ME 4008	-	1.0	1.6
V	ME 5001	3.0	1.0	1.0
	ME 5002	2.0	1.1	1.0
	ME 5003	3.0	2.0	1.0
	ME 5004	3.0	1.3	1.0

## [SELF ASSESSMENT REPORT]

	ME 5005	1.0	1.4	2.4
	ME 5006	2.2	1.8	1.7
	ME 5007	2.2	1.8	1.7
	ME 5008	2.2	1.8	1.7
VI	ME 6001	2.2	1.6	1.4
	ME 6002	2.1	1.3	1.0
	ME 6003	2.4	1.3	1.2
	ME 6004	2.1	1.1	1.0
	ME 6005	3.0	1.0	1.0
	ME 6006	3.0	1.4	1.0
	ME 6007	2.6	1.4	1.4
	ME 6008	2.6	1.4	1.2
VII	ME 7001	2.0	1.4	1.0
	ME 7002	1.8	1.2	1.2
	ME 7003	1.8	1.0	1.7
	ME 7004	1.2	1.2	1.2
	ME 7005	2.0	1.2	1.4
	ME 7006	2.6	1.4	1.2
	ME 7007	2.6	1.4	1.2
VIII	ME 8001	3.0	1.4	1.0
	ME 8002	1.6	1.3	1.0
	ME 8003	2.4	1.0	1.3
	ME 8004	1.6	1.3	1.2
	ME 8005	1.6	1.4	2.2
	ME 8006	2.2	1.6	1.4
	ME 8007	2.2	1.6	1.4
<b>AVG.</b>		<b>2.0</b>	<b>1.2</b>	<b>1.2</b>

**1: Slight (Low)      2: Moderate (Medium)      3: Substantial (High)**

## [SELF ASSESSMENT REPORT]

### 3.2 Attainment of Course Outcomes (50)

#### 3.2.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based (10)

In the Outcome Based Education (OBE) assessment is done through one or more processes (carried out by the institution) that identify, collect, and prepare data to evaluate the achievement of course outcomes (CO's).

Course Outcomes (CO's) Assessment Processes:-

#### ➤ Evaluation Tool as per University Examination:

**Evaluation Components Bachelor of Engineering (Grading System)\* 2013-2017 and 2014-2018 Batch**

S. No	Theory Examination	Marks		
I	Internal Assessments	<b>30</b>		
1	Mid Semester Tests			<b>20</b>
2	Quiz/ Assignment			<b>10</b>
II	End Semester Examination	<b>70</b>		
TOTAL			100	
Practical Examination		Marks		
I	Internal Assessments	<b>20</b>		
1	Lab work (Term Work)			10
2	Quiz/ Assignment			10
II	End Semester Practical Examination	<b>30</b>		
TOTAL			50	

**Evaluation Components Bachelor of Engineering (CBCS)\***

**1<sup>st</sup> to 4<sup>th</sup> Semester 2015-2019 batch  
1<sup>st</sup> to 2nd Semester 2016-2020 batch**

S. No	Theory Examination	Marks		
I	Internal Assessments	<b>40</b>		
1	Mid Semester Tests			<b>30</b>
2	Quiz/ Assignment			<b>10</b>
II	End Semester Examination	<b>60</b>		
TOTAL			100	
Practical Examination		Marks		
I	Internal Assessments	<b>40</b>		
1	Lab work (Term Work)			20
2	Quiz/ Assignment			20
II	End Semester Practical Examination	<b>10</b>		
TOTAL			50	

## [SELF ASSESSMENT REPORT]

### Evaluation Components Bachelor of Engineering (CBGS)\*

Evaluation Components (CBGS)\*

5th to 8<sup>th</sup> Semester 2015-2019 batch

3rd to 8th Semester 2016-2020 batch

S. No	Theory Examination	Marks		
I	Internal Assessments	<b>30</b>		
1	Mid Semester Tests			<b>20</b>
2	Quiz/ Assignment			<b>10</b>
II	End Semester Examination	<b>70</b>		
TOTAL			100	
Practical Examination		Marks		
I	Internal Assessments	<b>20</b>		
1	Lab work (Term Work)			10
2	Quiz/ Assignment			10
II	End Semester Practical Examination	<b>30</b>		
TOTAL			50	

➤ **Evaluation Components Bachelor of Technology (Grading System) 2017 onwards**

S. No	Theory Examination	Marks		
I	Internal Assessments	<b>30</b>		
1	Mid Semester Tests			<b>20</b>
2	Quiz/ Assignment			<b>10</b>
II	End Semester Examination	<b>70</b>		
TOTAL			100	
Practical Examination		Marks		
I	Internal Assessments	<b>20</b>		
II	End Semester Practical Examination	30		
TOTAL			50	

## [SELF ASSESSMENT REPORT]

➤ **Assessment tools are categorized into two methods to assess the course outcomes as:**

- **Direct methods and indirect methods.**

Formative and Summative assessment are used for evaluation of the internal and external marks in a theory and practical subjects, based on Mid Semester examination, unit tests, assignments, seminar, group discussion, self study, tutorials, internal viva and end semester exam. Students are awarded internal and external marks on the basis of the performance in the above-noted criteria. Projects, internal reviews are conducted and evaluated for judging the level of students' standards.

To know the learning status of the students, assignments are given. At the end of the semester examinations are conducted by the affiliated University- RGPV Bhopal.

### ➤ **Direct Assessment Methods**

<b>Direct Assessment Methods</b>		
<b>S.No</b>	<b>Assessment Processes</b>	<b>Method Description</b>
1.	Internal Assessment Test, Assignments, Quizzes, Internal Viva	Formative and summative assessment are used for evaluation of the Internal and external marks in theory and practical subjects, based on Mid semester examination, unit tests, assignments, seminar, group discussion, self study and tutorials generally conducted in between and on completion of course. An improvement test is conducted for those students who score very less marks in internal assessment before the end of the semester to give an opportunity to such students to improve their internal Assessment Marks. It is a metric to continuously assess the attainment of course outcomes. Average of the two Mid Sem marks, assignment marks and tutorials are taken as Internal Assessment Marks for the relevant subject.
2.	Theory / Practical Semester Examination.	Semester examinations are conducted by the affiliating University RGPV Bhopal and the metric to assess whether all the course outcomes are attained or not are framed by the course owner.



## [SELF ASSESSMENT REPORT]

		Semester Examination is more focused on attainment of course outcomes and uses descriptive exam pattern
3.	Seminar, Presentations, Project assessment	The Internal Assessment marks of projects and seminars in the final year are based on the evaluation at the end of 8th semester by a committee consisting of Head of the concerned Department and two senior faculty members of the Department, one of whom is the project / seminar guide.
4.	Project Work Viva-voce	Viva-voce examination of project work is conducted batch-wise.

### ➤ Indirect Assessment Methods

The indirect assessment methods ask the stake holders to reflect own learning. They assess the opinions or thoughts about the graduate's knowledge or skills and are valued by different stakeholders.

Indirect Assessment Methods		
S. No	Indirect Assessment Method	Method Description
1	Alumni: Survey Questionnaire	Collect Variety of Information About Program Satisfaction And College From the Alumni Students
2	Exit Feedback: Survey Questionnaire	Collect Variety of Information about course and program satisfaction, facilities of College etc. From the Final Year Students.
3	Parent: Survey Questionnaire	Collect Variety Of Information About Program Satisfaction And College From Parents.
4	Employer's Feedback Form	Collect Variety Of Information About The Graduates' Skills, Capabilities And Opportunities.
5	Student Feedback (About OBE)	Collect Variety Of Information About Outcome Based Education In Teaching And Learning Process.

### PO Assessment Tools:

Method of Assessment	Source For Data Collection	Setting of Target	Data Assessment

## [SELF ASSESSMENT REPORT]

<b>Internal/External Evaluation</b>	Evaluation Data	Target Set with respect to previous results analysis and internal assessment	End of the Semester
<b>Course Exit Survey</b>	Survey Report	Target Set with reference to previous survey report and internal assessment	End of the Year
<b>Program Exit Survey</b>			
<b>Alumni Survey</b>			

POs	Skill to be Demonstrated	Assessment Tools
<b>PO1</b>	<b>Engineering knowledge:</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO2</b>	<b>Problem analysis</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> </ul>

## [SELF ASSESSMENT REPORT]

		<ul style="list-style-type: none"> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO3</b>	<b>Design/development of solutions:</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO4</b>	<b>Conduct investigations of complex problems:</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO5</b>	<b>Modern tool usage:</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> </ul>

## [SELF ASSESSMENT REPORT]

		<ul style="list-style-type: none"> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO6</b>	<b>Engineer and society</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO7</b>	<b>Environment and sustainability</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO8</b>	<b>Ethics</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> </ul>

## [SELF ASSESSMENT REPORT]

		<ul style="list-style-type: none"> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO9</b>	<b>Individual and team work</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO10</b>	<b>Communication</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> <li>• Industrial Visit/Industrial Training</li> <li>• Alumni Feedback/Student Feedback/Employer Feedback</li> <li>• Course Beyond syllabus</li> <li>• Add on course assessment</li> <li>• Project base and Problem base learning</li> </ul>
<b>PO11</b>	<b>Project management and finance</b>	<ul style="list-style-type: none"> <li>• Internal/External Evaluation as per University exam.</li> <li>• Project work/Lab Experiments</li> <li>• Mentoring, Core software skills</li> <li>• Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities</li> <li>• Course Exit Survey/Program Exit Survey</li> </ul>

## [SELF ASSESSMENT REPORT]

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		<ul style="list-style-type: none"><li>• Industrial Visit/Industrial Training</li><li>• Alumni Feedback/Student Feedback/Employer Feedback</li><li>• Course Beyond syllabus</li><li>• Add on course assessment</li><li>• Project base and Problem base learning</li></ul>
<b>PO12</b>	<b>Lifelong learning</b>	<ul style="list-style-type: none"><li>• Internal/External Evaluation as per University exam.</li><li>• Project work/Lab Experiments</li><li>• Mentoring, Core software skills</li><li>• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities</li><li>• Course Exit Survey/Program Exit Survey</li><li>• Industrial Visit/Industrial Training</li><li>• Alumni Feedback/Student Feedback/Employer Feedback</li><li>• Course Beyond syllabus</li><li>• Add on course assessment</li><li>• Project base and Problem base learning</li></ul>

- The assessment process used to evaluate course outcome is mainly assessment with weightage of 80% (direct assessment) and 20% to course exit survey (indirect assessment).
- Assignments are given to improve the internal examination results.
- The IQAC committee verify all evaluation process at the starting of semester

Evaluation Process of Question paper setting

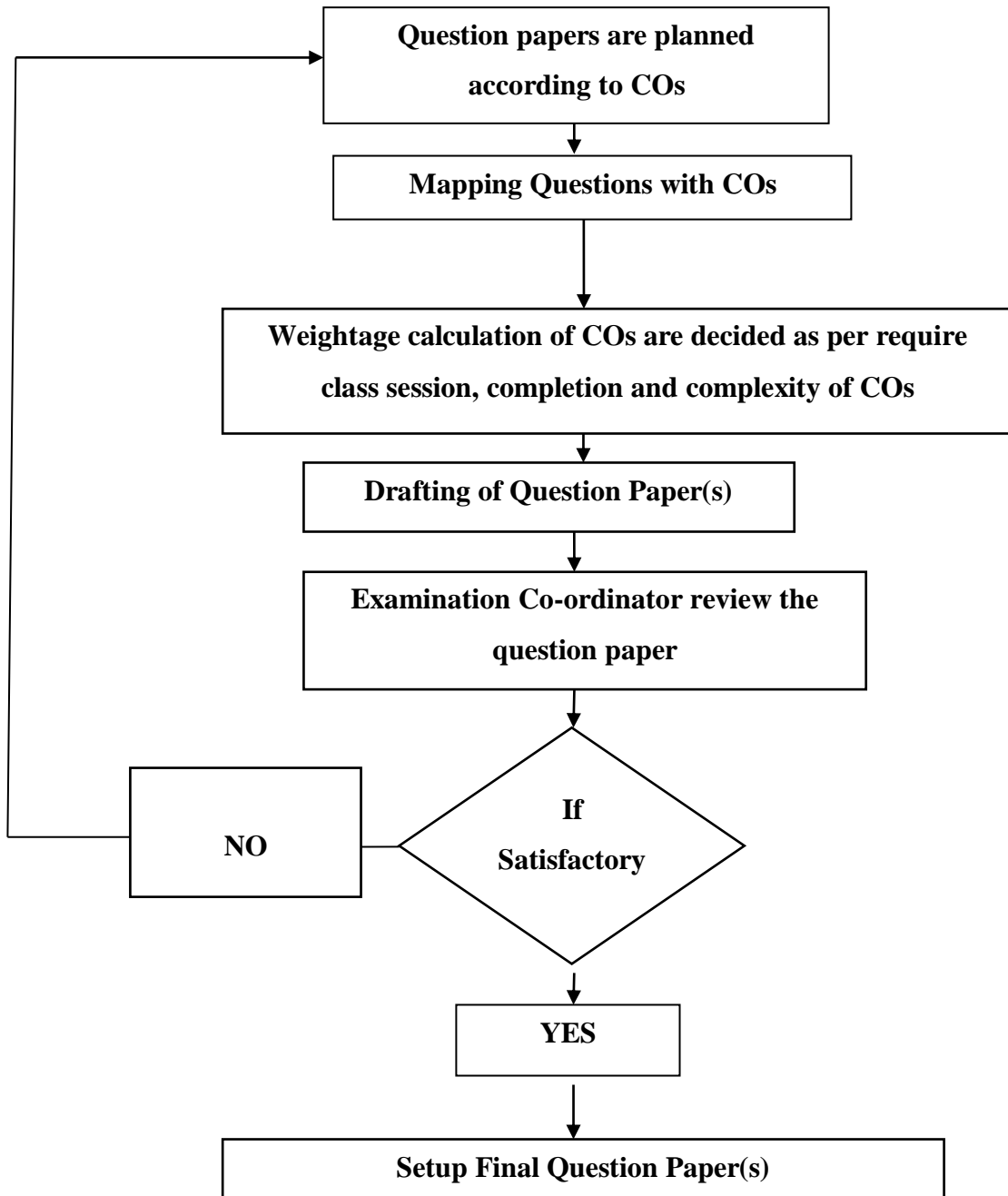


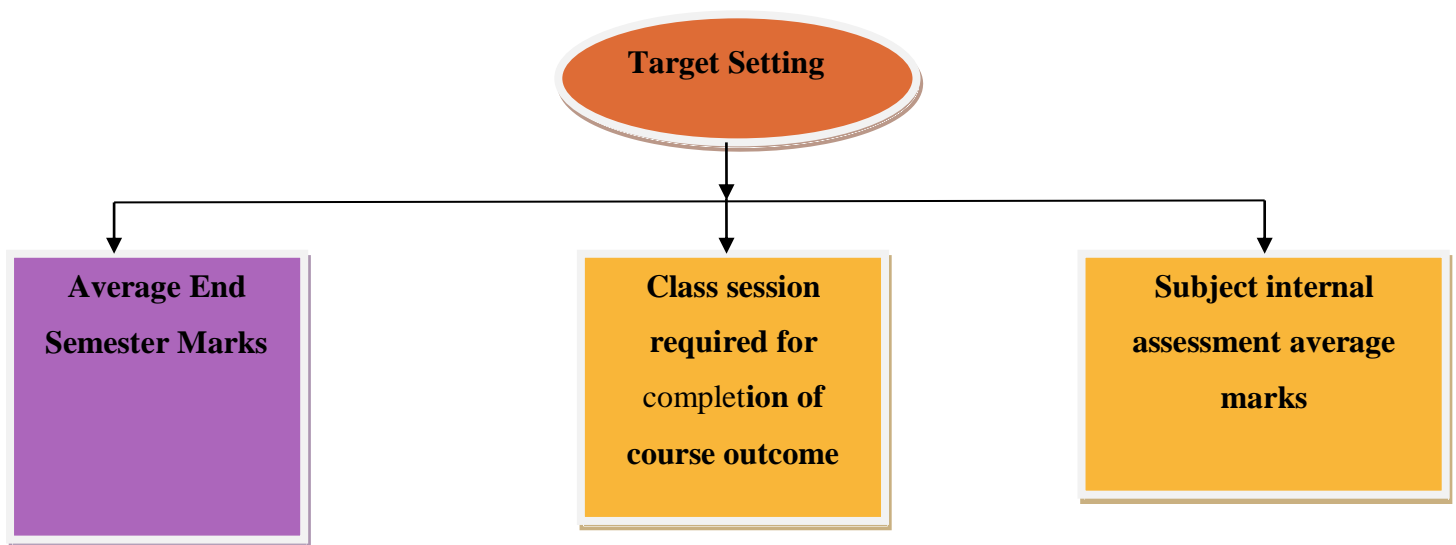
Figure 3.1 Evaluation Process

### 3.2.2 Record the attainment of Course Outcomes of all courses with respect to set attainment levels (40)

#### A. Setting of Target

Target of the course outcome has decided as per

- Average End Semester Marks
- Subject internal assessment average marks
- Class session require for completion of course outcome



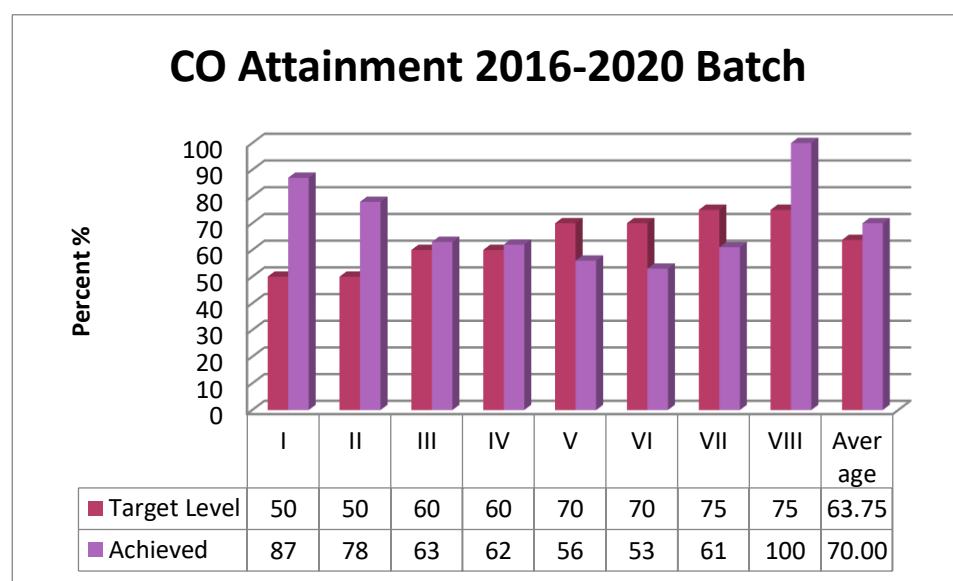
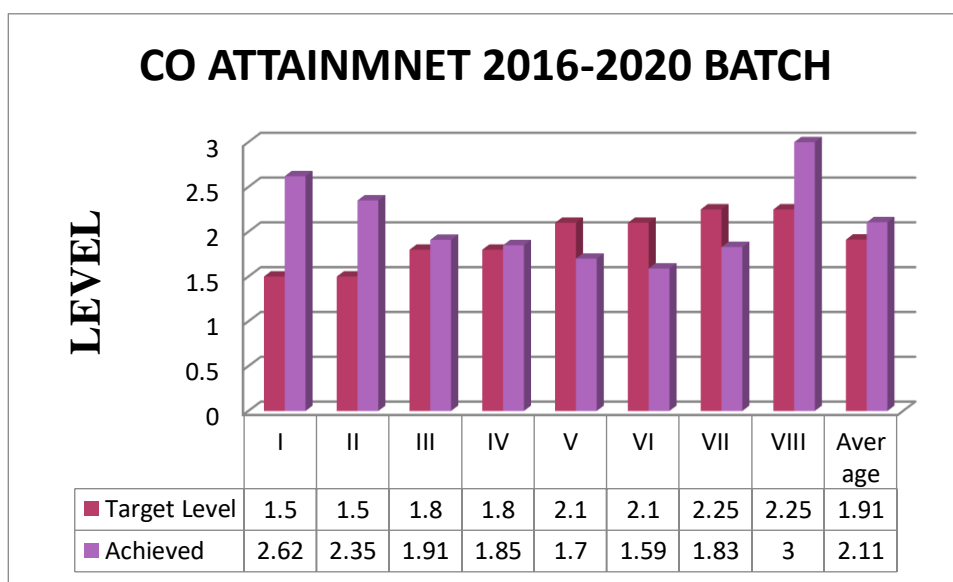
**Figure 3.2 Process of Target Setting**



## [SELF ASSESSMENT REPORT]

### CO-ATTAINMENT (2016-2020 Batch)

<b>IES College of Technology, Bhopal [0177]</b>				
<b>CO Attainment Summary 2016-20 Batch</b>				
Semester	Target Level	Achieved	Target Level %	Achieved %
I	1.5	2.62	50	87
II	1.5	2.35	50	78
III	1.8	1.91	60	63
IV	1.8	1.85	60	62
V	2.1	1.7	70	56
VI	2.1	1.59	70	53
VII	2.25	1.83	75	61
VIII	2.25	3	75	100
<b>Average</b>	<b>1.91</b>	<b>2.11</b>	<b>63.75</b>	<b>70.00</b>



## [SELF ASSESSMENT REPORT]

IES College of Technology, Bhopal [0177]					
Department Mechanical Engineering Semester: 1ST Batch: 2016-2020 (BE CBCS )					
THEORY					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>MA110 T Mathematics- I</b>	CMA110.1	1.30	1.2	-0.10
		CMA110.2	1.30	1.2	-0.10
		CMA110.3	1.30	1.2	-0.10
		CMA110.4	1.30	1.2	-0.10
		CMA110.5	1.30	1.2	-0.10
2	<b>EE 111 T Fundamentals of Electrical Engineering</b>	CEE111.1	1.35	1.2	-0.15
		CEE111.2	1.35	1.2	-0.15
		CEE111.3	1.35	1.2	-0.15
		CEE111.4	1.35	1.2	-0.15
		CEE111.5	1.35	1.2	-0.15
3	<b>ME 112 T Concepts in Engineering Design</b>	CME112.1	1.65	2.4	0.75
		CME112.2	1.65	2.4	0.75
		CME112.3	1.65	2.4	0.75
		CME112.4	1.65	2.4	0.75
		CME112.5	1.65	2.4	0.75
4	<b>HU110 T English</b>	CHU110.1	1.50	3	1.50
		CHU110.2	1.50	3	1.50
		CHU110.3	1.50	3	1.50
		CHU110.4	1.50	3	1.50
		CHU110.5	1.50	3	1.50
5	<b>CY 110 T Chemistry</b>	CCY110.1	1.40	3	1.60
		CCY110.2	1.40	3	1.60
		CCY110.3	1.40	3	1.60
		CCY110.4	1.40	3	1.60
		CCY110.5	1.40	3	1.60
PRACTICAL					
1	<b>EE 111 P Fundamentals of Electrical Engineering</b>	CLEE111.1	1.50	3	1.50
		CLEE111.2	1.50	3	1.50
		CLEE111.3	1.50	3	1.50
		CLEE111.4	1.50	3	1.50
		CLEE111.5	1.50	3	1.50
2	<b>HU 110 P English</b>	CLHU110.1	1.50	3	1.50
		CLHU110.2	1.50	3	1.50
		CLHU110.3	1.50	3	1.50
		CLHU110.4	1.50	3	1.50
		CLHU110.5	1.50	3	1.50
3	<b>CY 110 P</b>	CLCY110.1	1.65	3	1.35

## [SELF ASSESSMENT REPORT]

	<b>Chemistry</b>	CLCY110.2	1.65	3	1.35
		CLCY110.3	1.65	3	1.35
		CLCY110.4	1.65	3	1.35
		CLCY110.5	1.65	3	1.35
		CLCS110.1	1.65	3	1.35
4	<b>CS 110 P Computer Programming</b>	CLCS110.2	1.65	3	1.35
		CLCS110.3	1.65	3	1.35
		CLCS110.4	1.65	3	1.35
		CLCS110.5	1.65	3	1.35
		CLHU112.1	1.65	3	1.35
5	<b>HU 112 P Rural Outreach</b>	CLHU112.2	1.65	3	1.35
		CLHU112.3	1.65	3	1.35
		CLHU112.4	1.65	3	1.35
		CLHU112.5	1.65	3	1.35
		CLME110.1	1.65	3	1.35
6	<b>ME110 P Introduction to Mechanical Engineering</b>	CLME110.2	1.65	3	1.35
		CLME110.3	1.65	3	1.35
		CLME110.4	1.65	3	1.35
		CLME110.5	1.65	3	1.35
		<b>Average</b>		<b>1.53</b>	<b>2.62</b>
<b>Target Level</b>		<b>50%</b>			
<b>Achieved</b>		<b>87%</b>			

Department Mechanical Engineering Semester: 2ND Batch: 2016-2020 (BE CBCS )					
THEORY					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>MA111 T Mathematics- II</b>	CMA111.1	1.30	1.2	-0.10
		CMA111.2	1.30	1.2	-0.10
		CMA111.3	1.30	1.2	-0.10
		CMA111.4	1.30	1.2	-0.10
		CMA111.5	1.30	1.2	-0.10
2	<b>EC111 T Fundamentals of Electronics Engineering</b>	CEC111.1	1.35	1.8	0.45
		CEC111.2	1.35	1.8	0.45
		CEC111.3	1.35	1.8	0.45
		CEC111.4	1.35	1.8	0.45
		CEC111.5	1.35	1.8	0.45
3	<b>CE 110 T Engineering Mechanics</b>	CCE110.1	1.30	1.2	-0.10
		CCE110.2	1.30	1.2	-0.10
		CCE110.3	1.30	1.2	-0.10
		CCE110.4	1.30	1.2	-0.10
		CCE110.5	1.30	1.2	-0.10
4	<b>ME111 T Engineering</b>	CME111.1	1.40	1.8	0.40
		CME111.2	1.40	1.8	0.40

## [SELF ASSESSMENT REPORT]

	<b>Graphics</b>	CME111.3	1.40	1.8	0.40
		CME111.4	1.40	1.8	0.40
		CME111.5	1.40	1.8	0.40
5	<b>PH 110 T Physics</b>	CPH110.1	1.40	1.2	-0.20
		CPH110.2	1.40	1.2	-0.20
		CPH110.3	1.40	1.2	-0.20
		CPH110.4	1.40	1.2	-0.20
		CPH110.5	1.40	1.2	-0.20
<b>PRACTICAL</b>					
1	<b>EC 111 P Fundamentals of Electronics Engineering</b>	CLEC111.1	1.50	3	1.50
		CLEC111.2	1.50	3	1.50
		CLEC111.3	1.50	3	1.50
		CLEC111.4	1.50	3	1.50
		CLEC111.5	1.50	3	1.50
2	<b>CE 110 P Engineering Mechanics</b>	CLCE110.1	1.50	3	1.50
		CLCE110.2	1.50	3	1.50
		CLCE110.3	1.50	3	1.50
		CLCE110.4	1.50	3	1.50
		CLCE110.5	1.50	3	1.50
3	<b>PH 110 P Physics</b>	CLPH110.1	1.50	3	1.50
		CLPH110.2	1.50	3	1.50
		CLPH110.3	1.50	3	1.50
		CLPH110.4	1.50	3	1.50
		CLPH110.5	1.50	3	1.50
4	<b>ME 111 P Engineering Graphics</b>	CLME111.1	1.50	3	1.50
		CLME111.2	1.50	3	1.50
		CLME111.3	1.50	3	1.50
		CLME111.4	1.50	3	1.50
		CLME111.5	1.50	3	1.50
5	<b>ME 113 P Manufacturing Practices</b>	CLME113.1	1.65	3	1.35
		CLME113.2	1.65	3	1.35
		CLME113.3	1.65	3	1.35
		CLME113.4	1.65	3	1.35
		CLME113.5	1.65	3	1.35
6	<b>ML 110 P Environmental Sciences</b>	CLML110.1	1.65	3	1.35
		CLML110.2	1.65	3	1.35
		CLML110.3	1.65	3	1.35
		CLML110.4	1.65	3	1.35
		CLML110.5	1.65	3	1.35
7	<b>HU 111 P Communication</b>	CLHU111.1	1.65	3	1.35
		CLHU111.2	1.65	3	1.35
		CLHU111.3	1.65	3	1.35
		CLHU111.4	1.65	3	1.35

## [SELF ASSESSMENT REPORT]

	CLHU111.5	1.65	3	1.35
<b>Average</b>		<b>1.48</b>	<b>2.35</b>	<b>0.88</b>
<b>Target Level</b>		<b>50%</b>		
<b>Achieved</b>		<b>78%</b>		

### Department Mechanical Engineering Semester: 3RD Batch: 2016-2020 (BE CBGS )

#### THEORY

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>ES 3001 T Energy, Environment, Ecology &amp; Society</b>	CES3001.1	1.80	0.9	-0.90
		CES3001.2	1.80	0.9	-0.90
		CES3001.3	1.80	0.9	-0.90
		CES3001.4	1.80	0.6	-1.20
		CES3001.5	1.80	0.9	-0.90
2	<b>ME 3002 T Strength of Materials</b>	CME3002.1	1.60	0.9	-0.70
		CME3002.2	1.60	0.9	-0.70
		CME3002.3	1.60	0.9	-0.70
		CME3002.4	1.60	0.3	-1.30
		CME3002.5	1.60	0.9	-0.70
3	<b>ME 3003 T Theory of Machines &amp; Mechanisms</b>	CME3003.1	1.70	0.9	-0.80
		CME3003.2	1.70	0.9	-0.80
		CME3003.3	1.70	0.9	-0.80
		CME3003.4	1.70	0.9	-0.80
		CME3003.5	1.70	0.9	-0.80
4	<b>ME 3004 T Manufacturing Process</b>	CME3004.1	1.80	0.9	-0.90
		CME3004.2	1.80	0.9	-0.90
		CME3004.3	1.80	0.9	-0.90
		CME3004.4	1.80	0.9	-0.90
		CME3004.5	1.80	0.9	-0.90
5	<b>ME 3005 T Thermodynamics</b>	CME3005.1	1.80	0.9	-0.90
		CME3005.2	1.80	0.9	-0.90
		CME3005.3	1.80	0.9	-0.90
		CME3005.4	1.80	0.9	-0.90
		CME3005.5	1.80	0.9	-0.90

#### PRACTICAL

1	<b>ME 3002 P Strength of Materials</b>	CLME3002.1	1.80	3	1.20
		CLME3002.2	1.80	3	1.20
		CLME3002.3	1.80	2.2	0.40
		CLME3002.4	1.80	3	1.20
		CLME3002.5	1.80	1.8	0.00
2	<b>ME 3003 P Theory of Machines &amp; Mechanisms</b>	CLME3003.1	1.80	3	1.20
		CLME3003.2	1.80	3	1.20
		CLME3003.3	1.80	2.6	0.80
		CLME3003.4	1.80	3	1.20

## [SELF ASSESSMENT REPORT]

		CLME3003.5	1.80	1.8	0.00
3	<b>ME 3004 P Manufacturing Process</b>	CLME3004.1	1.80	3	1.20
		CLME3004.2	1.80	3	1.20
		CLME3004.3	1.80	2.6	0.80
		CLME3004.4	1.80	2.6	0.80
		CLME3004.5	1.80	2.2	0.40
4	<b>ME 3006 P Computer Programming-I (Java)</b>	CLME3006.1	1.80	3	1.20
		CLME3006.2	1.80	1.8	0.00
		CLME3006.3	1.80	3	1.20
		CLME3006.4	1.80	3	1.20
		CLME3006.5	1.80	2.6	0.80
5	<b>ME 3007 P Rural Outreach</b>	CLME3007.1	1.95	3	1.05
		CLME3007.2	1.95	3	1.05
		CLME3007.3	1.95	3	1.05
		CLME3007.4	1.95	3	1.05
		CLME3007.5	1.95	3	1.05
6	<b>ME 3008 P NSS/NCC/Social Work</b>	CLME3008.1	1.95	3	1.05
		CLME3008.2	1.95	3	1.05
		CLME3008.3	1.95	3	1.05
		CLME3008.4	1.95	3	1.05
		CLME3008.5	1.95	3	1.05
<b>Average</b>			<b>1.80</b>	<b>1.91</b>	<b>0.11</b>
Target Level			60%		
Achieved			63%		

Department Mechanical Engineering Semester: 4TH Batch: 2016-2020 (BE CBGS )					
THEORY					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>BE 3001 T Mathematics-III</b>	CBE3001.1	1.60	0.9	-0.70
		CBE3001.2	1.60	0.9	-0.70
		CBE3001.3	1.60	0.6	-1.00
		CBE3001.4	1.60	0.9	-0.70
		CBE3001.5	1.60	0.3	-1.30
2	<b>ME 4002 T Fluid Mechanics</b>	CME4002.1	1.60	0.9	-0.70
		CME4002.2	1.60	0.9	-0.70
		CME4002.3	1.60	0.3	-1.30
		CME4002.4	1.60	0.9	-0.70
		CME4002.5	1.60	0.3	-1.30
3	<b>ME 4003 T Machine Drawing &amp; CAD</b>	CME4003.1	1.70	0.9	-0.80
		CME4003.2	1.70	0.9	-0.80
		CME4003.3	1.70	0.3	-1.40
		CME4003.4	1.70	0.9	-0.80
		CME4003.5	1.70	0.9	-0.80

## [SELF ASSESSMENT REPORT]

4	<b>ME 4004 T Energy Conversion</b>	CME4004.1	1.95	1.6	-0.35
		CME4004.2	1.95	1.3	-0.65
		CME4004.3	1.95	1.3	-0.65
		CME4004.4	1.95	1.6	-0.35
		CME4004.5	1.95	1.6	-0.35
5	<b>ME 4005 T Machine Design</b>	CME4005.1	1.80	0.9	-0.90
		CME4005.2	1.80	0.6	-1.20
		CME4005.3	1.80	0.6	-1.20
		CME4005.4	1.80	0.9	-0.90
		CME4005.5	1.80	0.9	-0.90
<b>PRACTICAL</b>					
1	<b>ME 4002 P Fluid Mechanics</b>	CLME4002.1	1.80	3	1.20
		CLME4002.2	1.80	2.2	0.40
		CLME4002.3	1.80	1.8	0.00
		CLME4002.4	1.80	2.6	0.80
		CLME4002.5	1.80	2.6	0.80
2	<b>ME 4003 P Machine Drawing &amp; CAD</b>	CLME4003.1	1.80	3	1.20
		CLME4003.2	1.80	1.8	0.00
		CLME4003.3	1.80	3	1.20
		CLME4003.4	1.80	2.2	0.40
		CLME4003.5	1.80	3	1.20
3	<b>ME 4004 P Energy Conversion</b>	CLME4004.1	1.95	3	1.05
		CLME4004.2	1.95	2.2	0.25
		CLME4004.3	1.95	1.8	-0.15
		CLME4004.4	1.95	3	1.05
		CLME4004.5	1.95	2.6	0.65
4	<b>ME 4006 P Computer Programming-II</b>	CLME4006.1	1.80	3	1.20
		CLME4006.2	1.80	1.8	0.00
		CLME4006.3	1.80	1.8	0.00
		CLME4006.4	1.80	2.6	0.80
		CLME4006.5	1.80	2.6	0.80
5	<b>ME 4007 P Programming Tools</b>	CLME4007.1	1.95	3	1.05
		CLME4007.2	1.95	3	1.05
		CLME4007.3	1.95	3	1.05
		CLME4007.4	1.95	3	1.05
		CLME4007.5	1.95	3	1.05
6	<b>ME 4008 P Professional Ethics</b>	CLME4008.1	1.95	3	1.05
		CLME4008.2	1.95	3	1.05
		CLME4008.3	1.95	3	1.05
		CLME4008.4	1.95	3	1.05
		CLME4008.5	1.95	3	1.05
<b>Average</b>			<b>1.81</b>	<b>1.85</b>	<b>0.04</b>
Target Level			60%		

## [SELF ASSESSMENT REPORT]

Achieved	62%
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Department Mechanical Engineering Semester: 5TH Batch: 2016-2020 (BE CBGS )					
THEORY					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>ME 5001 T Turbo Machinery</b>	CME5001.1	2.10	1.6	-0.50
		CME5001.2	2.10	1	-1.10
		CME5001.3	2.10	1	-1.10
		CME5001.4	2.10	1	-1.10
		CME5001.5	2.10	1.3	-0.80
2	<b>ME 5002 T Mechanical Measurement &amp; Control</b>	CME5002.1	2.10	0.9	-1.20
		CME5002.2	2.10	0.6	-1.50
		CME5002.3	2.10	0.3	-1.80
		CME5002.4	2.10	0.9	-1.20
		CME5002.5	2.10	0.6	-1.50
3	<b>ME 5003 T Design of Machine Elements</b>	CME5003.1	2.10	0.9	-1.20
		CME5003.2	2.10	0.6	-1.50
		CME5003.3	2.10	0.3	-1.80
		CME5003.4	2.10	0.6	-1.50
		CME5003.5	2.10	0.6	-1.50
4	<b>ME 5004 T Dynamics of Machines</b>	CME5004.1	2.00	0.9	-1.10
		CME5004.2	2.00	0.6	-1.40
		CME5004.3	2.00	0.3	-1.70
		CME5004.4	2.00	0.9	-1.10
		CME5004.5	2.00	0.6	-1.40
5	<b>ME 5005 T Entrepreneurship &amp; Management</b>	CME5005.1	2.10	0.9	-1.20
		CME5005.2	2.10	0.6	-1.50
		CME5005.3	2.10	0.3	-1.80
		CME5005.4	2.10	0.6	-1.50
		CME5005.5	2.10	0.6	-1.50
PRACTICAL					
1	<b>ME 5002 P Mechanical Measurement &amp; Control</b>	CLME5002.1	2.10	3	0.90
		CLME5002.2	2.10	2.2	0.10
		CLME5002.3	2.10	1.8	-0.30
		CLME5002.4	2.10	1.8	-0.30
		CLME5002.5	2.10	1.8	-0.30
2	<b>ME 5003 P Design of Machine Elements</b>	CLME5003.1	2.10	3	0.90
		CLME5003.2	2.10	2.2	0.10
		CLME5003.3	2.10	2.2	0.10
		CLME5003.4	2.10	2.2	0.10
		CLME5003.5	2.10	1.8	-0.30
3	<b>ME 5004 P Dynamics of</b>	CLME5004.1	2.10	3	0.90
		CLME5004.2	2.10	2.2	0.10



## [SELF ASSESSMENT REPORT]

	<b>Machines</b>	CLME5004.3	2.10	2.2	0.10
		CLME5004.4	2.10	2.2	0.10
		CLME5004.5	2.10	1.8	-0.30
4	<b>ME 5006 P CAE lab</b>	CLME5006.1	2.10	3	0.90
		CLME5006.2	2.10	2.2	0.10
		CLME5006.3	2.10	2.2	0.10
		CLME5006.4	2.10	2.2	0.10
		CLME5006.5	2.10	1.8	-0.30
	<b>ME 5007 P Management Skill Development</b>	CLME5007.1	2.10	3	0.90
		CLME5007.2	2.10	3	0.90
		CLME5007.3	2.10	3	0.90
		CLME5007.4	2.10	3	0.90
		CLME5007.5	2.10	3	0.90
6	<b>ME 5008 P Innovative Thinking</b>	CLME5008.1	2.10	3	0.90
		CLME5008.2	2.10	3	0.90
		CLME5008.3	2.10	3	0.90
		CLME5008.4	2.10	3	0.90
		CLME5008.5	2.10	3	0.90
<b>Average</b>			<b>2.09</b>	<b>1.70</b>	<b>-0.39</b>
Target Level			70%		
Achieved			56%		

<b>Department Mechanical Engineering Semester: 6TH Batch: 2016-2020 (BE CBGS )</b>					
<b>THEORY</b>					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>ME 6001 T Industrial Engineering</b>	CME6001.1	2.10	0.3	-1.80
		CME6001.2	2.10	0	-2.10
		CME6001.3	2.10	0.9	-1.20
		CME6001.4	2.10	0	-2.10
		CME6001.5	2.10	0.9	-1.20
2	<b>ME 6002 T Thermal Engineering and gas dynamics</b>	CME6002.1	2.10	0.9	-1.20
		CME6002.2	2.10	0	-2.10
		CME6002.3	2.10	0.9	-1.20
		CME6002.4	2.10	0.3	-1.80
		CME6002.5	2.10	0.9	-1.20
3	<b>ME 6003 T Heat &amp; Mass Transfer</b>	CME6003.1	2.00	0.6	-1.40
		CME6003.2	2.00	0	-2.00
		CME6003.3	2.00	0	-2.00
		CME6003.4	2.00	0.6	-1.40
		CME6003.5	2.00	0.9	-1.10
4	<b>ME 6004 T Metal Cutting &amp; machine Tools</b>	CME6004.1	2.10	0.9	-1.20
		CME6004.2	2.10	0	-2.10
		CME6004.3	2.10	0.9	-1.20

## [SELF ASSESSMENT REPORT]

		CME6004.4	2.10	0.3	-1.80
		CME6004.5	2.10	0.6	-1.50
5	<b>ME 6005 T Power Plant Engineering</b>	CME6005.1	2.30	0.9	-1.40
		CME6005.2	2.30	0	-2.30
		CME6005.3	2.30	0.3	-2.00
		CME6005.4	2.30	0	-2.30
		CME6005.5	2.30	0.9	-1.40
		<b>PRACTICAL</b>			
1	<b>ME 6002 P Thermal Engineering and gas dynamics</b>	CLME6002.1	2.10	3	0.90
		CLME6002.2	2.10	3	0.90
		CLME6002.3	2.10	1.8	-0.30
		CLME6002.4	2.10	1.8	-0.30
		CLME6002.5	2.10	1.8	-0.30
2	<b>ME 6003 P Heat &amp; Mass Transfer</b>	CLME6003.1	2.10	3	0.90
		CLME6003.2	2.10	3	0.90
		CLME6003.3	2.10	1.8	-0.30
		CLME6003.4	2.10	1.8	-0.30
		CLME6003.5	2.10	1.8	-0.30
3	<b>ME 6004 P Metal Cutting &amp; machine Tools</b>	CLME6004.1	2.10	3	0.90
		CLME6004.2	2.10	3	0.90
		CLME6004.3	2.10	1.8	-0.30
		CLME6004.4	2.10	1.8	-0.30
		CLME6004.5	2.10	1.8	-0.30
4	<b>ME 6006 P CFD/FEM/Scilab</b>	CLME6006.1	2.10	3	0.90
		CLME6006.2	2.10	3	0.90
		CLME6006.3	2.10	1.8	-0.30
		CLME6006.4	2.10	1.8	-0.30
		CLME6006.5	2.10	1.8	-0.30
5	<b>ME 6007 P Creativity and Entrepreneurship Development</b>	CLME6007.1	2.10	3	0.90
		CLME6007.2	2.10	3	0.90
		CLME6007.3	2.10	3	0.90
		CLME6007.4	2.10	3	0.90
		CLME6007.5	2.10	3	0.90
6	<b>ME 6008 P Startup / Industrial Lectures</b>	CLME6008.1	2.10	3	0.90
		CLME6008.2	2.10	3	0.90
		CLME6008.3	2.10	3	0.90
		CLME6008.4	2.10	3	0.90
		CLME6008.5	2.10	3	0.90
<b>Average</b>			<b>2.11</b>	<b>1.59</b>	<b>-0.52</b>
Target Level			70%		
Achieved			53%		

**Department Mechanical Engineering Semester: 7TH Batch: 2016-2020 (BE CBGS )**

## [SELF ASSESSMENT REPORT]

THEORY					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>ME 7001 T Mechanical Vibration</b>	CME7001.1	2.00	0	-2.00
		CME7001.2	2.00	0.9	-1.10
		CME7001.3	2.00	0.9	-1.10
		CME7001.4	2.00	0	-2.00
		CME7001.5	2.00	0.9	-1.10
2	<b>ME 7002 T Automobile Engineering</b>	CME7002.1	2.30	0.3	-2.00
		CME7002.2	2.30	0.9	-1.40
		CME7002.3	2.30	0.9	-1.40
		CME7002.4	2.30	0.3	-2.00
		CME7002.5	2.30	0.9	-1.40
3	<b>ME 7003 T OR &amp; Supply Chain</b>	CME7003.1	2.25	0.9	-1.35
		CME7003.2	2.25	0.9	-1.35
		CME7003.3	2.25	0.9	-1.35
		CME7003.4	2.25	0.6	-1.65
		CME7003.5	2.25	0.9	-1.35
4	<b>ME 7004 T Ergonomics</b>	CME7004.1	2.30	2.3	0.00
		CME7004.2	2.30	2.3	0.00
		CME7004.3	2.30	2.3	0.00
		CME7004.4	2.30	2.3	0.00
		CME7004.5	2.30	2.3	0.00
5	<b>ME 7005 T Power Technology</b>	CME7005.1	2.25	2.3	0.05
		CME7005.2	2.25	2	-0.25
		CME7005.3	2.25	2.3	0.05
		CME7005.4	2.25	2.3	0.05
		CME7005.5	2.25	2.3	0.05
PRACTICAL					
1	<b>ME 7001 P Mechanical Vibration</b>	CLME7001.1	2.25	2.2	-0.05
		CLME7001.2	2.25	3	0.75
		CLME7001.3	2.25	1.8	-0.45
		CLME7001.4	2.25	1.8	-0.45
		CLME7001.5	2.25	3	0.75
2	<b>ME 7002 P Automobile Engineering</b>	CLME7002.1	2.25	2.2	-0.05
		CLME7002.2	2.25	2.2	-0.05
		CLME7002.3	2.25	1.8	-0.45
		CLME7002.4	2.25	1.8	-0.45
		CLME7002.5	2.25	3	0.75
3	<b>ME 7003 P OR &amp; Supply Chain</b>	CLME7003.1	2.25	1.8	-0.45
		CLME7003.2	2.25	3	0.75
		CLME7003.3	2.25	1.8	-0.45
		CLME7003.4	2.25	1.8	-0.45
		CLME7003.5	2.25	3	0.75

## [SELF ASSESSMENT REPORT]

4	<b>ME 7006 P Project -I</b>	CLME7003.1	2.25	1.8	-0.45
		CLME7003.2	2.25	3	0.75
		CLME7003.3	2.25	1.8	-0.45
		CLME7003.4	2.25	1.8	-0.45
		CLME7003.5	2.25	3	0.75
5	<b>ME 7007 P Industrial Training</b>	CLME7007.1	2.25	3	0.75
		CLME7007.2	2.25	3	0.75
		CLME7007.3	2.25	1.8	-0.45
		CLME7007.4	2.25	2.2	-0.05
		CLME7007.5	2.25	3	0.75
<b>Average</b>			<b>2.24</b>	<b>1.83</b>	<b>-0.41</b>
Target Level			75%		
Achieved			61%		

Department Mechanical Engineering Semester: 8TH 2016-20 Batch (BE CBGS )					
THEORY					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	<b>ME 8001 T Advance Machine Design</b>	CME8001.1	2.25	3	0.75
		CME8001.2	2.25	3	0.75
		CME8001.3	2.25	3	0.75
		CME8001.4	2.25	3	0.75
		CME8001.5	2.25	3	0.75
2	<b>ME 8002 T Refrigeration &amp; Air conditioning</b>	CME8002.1	2.25	3	0.75
		CME8002.2	2.25	3	0.75
		CME8002.3	2.25	3	0.75
		CME8002.4	2.25	3	0.75
		CME8002.5	2.25	3	0.75
3	<b>ME 8003 T Advance Machining Process</b>	CME8003.1	2.30	3	0.70
		CME8003.2	2.30	3	0.70
		CME8003.3	2.30	3	0.70
		CME8003.4	2.30	3	0.70
		CME8003.5	2.30	3	0.70
4	<b>ME 8004 T Product Design</b>	CME8004.1	2.30	3	0.70
		CME8004.2	2.30	3	0.70
		CME8004.3	2.30	3	0.70
		CME8004.4	2.30	3	0.70
		CME8004.5	2.30	3	0.70
PRACTICAL					
1	<b>ME 8001 P Advance Machine Design</b>	CLME8001.1	2.25	3	0.75
		CLME8001.2	2.25	3	0.75
		CLME8001.3	2.25	3	0.75
		CLME8001.4	2.25	3	0.75
		CLME8001.5	2.25	3	0.75

## [SELF ASSESSMENT REPORT]

2	<b>ME 8002 P Refrigeration &amp; Air conditioning</b>	CLME8002.1	2.25	3	0.75
		CLME8002.2	2.25	3	0.75
		CLME8002.3	2.25	3	0.75
		CLME8002.4	2.25	3	0.75
		CLME8002.5	2.25	3	0.75
3	<b>ME 8005 P Project -II</b>	CLME8005.1	2.25	3	0.75
		CLME8005.2	2.25	3	0.75
		CLME8005.3	2.25	3	0.75
		CLME8005.4	2.25	3	0.75
		CLME8005.5	2.25	3	0.75
4	<b>ME 8006 P Automobile Engineering (Lab)</b>	CLME8006.1	2.25	3	0.75
		CLME8006.2	2.25	3	0.75
		CLME8006.3	2.25	3	0.75
		CLME8006.4	2.25	3	0.75
		CLME8006.5	2.25	3	0.75
5	<b>ME 8007 P Group Discussion</b>	CLME8007.1	2.25	3	0.75
		CLME8007.2	2.25	3	0.75
		CLME8007.3	2.25	3	0.75
		CLME8007.4	2.25	3	0.75
		CLME8007.5	2.25	3	0.75
<b>Average</b>			<b>2.26</b>	<b>3.00</b>	<b>0.74</b>
<b>Target Level</b>			75%		
<b>Achieved</b>			100%		

### 3.3 Attainment of Program Outcomes and Program Specific Outcomes (50)

#### 3.3.1 Describe assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes (10)

##### Program Outcomes (PO's) Assessment Tools:

Assessment tools are categorized into direct and indirect methods to assess the Program Specific outcomes, Program outcomes and course outcomes.

- Direct attainment of COs is determined from the performances of students in 30% of Internal Evaluation (IE) and 70% of Semester End Examination (SEE)
- 30% of Internal Evaluation (IE) is calculated from 67% of Mid semester Examination and 33% of Assignment/theory quizzes.

## [SELF ASSESSMENT REPORT]

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- For assessment of Mid semester Examination marks, two mid semester are conducted and final marks is consider as an average of two mid marks, first Mid semester based on CO1 and CO2, and second mid semester are covered CO3, CO4 and CO5.
- First Mid Semester Examination is included four questions with respect to 40% Coverage of COs.
- Second Mid semester Examination is included six questions with respect to remaining 60% Coverage of COs.
- For assessment of assignment four or five assignments are given and each assignment includes three to five questions with respect to concern COs.
- For practical COs attainment is determined from the performances of students in 40% of Internal Evaluation (IE) and 60% of End Semester Examination (SEE).
- Direct method enables faculty to judge student's knowledge and skills from their performance in the continuous assessment tests, end-semester examinations, presentations, and classroom assignments etc. These methods provide a sample of what students know and/or can do and provide strong evidence of extent of student- learning.
- Under Indirect methods such as surveys and interviews stakeholders are asked to reflect on students learning. They express their opinions or thoughts about the graduates' knowledge, skills and similar information is collected through different stakeholders.
  - Course/ Program Exit Survey (30%)
  - Alumni Feedback (20%)
  - Employer Feedback (10%)
  - Parents Feedback (10%)
  - 30% Student Feedback (About OBE)

# [SELF ASSESSMENT REPORT]

The process of attainment has described in flow chart

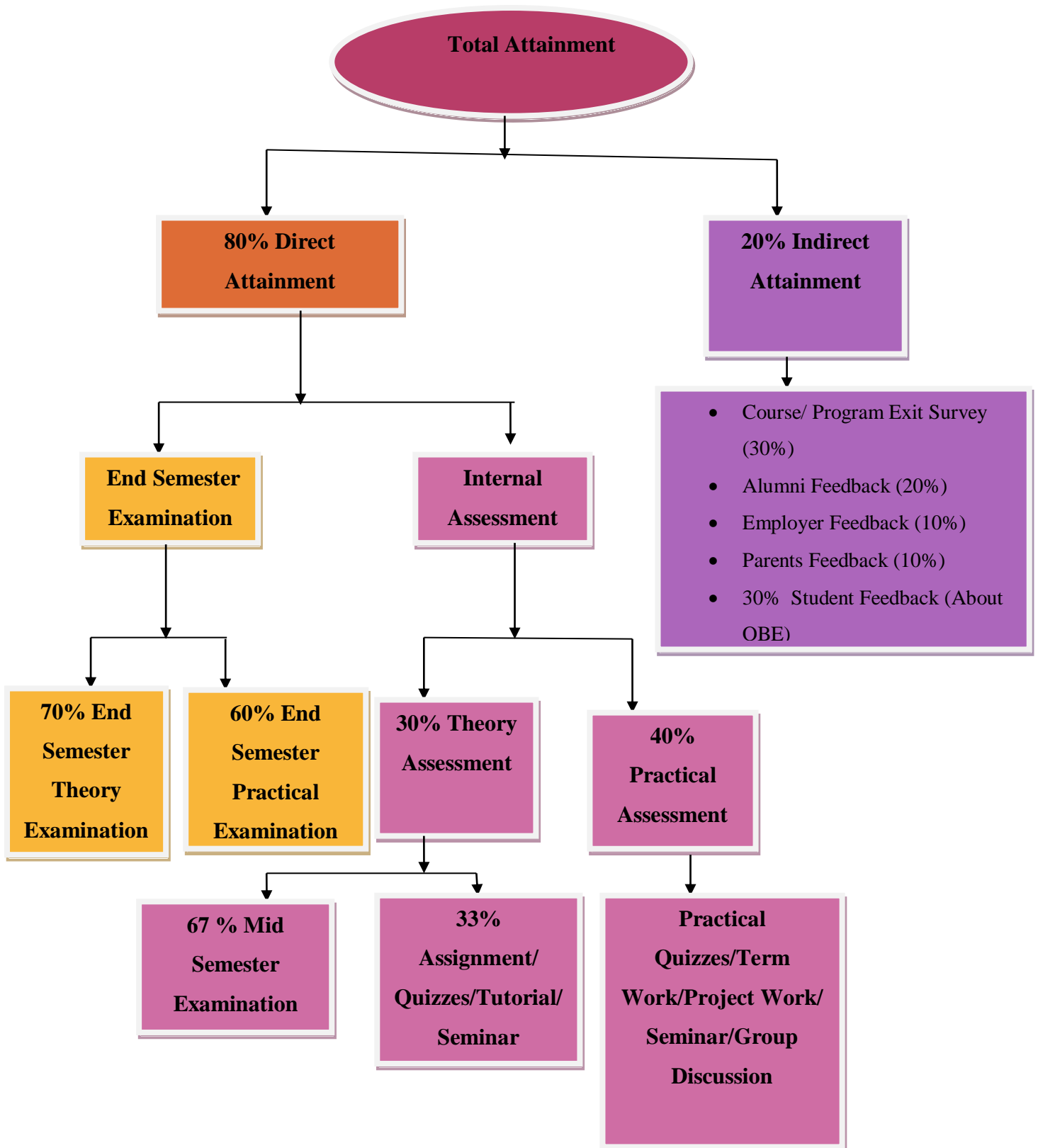


Figure 3.3 Flow Chart of Attainment Calculation

## [SELF ASSESSMENT REPORT]

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### Use of Rubrics for Evaluation and Assessment of PO's

- The Course/ Program outcomes are difficult to measure e.g. assessment of critical thinking, creativity, analytical skills, and problem solving etc. Hence the department has adopted criterion referenced rubrics to assess the POs and Cos, wherever appropriate. The Rubric criteria are either developed by department faculty or sometimes even with consultation with students and distributed among concerned before an assignment, project or test.
- Rubrics are used for both formative and summative assessment of students. Same rubric is used for assessing an outcome so that the faculty is able to assess student progress and maintain the record of the same for each student.
- The rubrics are shared with students before being evaluated so that they are aware of the performance criteria and their weightage.

### Rubrics Details

#### Internal & External Evaluation Rubrics (Theory Subject)

<b>Rubrics</b>	
<b>External Evaluation</b>	If 80% students achieve marks above 50 % marks then attained level is 3
	If 70% students achieve marks above 50 % marks then attained level is 2
	If 60% students achieve marks above 50 % marks then attained level is 1
<b>Internal Evaluation</b>	If 80% students achieve marks above 60% marks then attained level is 3
	If 70% students achieve marks above 60% marks then attained level is 2
	If 60% students achieve marks above 60% marks then attained level is 1

#### Internal & External Evaluation Rubrics (Practical Subject)

<b>Rubrics</b>	
<b>External Evaluation</b>	If 80% students achieve marks above 60 % marks then attained level is 3
	If 70% students achieve marks above 60 % marks then attained level is 2
	If 60% students achieve marks above 60 % marks then attained level is 1
<b>Internal Evaluation</b>	If 80% students achieve marks above 60% marks then attained level is 3
	If 70% students achieve marks above 60% marks then attained level is 2
	If 60% students achieve marks above 60% marks then attained level is 1



## [SELF ASSESSMENT REPORT]

### Lab Performance Evaluation Rubric

Student Name: -----

Enrollment Number: -----

-----

Evaluation Date: -----

S.N	Method of Evaluation	Rubrics	Exceeds expectation(3)	Meets expectation(2)	Doesn't meet expectation(0-1)	Marks
1	Conduction of Experiments (Hardware)	Lab Participation	Student demonstrates an accurate understanding of the lab objectives and concepts. The student can correctly answer questions and if appropriate, can explain concepts to fellow classmates. Student is eager to participate and assists when needed.	Student arrives on time to lab, but may be unprepared. Answers to questions are basic and superficial suggesting that concepts are not fully grasped.	Student tardiness or unpreparedness makes it impossible to fully participate. If able to participate, Student has difficulty explaining key lab concepts. OR Student was absent from lab	
2		Equipment connection	Student has made correct equipment/component connections as per standard circuit diagrams.	Student needed guidance to make correct equipment/component connections as per standard circuit diagrams.	Student was unable to make correct equipment/Component connections as per standard circuit diagrams.	
3		Data Recording/Collection	Student has correctly measured the relevant parameters	Student has performed incorrect measurement of relevant parameters	Student was unable to identify /measure relevant parameters	
4		Results	Accurate results have been achieved	The achieved results are not accurate but are within tolerance range	No results are achieved OR The achieved results are meaningless	
5		Troubleshooting	Student has ability to detect and correct the errors	Student can detect the error but unable to correct it	Student was unable to detect the error	
6	Conduction of Experiments (Hardware)	Lab Report	Student demonstrates an accurate understanding of the lab objectives and concepts. Questions are answered completely and correctly. Graphs are neat, creative and include complete titles and accurate units. Errors, if any are minimal	Student has a basic knowledge of content, but may lack some understanding of some concepts. Questions are answered fairly well and/or graphs could have been done more neatly, accurately or with more complete information.	Student has problems with both the graphs and the answers. Student appears to have not fully grasped the lab content and the graph(s) possess multiple errors. OR Student turns in lab report late or the report is incomplete	
7	Ethics	Safety	Student carefully observes the safety rules and procedures during practical work	Student observes safety rules and procedures with minor deviation during practical work	Student does not care about safety rules during practical work.	
8	Ethics	Punctuality	Student was on time and stayed till the completion of	Student was on time but wasted time	Student was not on time and left class	

## [SELF ASSESSMENT REPORT]

			task	outside the work place during the experiment.	before time.	
9	Ethics	Workplace Clearance	The student uses the equipment responsibly and clears the leftovers at the work place on completion of lab work	The student has shown responsibility towards using the equipment while he didn't care about the cleanliness of work place	The student has shown irresponsibility using the equipment and didn't clear the leftovers at the workplace on completion of lab work	
10	Team Work	Research & gather information	Student has collected a great deal of information which goes beyond the basics.	Student has collected basic information related the topic.	Student has not collected any information that relates to the topic	
11		Fulfil team role's duties	Student has performed the duties assigned and actively assisted others.	Student has shown limited performance in the duties that are assigned	Student has not performed any duties of assigned team role.	
12		Listen to other teammates	Consistently listens and responds to other appropriately	Usually doing most of the talking rarely allowed others to speak.	Student shows an assertive behaviour and was unable to show respect towards other teammates.	
13	Conduction of Experiments (Software)	Familiarity with software	Student has full command on the basic tools of the software.	Student has limited command on the basic tools of the software.	Student has no idea how to use the basic tools of the software.	
14		Simulation Steps	Has applied all the steps in correct sequence to obtain the results.	Some steps are followed but not in proper sequence	Student has no idea regarding the steps to be followed to perform simulation	
15		Coding Skills	The code is completely functional and responds correctly producing the correct outputs.	The Code is correct with regard to syntax but required output is not correct.	The code has several syntax errors. Important parts of code are missing.	
16	Conduction of Experiments (Software)	Schematic of the Circuit	Schematic of circuit/board is made with proper connections/wiring.	Schematic of circuit/board is made with only basic proper connections/wiring	Schematic of circuit/board is made with only basic connections/wiring and has several errors.	
<b>Total Marks</b>						

# [SELF ASSESSMENT REPORT]

## Project Work Evaluation Rubrics

Student Name: -----

Enrolment Number: -----

-----

Evaluation Date: -----

Evaluation Parameters	Max. Marks	Rubric Parameters	Level of Achievement				
			Excellent (9-10)	Very Good (7-8)	Good (5-6)	Average (3-4)	Poor (1-2)
Attendance	10	Continuity	85% above Attendance	70-85% Attendance	60-70% Attendance	40-60% Attendance	40% Below Attendance
Design Methodology	20	Conceptual design, Division of problem into modules, Selection of design Framework.	Properly followed & Properly Justified	Properly Followed & Justified Partially	Properly followed & Not Justified	Partially Followed and Partially justified	Not followed and Not justified
Implementation	20	Design Circuit Model, Algorithm, Coding	Properly Followed & Properly implemented	Properly Followed & Implemented Partially	Properly followed & Not implemented	Partially Followed and Partially implemented	Not followed and Not implemented
Presentation	10	Preparation of Slides, Presentation Consistency	Relevant and consistent	Relevant & partially consistent	Partially relevant & consistent	Partially relevant & partially consistent	Not relevant & inconsistent
Demonstration	10	Hardware & Software modules, Working and results	Properly demonstrated & Properly Justified Results	Properly Demonstrated & Partially Justified Results	Partially demonstrated & Justified	Partially demonstrated and Partially Justified	Not demonstrated and no justification
Viva	10	Handling Questions	Answered all questions with proper justification	Answered 80% questions	Answered 60% questions	Answered 40% question	Answered 20% questions
Project Report	20	Contents Of Report	Excellent	Very Good	Good	Average	Poor

## [SELF ASSESSMENT REPORT]

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### Seminar

- For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It will be evaluated by the departmental committee consisting of head of the department.
- The seminar report shall be evaluated for 50 marks. There will be no external examination for the seminar. The committee evaluates seminar based on following parameters.

Assessment Tool	
Internal Assessment	Presentation
	Viva-voce

- **Presentation:** The content, quality of the presentation and communication skill is assessed by the evaluation committee.
- **Viva-voce:** At the end of the presentation, the assessment panel and the peer group ask questions and seek clarifications on specific issues related to the seminar. The effectiveness of the student's response to these queries is assessed.

## [SELF ASSESSMENT REPORT]

### SEMINAR EVALUATION RUBRIC

- Student Presenter: \_\_\_\_\_
- Evaluator Date: -----

Evaluate the student's presentation				
Evaluation Parameters	Outstanding(4)	Admirable(3)	Average(2)	Inadequate(1)
<b>Knowledge and Content</b>	<b>Outstanding</b>	<b>Admirable</b>	<b>Average</b>	<b>Inadequate</b>
<b>Organization of presentation</b>	Information presented as interesting story in logical, easy to follow sequence	Information presented in logical sequence; easy to follow	Most of information presented in sequence	Hard to follow; sequence of information jumpy
<b>Background content</b>	Material sufficient for clear understanding AND exceptionally presented	Material sufficient for clear understanding AND effectively presented	Material sufficient for clear understanding but not clearly presented	Material not clearly related to topic OR background dominated seminar
<b>Methods</b>	Sufficient for understanding and exceptionally presented	Sufficient for understanding and effectively presented	Sufficient for understanding <b>but</b> not clearly presented	Methods too brief or insufficient for adequate understanding
<b>Results (figures, graphs, tables, etc.)</b>	All figures clear	Most figures clear	Majority of figures clear	Some figures hard to read
<b>Contribution of work</b>	Significance exceptionally well explained	Significance explained	Significance mentioned	Significance not mentioned or just hinted. Reasonably explained
<b>Knowledge of subject</b>	Demonstrated full knowledge; answered all questions with elaboration	At ease; answered all questions <b>but</b> failed to elaborate	At ease with information; answered most questions	Does not have grasp of information; answered only rudimentary questions
<b>Presentation Skills</b>	All appropriately formatted	Most appropriately formatted	Majority appropriately formatted	Some explanations lacking
<b>Graphics (use of PowerPoint)</b>	Uses graphics that explain and reinforce text and presentation	Uses graphics that explain text and presentation	Uses graphics that relate to text and presentation	Uses graphics that rarely support text and presentation

## [SELF ASSESSMENT REPORT]

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- Rubrics for evaluation of Indirect Assessment

<b>Internal Evaluation</b>	If 60% Parents are giving above 60% attained level is 3
	If 50% Parents are giving above 60% then attained level 2
	If 40% Parents achieve marks above 60% marks then attained level is 1

<b>Internal Evaluation</b>	If 60% Alumni are giving above 60% attained level is 3
	If 50% Alumni are giving above 60% then attained level 2
	If 40% Alumni achieve marks above 60% marks then attained level is 1

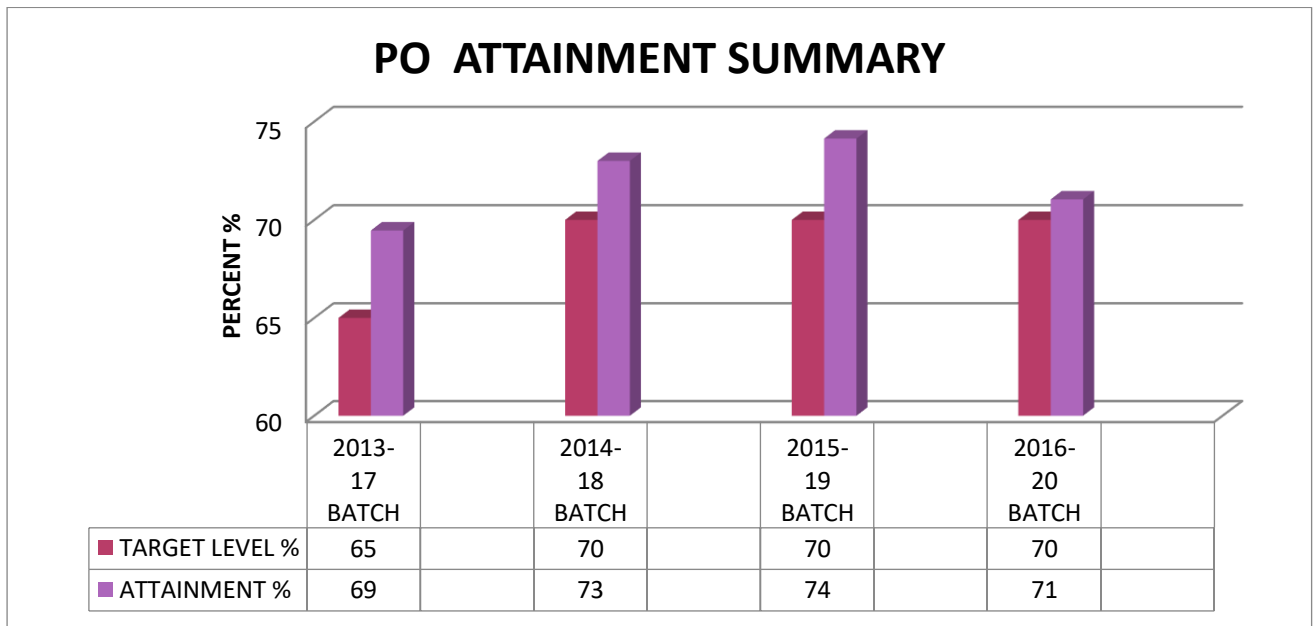
<b>Internal Evaluation</b>	If 60% Students are giving above 60% attained level is 3
	If 50% Students are giving above 60% then attained level 2
	If 40% Students achieve marks above 60% marks then attained level is 1

<b>Internal Evaluation</b>	If 60% Employer are giving above 60% attained level is 3
	If 50% Employer are giving above 60% then attained level 2
	If 40% Employer achieve marks above 60% marks then attained level is 1

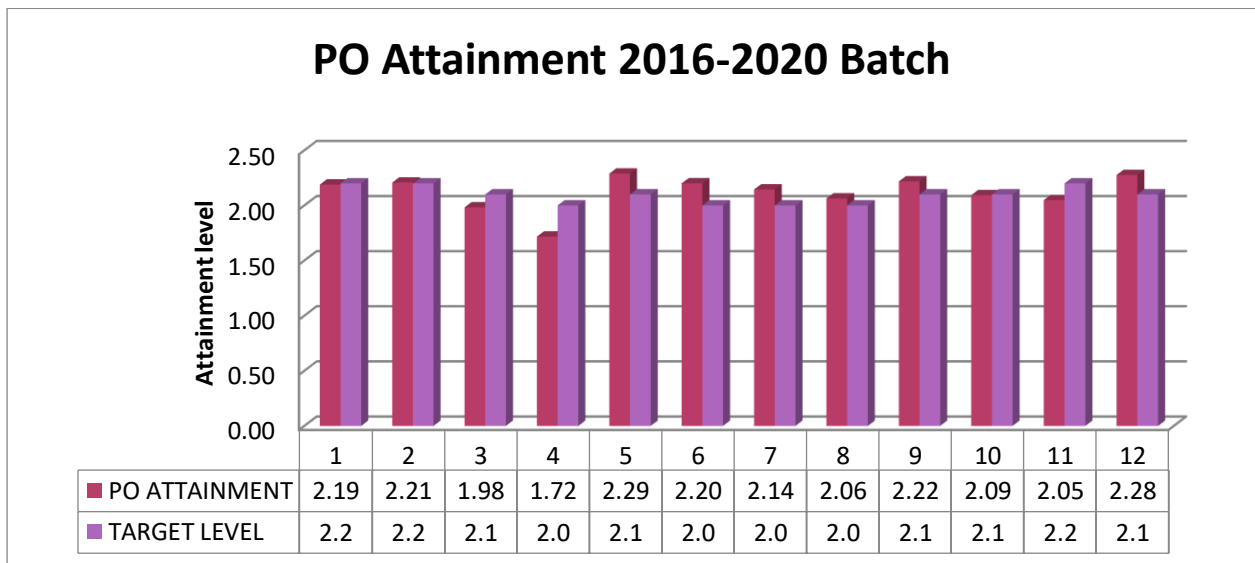
## [SELF ASSESSMENT REPORT]

### PO ATTAINMENT SUMMARY

PO ATTAINMENT SUMMARY SHEET		
	TARGET LEVEL %	ATTAINMENT %
2013-17 BATCH	65	<b>69</b>
2014-18 BATCH	70	<b>73</b>
2015-19 BATCH	70	<b>74</b>
2016-20 BATCH	70	<b>71</b>



### 2016-2020 PO Attainment



## [SELF ASSESSMENT REPORT]

IES COLLEGE OF TECHNOLOGY ,BHOPAL (0177)												
PO Attainment EVALUATION SHEET MECHANICAL ENGINEERING 2016-2020 BATCH												
PO Attainment												
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
MA 110	1.2	1.2	1.2	1.2	-	1.2	1.2	-	-	-	1.2	1.2
EE 111	2.1	2.1	1.2	1.2	2.1	2.1	-	-	2.1	-	1.2	2.1
ME 112	2.4	2.4	2.4	2.4	2.4	2.4	-	-	2.4	-	2.4	2.4
HU 110	3	3	-	-	-	3	-	-	3	-	-	3
CY 110	3	3	3	3	3	3	-	-	3	-	3	3
ME 110	3	3	-	-	-	3	3	3	-	-	-	3
CS 110	3	3	3	-	3	3	3	-	3	3	-	3
HU 112	3	3	-	-	3	3	-	-	3	3	-	3
MA 111	1.2	1.2	-	-	-	-	-	-	-	-	-	1.2
EC 111	2.4	2.4	3	-	-	1.8	1.8	1.8	-	-	-	2.4
CE 110	2.1	2.1	-	-	-	2.1	2.1	-	-	-	-	2.1
ME 111	2.4	2.4	-	-	-	2.4	2.4	-	-	-	-	2.4
PH 110	2.1	2.1	-	-	3	-	-	-	2.1	-	-	2.1
ME 113	3	3	3	-	3	3	-	-	3	-	-	3
ML 110	3	3	3	-	3	3	3	-	3	-	-	3
HU 111	3	3	-	-	-	3	3	3	-	3	-	3
ES 3001	0.83	0.87	-	-	-	0.90	0.90	-	-	0.90	-	0.83
ME 3002	1.69	1.69	1.66	0.90	-	0.90	0.90	1.75	1.75	1.75	-	1.70
ME 3003	1.79	1.79	-	-	-	0.90	0.90	1.68	1.75	1.79	-	-
ME 3004	1.79	1.79	0.90	0.90	-	1.75	1.95	1.82	1.75	1.78	1.55	2.73
ME 3005	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	-
ME 3006	2.68	2.68	2.47	-	2.7	2.8	2.4	3	2.4	2.6	-	2.65
ME 3007	3	3	3	-	-	3	3	3	3	3	-	3
ME 3008	3	3	-	-	3	-	-	-	3	-	-	3
BE 3001	0.72	0.72	-	-	-	0.75	0.90	0.90	0.75	0.90	-	0.72
ME 4002	1.55	1.55	0.30	2.44	-	-	-	-	-	1.55	-	-
ME 4003	1.69	1.69	0.70	0.60	1.35	1.75	1.95	1.75	1.43	1.69	-	2.33
ME 4004	2.00	2.00	1.60	1.30	-	2.04	1.97	1.95	1.98	1.97	-	1.99
ME 4005	0.78	0.78	0.81	0.60	-	0.75	0.60	0.75	0.75	0.70	-	-
ME 4006	2.36	2.36	2.33	-	2.33	2.20	2.20	1.80	2.20	2.07	-	2.25
ME 4007	3	3	3	-	3	-	-	-	3	3	3	3
ME 4008	3	3	-	-	-	3	3	3	3	3	-	3
ME 5001	1.18	1.18	-	-	1.30	1.00	1.00	1.20	1.00	1.00	-	1.18
ME 5002	1.42	1.36	1.30	1.50	1.41	1.15	1.23	1.28	1.22	2.20	-	1.41
ME 5003	1.44	1.44	0.60	0.60	0.60	1.25	1.33	1.53	1.33	1.40	-	1.44



## [SELF ASSESSMENT REPORT]

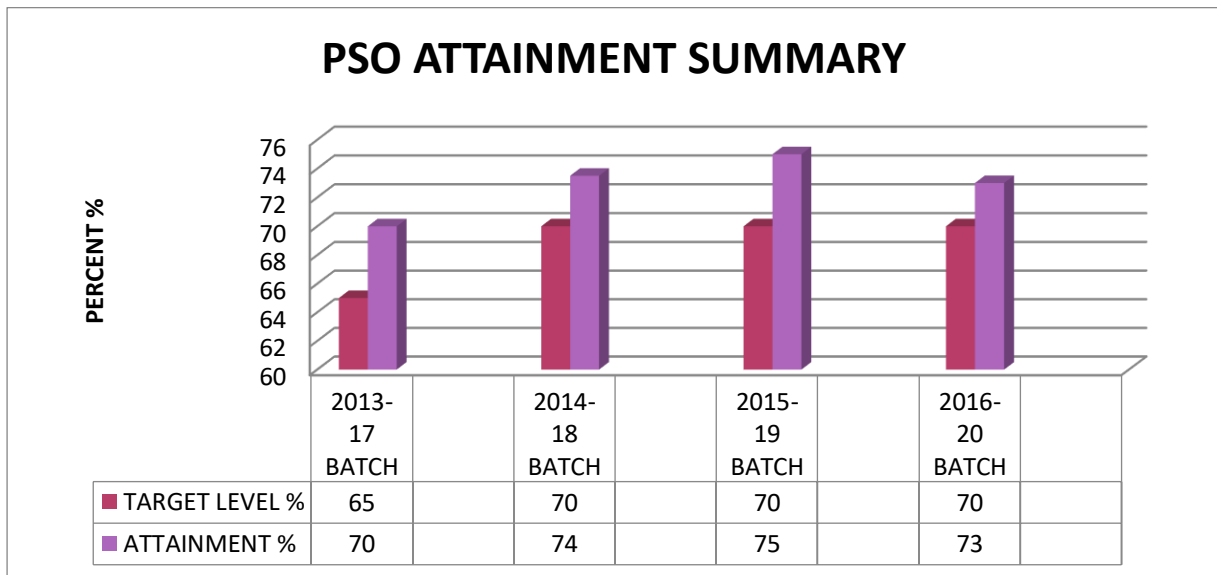
ME 5004	1.47	1.47	0.75	0.75	-	2.20	1.65	1.95	1.65	1.45	1.40	1.46
ME 5005	0.60	0.60	-	-	0.60	0.60	-	0.60	0.60	0.56	0.60	0.60
ME 5006	2.33	2.28	2.28	2.28	2.28	2.28	2.20	2.20	2.20	2.40	2.20	2.28
ME 5007	3	3	3	3	3	3	3	3	3	3	3	3
ME 5008	3	3	3	3	3	3	3	3	3	3	3	3
ME 6001	0.47	0.47	-	-	-	0.30	0.53	0.42	0.40	0.30	0.45	0.42
ME 6002	1.45	1.43	-	-	-	1.43	1.55	1.33	1.43	1.65	-	1.44
ME 6003	1.38	1.35	0.45	0.00	1.29	1.34	1.14	1.25	1.25	1.35	3.00	1.37
ME 6004	1.41	1.39	-	-	1.42	1.70	1.15	1.28	1.38	1.41	-	1.41
ME 6005	0.42	0.42	0.42	0.45	0.30	0.30	0.30	0.00	0.42	0.00	0.00	0.35
ME 6006	2.26	2.20	2.31	2.25	2.28	3.00	1.80	3.00	2.20	2.60	1.80	2.20
ME 6007	3	3	-	-	-	3	3	3	3	3	-	3
ME 6008	3	3	-	-	-	3	3	3	3	3	-	3
ME 7001	1.46	1.44	-	-	0.45	1.63	1.40	1.13	1.73	1.35	1.95	1.43
ME 7002	1.42	1.43	2.40	1.80	0.90	1.52	1.30	1.30	1.38	1.30	-	1.43
ME 7003	1.51	1.56	0.90	0.90	1.56	1.65	1.56	1.65	1.56	1.56	1.56	1.56
ME 7004	2.30	2.30	-	-	-	2.30	2.30	2.30	2.30	2.30	2.30	2.30
ME 7005	2.23	2.24	2.15	2.15	2.30	2.30	2.30	2.30	2.30	2.30	-	2.24
ME 7006	3	3	3	3	3	3	3	3	3	3	3	3
ME 7007	2.60	2.60	2.50	-	2.50	3.00	3.00	2.77	2.53	2.67	2.73	2.60
ME 8001	3	3	-	-	3	3	3	3	3	3	-	3
ME 8002	3	3	3	-	3	3	3	3	3	3	-	3
ME 8003	3	3	-	-	3	3	3	3	3	3	3	3
ME 8004	3	3	-	-	3	3	3	3	3	3	-	3
ME 8005	3	3	-	-	3	3	3	3	3	3	3	3
ME 8006	3	3	-	-	3	3	3	3	3	3	-	3
ME 8007	3	3	-	-	3	3	3	3	3	3	-	3
<b>DIRECT ATTAINMENT</b>	<b>2.16</b>	<b>2.16</b>	<b>1.93</b>	<b>1.55</b>	<b>2.24</b>	<b>2.15</b>	<b>2.06</b>	<b>2.08</b>	<b>2.17</b>	<b>2.09</b>	<b>2.01</b>	<b>2.25</b>

PO Attainment												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>DIRECT ATTAINMENT</b>	2.16	2.16	1.93	1.55	2.24	2.15	2.06	2.08	2.17	2.09	2.01	2.25
<b>INDIRECT ATTAINMENT</b>	2.3	2.4	2.2	2.4	2.5	2.4	2.5	2	2.4	2.1	2.2	2.4
<b>PO ATTAINMENT</b>	2.19	2.21	1.98	1.72	2.29	2.20	2.14	2.06	2.22	2.09	2.05	2.28
<b>TARGET LEVEL</b>	2.2	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.1

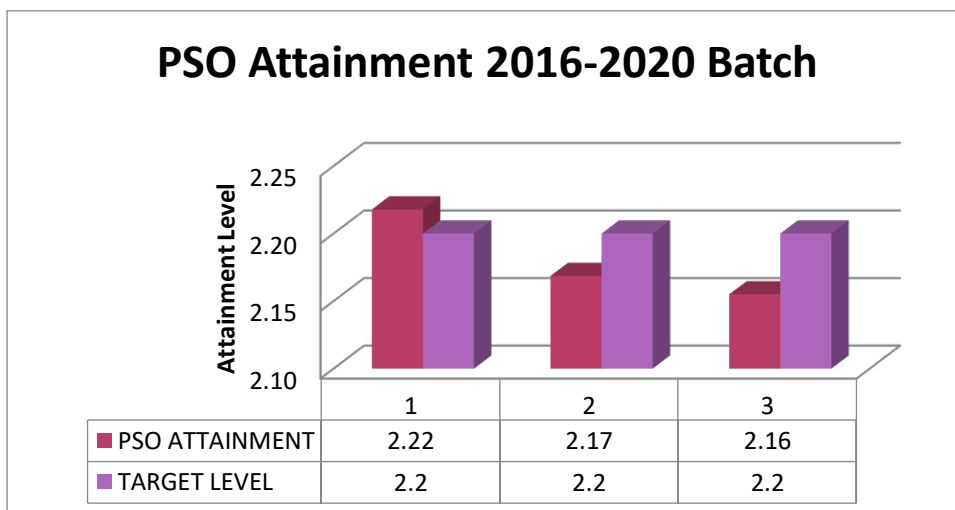
## [SELF ASSESSMENT REPORT]

### PSO ATTAINMENT SUMMARY

PSO ATTAINMENT SUMMARY SHEET		
	TARGET LEVEL %	ATTAINMENT %
2013-17 BATCH	65	<b>70</b>
2014-18 BATCH	70	<b>74</b>
2015-19 BATCH	70	<b>75</b>
2016-20 BATCH	70	<b>73</b>



### 2016-2020 PSO Attainment



## [SELF ASSESSMENT REPORT]

<b>IES COLLEGE OF TECHNOLOGY ,BHOPAL (0177)</b>				
<b>PSO Attainment EVALUATION SHEET MECHANICAL ENGINEERING 2016-2020 BATCH</b>				
		<b>PSO Attainment</b>		
	<b>Course</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>I</b>	MA 110	1.2	1.2	1.2
	EE 111	2.1	2.1	2.1
	ME 112	2.4	2.4	2.4
	HU 110	3	3	3
	CY 110	3	3	3
	ME 110	3	3	3
	CS 110	3	3	3
	HU 112	3	3	3
<b>II</b>	MA 111	1.2	1.2	1.2
	EC 111	2.4	2.4	2.4
	CE 110	2.1	3	2.1
	ME 111	2.4	2.4	2.4
	PH 110	2.1	2.1	2.1
	ME 113	3	3	3
	ML 110	3	3	3
	HU 111	3	3	3
<b>III</b>	ES 3001	0.80	0.90	0.80
	ME 3002	1.69	1.78	1.67
	ME 3003	1.79	1.65	1.85
	ME 3004	1.77	1.88	1.75
	ME 3005	0.90	0.90	0.90
	ME 3006	2.68	2.6	3
	ME 3007	3	3	3
	ME 3008	3	3	3
	BE 3001	0.72	0.60	0.60
<b>IV</b>	ME 4002	1.57	1.31	1.55
	ME 4003	1.70	1.70	1.69
	ME 4004	2.00	2.15	2.24
	ME 4005	0.78	0.78	0.80
	ME 4006	2.36	2.50	1.80
	ME 4007	3	3	3
	ME 4008	-	3	3
<b>V</b>	ME 5001	1.18	1.30	1.30
	ME 5002	1.38	1.40	1.58
	ME 5003	1.44	1.33	1.30

## [SELF ASSESSMENT REPORT]

	ME 5004	1.47	1.58	1.88
	VME 5005	0.60	0.60	0.60
	ME 5006	2.31	2.42	2.12
	ME 5007	3	3	3
	ME 5008	3	3	3
VI	ME 6001	0.38	0.41	0.30
	ME 6002	1.43	1.50	1.59
	ME 6003	1.39	1.34	1.35
	ME 6004	1.45	1.37	1.41
	ME 6005	0.42	0.60	0.45
	ME 6006	2.28	2.49	2.10
	ME 6007	3	3	3
	ME 6008	3	3	3
VII	ME 7001	1.43	1.49	1.53
	ME 7002	1.47	1.43	1.60
	ME 7003	1.62	1.52	1.60
	ME 7004	2.30	2.30	2.30
	ME 7005	2.24	2.20	2.26
	ME 7006	3	3	3
	ME 7007	2.54	2.71	2.67
VIII	ME 8001	3	3	3
	ME 8002	3	3	3
	ME 8003	3	3	3
	ME 8004	3	3	3
	ME 8005	3	3	3
	ME 8006	3	3	3
	ME 8007	3	3	3
<b>DIRECT ATTAINMENT</b>		<b>2.15</b>	<b>2.19</b>	<b>2.17</b>

	PSO Attainment		
	PSO1	PSO2	PSO3
<b>DIRECT ATTAINMENT</b>	2.15	2.19	2.17
<b>INDIRECT ATTAINMENT</b>	2.5	2.1	2.1
<b>PSO ATTAINMENT</b>	2.22	2.17	2.16
<b>TARGET LEVEL</b>	2.2	2.2	2.2

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## [SELF ASSESSMENT REPORT]

<b>CRITERION 4</b>	<b>Students' Performance</b>	<b>150</b>
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### 4. STUDENTS' PERFORMANCE (150)

Table 4.1

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	CAY (2020- 21)	CAYm 1 (2019- 20)	C AYm 2 (201 8-19)	CAYm3 2017-2018	CAYm4 (LYG) 2016-2017	CAYm5 (LYGm1) 2015-2016	CAYm6 (LYGm2) 2014-2015
Sanctioned intake of the program (N)	120	120	120	120	120	120	120
Total number of students admitted in first year <i>minus</i> number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	80	103	103	105	120	120	102
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	00	21	20	21	11	03	02
Separate division (N3)	00	00	00	00	00	00	00
Total number of students admitted in the Program (N1 + N2 + N3)	80	124	123	126	131	123	104

## [SELF ASSESSMENT REPORT]

**Table 4.2**

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated without backlogs in any semester/year of study (Without Backlog means no compartment or failures in any semester/year of study)			
		I Year	II Year	III Year	IV Year
CAY (2020-2021)	80	-	-	-	-
CAY <sub>m1</sub> (2019-2020)	124	30	-	-	-
CAY <sub>m2</sub> (2018-2019)	123	44	41	-	-
CAY <sub>m3</sub> (2017-2018)	126	41	34	31	-
LYG (2016-2017)	131	57	27	24	24
LYG <sub>m1</sub> (2015-2016)	123	26	21	19	18
LYG <sub>m2</sub> (2014-2015)	104	25	13	12	12

**Table 4.3**

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated in stipulated period of study [Total of with Backlog + without Backlog]			
		I Year	II Year	III Year	IV Year
CAY (2020-2021)	80	-	-	-	-
CAY <sub>m1</sub> (2019-2020)	124	96	-	-	-
CAY <sub>m2</sub> (2018-2019)	123	92	107	-	-
CAY <sub>m3</sub> (2017-2018)	126	97	110	110	-
LYG (2016-2017)	131	119	120	111	104
LYG <sub>m1</sub> (2015-2016)	123	110	109	105	102
LYG <sub>m2</sub> (2014-2015)	104	94	93	82	79

## [SELF ASSESSMENT REPORT]

### 4.1. Enrolment Ratio (20)      Enrolment Ratio= $N1/N$

**Table 4.4**

Year	N1	N	Enrolment Ratio= $N1/N$	Percentage
2020-2021	80	120	0.6667	66.67
2019-2020	103	120	0.8583	85.83
2018-2019	103	120	0.8583	85.83
<b>Average</b>			0.7944	79.44
<b>Marks</b>			16	

### 4.2 Success Rate in the stipulated period of the program (40)

#### 4.2.1 Success rate without backlogs in any semester/year of study (25)

SI= (Number of students who have graduated from the program without backlog)/  
(Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable)

Average SI = Mean of Success Index (SI) for past three batches

**Success rate without backlogs in any year of study =  $25 \times$  Average SI**

**Table 4.5**

Item	Latest Year of Graduation, LYG (2016-17)	Latest Year of Graduation minus 1 LYGM1 (2015-16)	Latest Year of Graduation minus 2 LYGM2 (2014-15)
<b>Number of students admitted in the corresponding First Year + admitted in 2<sup>nd</sup> year via lateral entry and separate division, if applicable</b>	131	123	104
<b>Number of students who have graduated without backlogs in the stipulated period</b>	24	18	12
<b>Success Index (SI)</b>	0.18	0.15	0.12
<b>Average SI</b>	0.15		

**Success rate without backlogs in any year of study =  $25 \times 0.15 = 3.75$**

## [SELF ASSESSMENT REPORT]

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### 4.2.2 Success rate with backlog in stipulated period of study (15)

SI= (Number of students who graduated from the program in the stipulated period of course duration)/ (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable)

Average SI = mean of Success Index (SI) for past three batches

Success rate =  $15 \times$  Average SI

**Table 4.6**

Item	Latest Year of Graduation, LYG (2016-17)	Latest Year of Graduation minus 1 LYGm1 (2015-16)	Latest Year of Graduation minus 2 LYGm2 (2014-15)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	131	123	104
Number of students who have graduated with backlog in the stipulated period	104	102	79
Success Index	0.79	0.83	0.76
Average Success Index	0.79		

Success rate =  $15 \times 0.79=11.85$

**Note:** If 100% students clear without any backlog then also total marks scored will be 40 as both 4.2.1 & 4.2.2 will be applicable simultaneously.



## [SELF ASSESSMENT REPORT]

### 4.3 Academic Performance in Third Year (15)

Academic Performance = 1.5 \* Average API (Academic Performance Index)

API = ((Mean of 3<sup>rd</sup> Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Third Year/10)) x (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the final year.

**Table 4.7**

Academic Performance	CAY m3 (2017-2018)	LYG (2016-2017)	LYGm1 (2015-2016)
Mean of CGPA or Mean Percentage of all successful students (X)	7.13	6.83	6.72
Total no. of successful students (Y)	110	111	105
Total no. of students appeared in the examination (Z)	110	120	109
API = x* (Y/Z)	7.13	6.32	6.47
Average API = (AP1 + AP2 + AP3)/3	<b>6.64</b>		

**Academic Performance Level = 1.5 \* 6.64=9.96**

### 4.4 Academic Performance in Second Year (15)

Academic Performance Level = 1.5 \* Average API (Academic Performance Index)

API = ((Mean of 2<sup>nd</sup> Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Second Year/10)) x (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the Second year.

**Table 4.8**

Academic Performance	CAYm2 (2018-2019)	CAYm3 (2017-2018)	LYG (2016-2017)
Mean of CGPA or Mean Percentage of all successful students (X)	6.87	6.79	6.91
Total no. of successful students (Y)	107	110	120
Total no. of students appeared in the examination (Z)	112	118	130
API = x* (Y/Z)	6.56	6.33	6.37
Average API = (AP1 + AP2 + AP3)/3	6.42		

**Academic Performance Level = 1.5 \* 6.42=9.63**

## [SELF ASSESSMENT REPORT]

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### 4.5 Placement, Higher Studies and Entrepreneurship (40)

Assessment Points = 40 × average placement

Table 4.9

Item	LYG	LYGm1	LYGm2
	(2016-2017)	(2015-2016)	(2014-2015)
Total No. of Final Year Students (N)	111	105	82
No. of students placed in companies or Government Sector (x)	62	59	51
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	0	2	2
No. of students turned entrepreneur in engineering/technology (z)	0	0	0
$x + y + z =$	62	61	53
Placement Index : $(x + y + z)/N$	0.56	0.58	0.64
Average placement = $(P1 + P2 + P3)/3$	0.59		

Assessment Points = 40 × average placement

Assessment Points = 40 × 0.59=23.6

## [SELF ASSESSMENT REPORT]

### 4.5.1 Placement Details

Table 4.10

<b>IES COLLEGE OF TECHNOLOGY, BHOPAL</b>				
<b>Department of Mechanical Engineering</b>				
<b>S.No</b>	<b>Student Name</b>	<b>Enrollment No</b>	<b>Employer Name</b>	<b>Appointment No.</b>
1	AAKASH GUPTA	0177ME161001	Asahi India Galss Ltd.	7-Dec-19
2	ABHINAV	0177ME161002	Ceasfire	27-Jul-20
3	ADITYA KUMAR PURI	0177ME161004	XL Dynamics	10-Jul-20
4	AHMAR SIDDIQUI	0177ME161006	Repro India	10-Feb-19
5	AMAN KUMAR SINGH	0177ME161010	Ceasfire	27-Jul-20
6	ANSHU KUMAR	0177ME161013	Topper Technologies	13-Nov-19
7	ASHIQUE RAZA	0177ME161016	JBM Auto System Pvt. Ltd.	20-Jan-20
8	AZAHRUDDIN KHAN	0177ME161018	XL Dynamics	10-Jul-20
9	AZHAR UDDIN KHAN	0177ME161020	Repro India	10-Feb-19
10	AZMAT ALI	0177ME161021	Epic Research	16-Jul-20
11	BRIJKESHVAR CHAUHAN	0177ME161022	Ceasfire	27-Jul-20
12	CHANDAN KUMAR	0177ME161023	XL Dynamics	10-Jul-20
13	DURGESH SINGH	0177ME161029	Topper Technologies	13-Nov-19
14	GOVINDA KUMAR YADAV	0177ME161030	Epic Research	16-Jul-20
15	HAIDER ANSARI	0177ME161031	Ceasfire	27-Jul-20
16	HARIOM KUMAR SINGH	0177ME161032	JBM Auto System Pvt. Ltd.	20-Jan-20
17	HARSH RAJ	0177ME161033	Topper Technologies	13-Nov-19
18	INTEKHAB ALAM	0177ME161036	Repro India	10-Feb-19
19	JAWED AKHTAR	0177ME161038	Epic Research	16-Jul-20
20	KAMLESH KUMAR PARIT	0177ME161040	Pyramid IT	13-Nov-19
21	KANHAIYA KUMAR SAH	0177ME161041	Topper Technologies	13-Nov-19
22	KRISHNA KUMAR	0177ME161043	Repro India	10-Feb-19
23	MANISH KUMAR	0177ME161046	Epic Research	16-Jul-20
24	MD AFTAB ALAM	0177ME161049	Repro India	10-Feb-19
25	MD ASGAR	0177ME161051	JBM Auto System Pvt. Ltd.	20-Jan-20
26	MD JAHANGIR	0177ME161054	Ceasfire	27-Jul-20
27	MD JANE ALAM	0177ME161055	Topper Technologies	13-Nov-19
28	MD KAMRAN KHAN	0177ME161057	Pyramid IT	13-Nov-19
29	MD NADIR ALAM	0177ME161059	XL Dynamics	10-Jul-20
30	MD NOORALAM	0177ME161061	JBM Auto System Pvt. Ltd.	20-Jan-20

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31	MD SHAFIQUE EQUBAL	0177ME161065	Repro India	10-Feb-19
32	MD SHAHBAN ALAM	0177ME161066	Pyramid IT	13-Nov-19
33	MRITYUNJAY KUMAR	0177ME161068	JBM Auto System Pvt. Ltd.	20-Jan-20
34	MUNNA KUMAR SHARMA	0177ME161070	Piaggio	PVPL/GAT/October 2020
35	NITESH YADAV	0177ME161072	Topper Technologies	13-Nov-19
36	PANKAJ KUMAR SAH	0177ME161075	Piaggio	PVPL/GAT/October 2020
37	RAJAN SINGH	0177ME161080	Asahi India Galss Ltd.	7-Dec-19
38	RAVISH KUMAR	0177ME161086	XL Dynamics	10-Jul-20
39	RISHAV RAJ	0177ME161088	Pyramid IT	13-Nov-19
40	SACHESHT	0177ME161091	Asahi India Galss Ltd.	7-Dec-19
41	SAJJAD HUSSAIN	0177ME161093	Piaggio	PVPL/GAT/October 2020
42	SAMEER RAJ (H)	0177ME161094	JBM Auto System Pvt. Ltd.	20-Jan-20
43	SAMEER TUDU	0177ME161095	XL Dynamics	10-Jul-20
44	SANTOSH KUMAR SAH (H)	0177ME161098	Ceasfire	27-Jul-20
45	SHAILESH KUMAR SINGH	0177ME161101	Asahi India Galss Ltd.	7-Dec-19
46	SHASHANK SHARMA	0177ME161103	Piaggio	PVPL/GAT/October 2020
47	SHOAIB AKHTAR	0177ME161106	Topper Technologies	13-Nov-19
48	SHUBHAM RAJ	0177ME161108	Asahi India Galss Ltd.	7-Dec-19
49	SIDDHARTHA KUMAR ( H)	0177ME161109	JBM Auto System Pvt. Ltd.	20-Jan-20
50	SUJEET KUMAR	0177ME161112	Repro India	10-Feb-19
51	TUHIN DUBEY	0177ME161114	Topper Technologies	13-Nov-19
52	UPENDRA KUMAR	0177ME161115	Asahi India Galss Ltd.	7-Dec-19
53	VAIBHAV KUMAR SHARMA	0177ME161118	Epic Research	16-Jul-20
54	VISHWANATH KUMAR (H)	0177ME161119	Topper Technologies	13-Nov-19
55	WAZID ALI	0177ME161121	Asahi India Galss Ltd.	7-Dec-19
56	DHIRENDRA KUMAR SINGH	0177EC161032	XL Dynamics	10-Jul-20
57	MAHAFUJ ANSARI	0177EC161049	Piaggio	PVPL/GAT/October 2020
58	SYED MD SHANUR RAHMAN	0177EX161107	Pyramid IT	13-Nov-19
59	LAKHAN KUMAR	0177ME173D04	Asahi India Galss Ltd.	7-Dec-19
60	MD SHAD TABREZ	0177ME173D06	JBM Auto System Pvt. Ltd.	20-Jan-20
61	PUSHP RAJ SINHA	0177ME173D09	Asahi India Galss Ltd.	7-Dec-19
62	VISHAL KUMAR	0177ME173D12	JBM Auto System Pvt. Ltd.	20-Jan-20

## [SELF ASSESSMENT REPORT]

### 4.6. Professional Activities (20)

**Table 4.11 Professional societies / chapters and organizing engineering events (5)**

Year	Professional societies / chapters	Year
1	CII-Young India, NPTEL Local Chapter	2020-21
2	CII-Young India	2019-20
3	CII-Young India	2018-19
4	CII-Young India	2017-18

Following events have been conducted under the NPTEL Local Chapter

**Table 4.12**

S.No.	Organized event under society	Place of Activity	Level of event	Duration/ Days of Activity	Outcome of Program
1	Topic: “NPTEL: An initiative under National Mission on Education through Information Technology (NME – ICT) Programme, Govt. of India	IES College of Technology, Bhopal	National	10/4/2021	POs – 1,2,4,5,12

Following events have been conducted under the CII-Young India

**Table 4.13**

S.No.	Organized event under society	Place of Activity	Level of event	Duration/ Days of Activity	Outcome of Program
1	“International Study Opportunities: Pathways and Plans During COVID and Beyond”	IES College of Technology, Bhopal	National	21/09/2020	POs –8,9,11,12
2	Job Opportunities in post Covid-19 Scenario and Challenges thereafter	IES College of Technology, Bhopal	National	20/06/2020	POs –8,9,11
3	Expert Lecture on Industry 4.0 future skills	IES College of Technology, Bhopal	National	21-22 Jan 2020	POs – 1,2,4,5,6,9,12
4	Industrial Visit CIPET	CIPET, Bhopal	Institute	29/8/ 2019	POs – 1,2,3,4,5,6,9,11,12
5	Industrial Visit on Liquid Nitrogen Plant	Kerwa Road, Bhopal	Institute	October 2019	POs – 1,2,4,6,9,12
6	CII Workshop on GGSY Solar Yatra	IES College of	National	2nd to 6th Oct 2019	POs – 1,2,3,5,6,7,8,9,11,12

## [SELF ASSESSMENT REPORT]

		Technology, Bhopal			
7	CII Chapter Expert Session on Innovation, Startup & Enterprunial Skills	IES College of Technology, Bhopal	National	3/10/2019	POs –2,3,6,8,9,10,11,12
8	CII Session_ Enternprenurship & innovation as a Career	IES College of Technology, Bhopal	National	11/10/ 2019	POs –2,3,6,8,9,10,11,12
9	In house CII Expert talk production process on Rapid Prototyping	IES College of Technology, Bhopal	Institute	20/12/2019	POs –1,2,3,4,5,6,11,12
10	CII Expert Session on "Chase Your Dream" - Civil Services	IES College of Technology, Bhopal	Institute	12/02/ 2019	POs –6, 8,10,12
11	CII Industrial Visit C.A.R.-Central Institute of Agricultural Engineering (CIAE Bhopal)	IES College of Technology, Bhopal	Institute	23/08/ 2018	POs – 1,2,3,4,6,7,9,11,12

**Table 4.14 NPTEL Certifications**

Sn.	Enrollment	Students Name	Course
1	0177ME161117	UTKARSH SHRIVASTAVA	Inspection and Quality Control in Manufacturing

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### 4.6.2 Publication of technical magazines, newsletters, etc. (5)

(The Institute shall list the publications mentioned earlier along with the names of the editors, publishers, etc.)

QUEST is published on half yearly basis and is being circulated among faculty, students and parents.

**Table 4.15 Editorial Board for news letter**

S. No.	Academ ic Year	Name of The Newsletter	Name of editors	Name of Publishers
1	2020-21	QUEST	Chief Editor: Dr. Sunita Singh, Director, IES group of institutions, Bhopal . Student Editors: 1. Tanya Sharma (CSE) 2. Pulkit Prakash (ECE) 3. Priya Patel (EXE) 4. Jayshankar Chouhan (ME) 5. Shilpy Maithli (CE)	IES College of Technology, Bhopal

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### 4.6.3 Participation in inter-institute events by students of the program of study (10)

Table 4.16

S.N	Name of Student	Year	Organized By	Result
1	NESHAR KHAN	2021	RGPV Bhopal	certificate
2	PIYUSH KUMAR	2021	RGPV Bhopal	certificate
3	SADDAM ALI	2020	Pantech Prolabs India Pvt.Ltd.	certificate
4	DEEPAK CHAUHAN	2020	KI Technology	certificate
5	MANJEET KUMAR	2020	TCS	certificate
6	MANJEET KUMAR	2020	NEXA Process Safety Engineers	certificate
7	ASHUTOSH PANDEY	2018	KPIT Sparkle	TOP 100 PROJECT
8	VAIBHAV SHARMA	2018	Accenture Innovation Challenge	submitted
9	UPENDRA KUMAR	2018	Accenture Innovation Challenge	submitted
10	AZHARUDDIN KHAN	2018	Accenture Innovation Challenge	submitted
11	AKASH PRASAD	2018	Accenture Innovation Challenge	submitted
12	JEEVAN GOUR	2018	Accenture Innovation Challenge	submitted
13	ADITYA SHARMA	2018	Accenture Innovation Challenge	submitted
14	ARJUN SINGH	2018	Accenture Innovation Challenge	submitted
15	ASHUTOSH PANDEY	2018	Smart India Hackathon	submitted
16	PANKAJ KUMAR SAH	2018	Koshi Motors & Fabrication Pvt. Ltd	certificate
17	AZAHRUDDIN KHAN	2018	Koshi Motors & Fabrication Pvt. Ltd	certificate



## [SELF ASSESSMENT REPORT]

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18	MRITYUNJAY KUMAR	2018	Koshi Motors & Fabrication Pvt. Ltd	certificate
19	NAGESH KUMAR PANDEY	2018	Koshi Motors & Fabrication Pvt. Ltd	certificate

**Table 4.17 Participation in Inter-Institute Sports Events by Students**

S.No.	Name of Students	Tournament	Year	Level Played	Result
1.	Sourabh Shandilya	Cricket	2019-2020	Nodal	Participated
2.	Vikas Anand	Volleyball	2018-19	West Zone	Participated

**Table 4.18 Detail of NCC**

S.No.	CAY	Name of cadre wings	No. of students
1	2020-2021	1MP - CTR NCC Bhopal	04
2	2019-2020	1MP - CTR NCC Bhopal	01
3	2018-2019	1MP - CTR NCC Bhopal	03
4	2017-2018	1MP - CTR NCC Bhopal	02

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CRITERION 5	Faculty information and contributions	200
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Table 5.1 Faculty Detail

Year 2020-21

S.No.	Name	PAN No	Qualification	Area of Specialization	Designation	Date of Joining	Date on which Designated as Professor/ Associate Professor	Currently Associated (Y/N)	Nature of Association (Regular/Contract/ Adjunct)	If contractual mention Full time or Part time	Date of Leaving (In case Currently Associated is "No")
1.	DR.SHYAMAL DEY	ABFPD8848R	PH.D, M.TECH	MECHANICAL ENGINEERING	PROFESSOR	12/12/2016	-	Y	Regular	-	-
2.	DR. SHARAD RATHORE	AMTRR4003K	PH.D, M.TECH	MECHANICAL ENGINEERING	ASSOCIATE PROFESSOR	08/07/2019	-	Y	Regular	-	-
3.	DR. RAJIV SAXENA	BJXPS1034F	PH.D, M.TECH	MECHANICAL ENGINEERING	ASSOCIATE PROFESSOR	15/05/2020	-	Y	Regular	-	-

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4.	DR. PRAKHAR CHANSAURIA	AJZPC1839P	PH.D, M.TECH	MECHANICAL ENGINEERING	ASSOCIATE PROFESSOR	01/07/2020	-	Y	Regular	-	-
5.	MR. NARESH DASHORE	AGIPD2975M	M.TECH	MECHANICAL ENGINEERING	ASSOCIATE PROFESSOR	01/07/2010	-	Y	Regular	-	-
6.	MR. KISHORE PURSWANI	AFTPP9839A	M.TECH	MECHANICAL ENGINEERING	SR. ASSISTANT PROFESSOR	01/07/2019	-	Y	Regular	-	-
7.	MR. DEEPAN BANORIYA	APJPB6860M	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	31/07/2017	-	Y	Regular	-	-
8.	MR. SOMENDRA VISHWAKARMA	AHRPV8693C	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	21/05/2012	-	Y	Regular	-	-
9.	MR. SURENDRA BHARTI	BARPB9195B	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	20/08/2015	-	Y	Regular	-	-
10.	MR. O.P.S. RATHORE	AFWPR7218A	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	21/04/2012	-	Y	Regular	-	-
11.	MR. TUSHAR PHONEKAR	AOXPP9709G	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/03/2012	-	Y	Regular	-	-
12.	MR. SATENDRA KUMAR SAHU	BKTPS9227D	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/02/2016	-	Y	Regular	-	-
13.	MR. SATYANARYAN YADAV	AHBPY4675R	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/12/2015	-	Y	Regular	-	-
14.	MR. YOGENDRA THAKUR	ENHPK5704F	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	31/07/2016	-	Y	Regular	-	-
15.	MR. MAHESH KUMAR PRAJAPATI	BVSPP7720A	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	08/12/2016	-	Y	Regular	-	-

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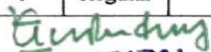
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16.	MR. PRAHALAD SINGH PARIHAR	DNHPS6715M	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	02/01/2017	-	Y	Regular	-	-
17.	MR. RAMESH BOKDE	BQQPB5143N	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	13/08/2018	-	Y	Regular	-	-
18.	MR. TUSHAR BHAVSAR	BQUPB2299B	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/06/2019	-	Y	Regular	-	-
19.	MR. NAGENDRA BHARTI	CBHPB1907P	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/04/2019	-	Y	Regular	-	30/04/21
20.	MR. CHATTAR SINGH MEWADA	CTFPM3126F	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	13/08/2019	-	Y	Regular	-	-
21.	MR. PADAMAKAR PACHHORKAR	AJTPP5611N	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	08/07/2019	-	Y	Regular	-	-
22.	MR. GAURAV KUMAR	BVJPK0806M	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/07/2019	-	Y	Regular	-	-
23.	Mr. JAGDESH PRASAD AHIRWAR	AULPA0351K	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	19/03/2020	-	Y	Regular	-	-
24.	MR. RAKESH YADAV	AJUPY2378J	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	18/03/2020	-	Y	Regular	-	-
25.	MR. PRAMOD KUMAR SHARMA	BYOPS7776J	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	03/07/2017		Y	Regular		
26.	MR. RAJAN KUMAR	DFJPK5159H	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	27/02/2021	-	Y	Regular		
27.	Mr. ABHISHEK ARYA	ALSPA7748W	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	09/03/2021	-	Y	Regular		
28.	Dr. GURJEET SINGH	BWUPS3392C	P.HD.	MECHANICAL	ASSOCIATE	25/08/2017	-	Y	Regular		

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				ENGINEERING	PROFESSOR						
29.	MR. YOGENDRA PRASAD SHRIVASTAVA	ADDPS3219H	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/07/2020	-	Y	Adjunct	-	-
30.	Dr. S.C. SONI	ADFPS3637P	PH.D.	MECHANICAL ENGINEERING	PROFESSOR	01/07/2020	-	Y	Adjunct	-	
31.	MR. P.N. MISHRA	ABFPM9627D	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/08/2020	-	Y	Adjunct		30/06/21
32	VIJAY CHOUHAN	AGMPC4826G	M.TECH	Thermal Engineering	Asst Professor	08/05/2013	-	Y	Regular	-	-
33	RAVINDRA MOHAN	BCTPM9041H	M.TECH	Thermal Engineering	Asst Professor	03/09/2013	-	Y	Regular	-	-
34	MAHESH KUMAR YADAV	AEJPY8055J	M.TECH	Thermal Engineering	Asst Professor	07/09/2016	-	Y	Regular	-	-

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### 5.1 Student-Faculty Ratio (SFR) (20)

No. of UG Programs in the Department (n): 01

No. of PG Programs in the Department (m): 01

No. of Students in UG 2nd Year= 429

No. of Students in UG 3rd Year=418

No. of Students in UG 4th Year=399

No. of Students in PG 1st Year= 18

No. of Students in PG 2nd Year= 18

No. of Students = Sanctioned Intake + **Actual admitted lateral entry students**

**No. of Students = Sanctioned Intake + Actual admitted lateral entry students**

(The above data to be provided considering all the UG and PG programs of the department)

**S**=Number of Students in the Department = UG1 + UG2 +... +UGn + PG1 + ...PGn

**F** = Total Number of Faculty Members in the Department (excluding first year faculty)

**Student Teacher Ratio (STR) = S / F**

**Table 5.2- Department of Mechanical Engineering**

Year	CAY 2020-21	CAY m1 2019-20	CAYm2 2018-19
<b>u1.1</b>	120+23=143	120+22=142	120+24=144
<b>u1.2</b>	120+22=142	120+24 = 144	120+12=132
<b>u1.3</b>	120+24 = 144	120+12 = 132	120+03=123
<b>UG1</b>	429	418	399
<b>p1.1</b>	18	18	18
<b>p1.2</b>	18	18	18
<b>PG1</b>	36	36	36
<b>Total No. of Students in the Department (S)</b>	465	454	435
<b>No. of Faculty in the Department (F)</b>	34	29	25
<b>Student Faculty Ration (SFR)</b>	13.67	15.66	17.4
<b>Average SFR</b>	15.57		

## [SELF ASSESSMENT REPORT]

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5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below

**Table 5.3**

	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY (2020-21)	34	0
CAY m1 (2019-20)	29	0
CAYm2 (2018-19)	25	0

### 5.2. Faculty Cadre Proportion (25)

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

**F1:** Number of Professors required=1/9 x Number of Faculty required to comply with 20:1

Student-Faculty ratio based on no. of students (N) as per 5.1

**F2:** Number of Associate Professors required=2/9 x Number of Faculty required to comply with 15:1 Student-Faculty ratio based on no. of students (N) as per 5.1

**F3:** Number of Assistant Professors required=6/9 x Number of Faculty required to comply with 15:1 Student-Faculty ratio based on no. of students (N) as per 5.1

**Table 5.4**

Year	Professors		Associate Professors		Assistant Professors	
	Required (F1)	Available (AF1)	Required (F2)	Available (AF2)	Required (F3)	Available (AF3)
CAY (2020-21)	2	2	5	5	15	27
CAY m1 (2019-20)	2	3	5	0	15	26
CAYm2 (2018-19)	2	4	4	0	15	21
Average Numbers	RF1=2	AF1=3	RF2= 4.67	AF2=1.66	RF3=15	AF3= 24.66

$$CadreRatio = \left[ \frac{AF1}{RF1} \right] + \left[ \frac{AF2*6}{RF2} \right] + \left[ \frac{AF3*4}{RF3} \right] * 12.5 = 29.59$$

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### 5.3 Faculty Qualification (25)

$FQ = 2.5 \times [(10X + 4Y)/F]$  where x is no. of regular faculty with PhD, Y is no. of regular faculty with M.Tech. F is no. of regular faculty required to comply 20:1 Faculty Student ratio (no. of faculty and no. of students required are to be calculated as per 5.1)

**Table 5.5**

Year	X	Y	F	$FQ = 2.5 \times [(10X + 4Y)/F]$
<b>CAY (2020-21)</b>	6	28	23	18.69
<b>CAYm1 (2019-20)</b>	3	26	22	15.22
<b>CAYm2 (2018-19)</b>	4	21	21	14.76
Average assessment				<b>16.22</b>

### 5.4 Faculty Retention (25)

No. of regular faculty members in

CAY[2020-2021] = 21

CAYm1 [2019-2020] = 23

CAY m2 [2018-2019] = 25

**Table 5.6**

S.N	Description	CAYm1[2019-20]	CAY [2020-21]
01	No.of Faculty Retained	22	21
02	Total No of Faculty	25	25
03	%of Faculty	92	84

Average:88

**Table 5.7**

Item	Marks
>=90% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	
>=75% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	20
>=60% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	
>=50% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	
<50% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	



5.5 Innovations by the Faculty in Teaching and Learning (20)

Innovations by the Faculty in teaching and learning shall be summarized as per the following description.

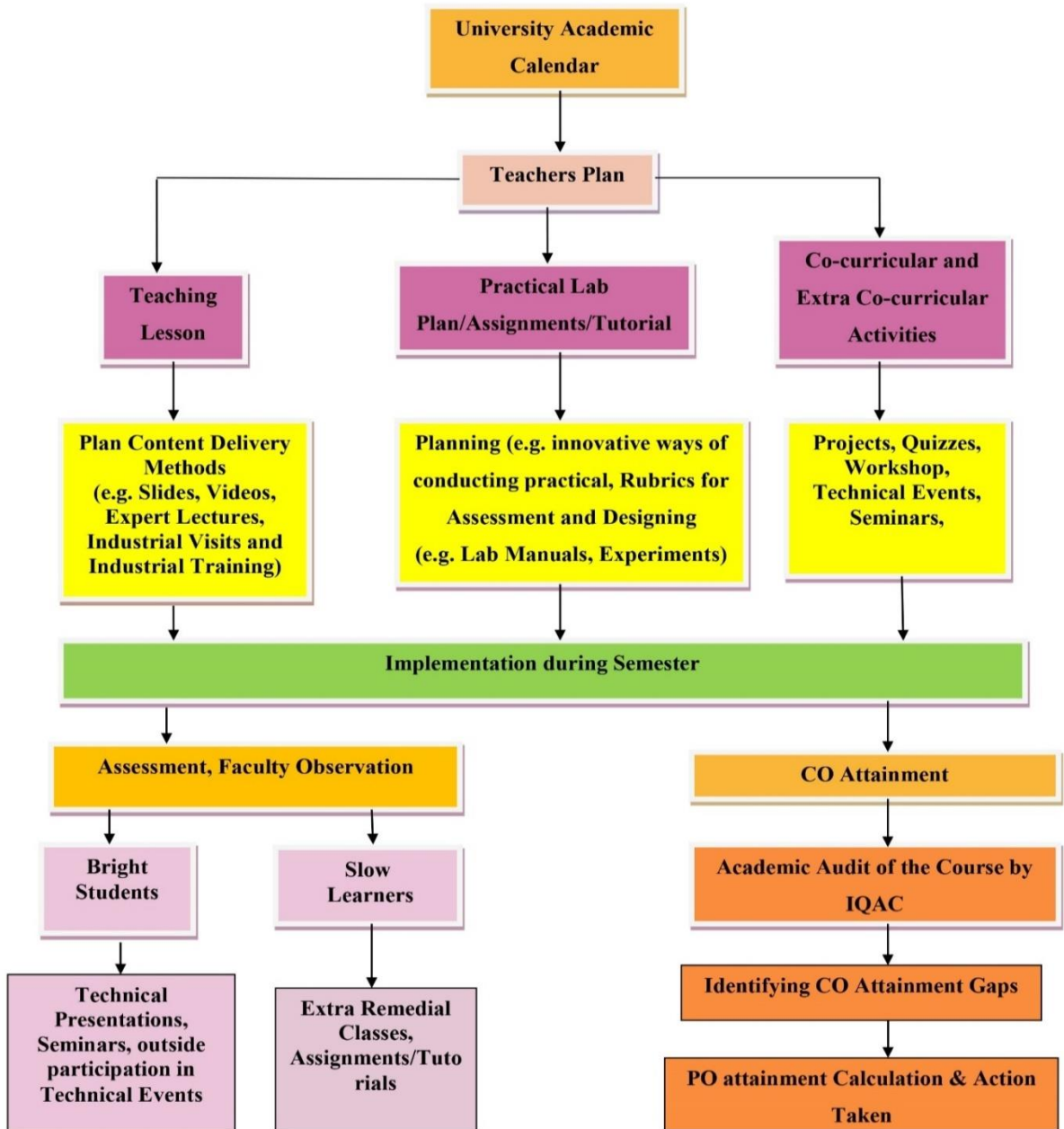


Fig. 5.1 Innovations by the Faculty in TL

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Apart from basic teaching requirements, the Department has adopted various initiatives to improve instructional pedagogy methods for the attainment of POs. The faculty members are oriented towards Outcome based Education (OBE) and are actively utilizing the OBE to cater the learning need of students by innovative methods. The faculty of department adopts various innovative Teaching & Learning methodologies to create the best learning environment for students. These methodologies include traditional black board teaching, presentations, video lecturing, collaborative learning methods etc. as given below.

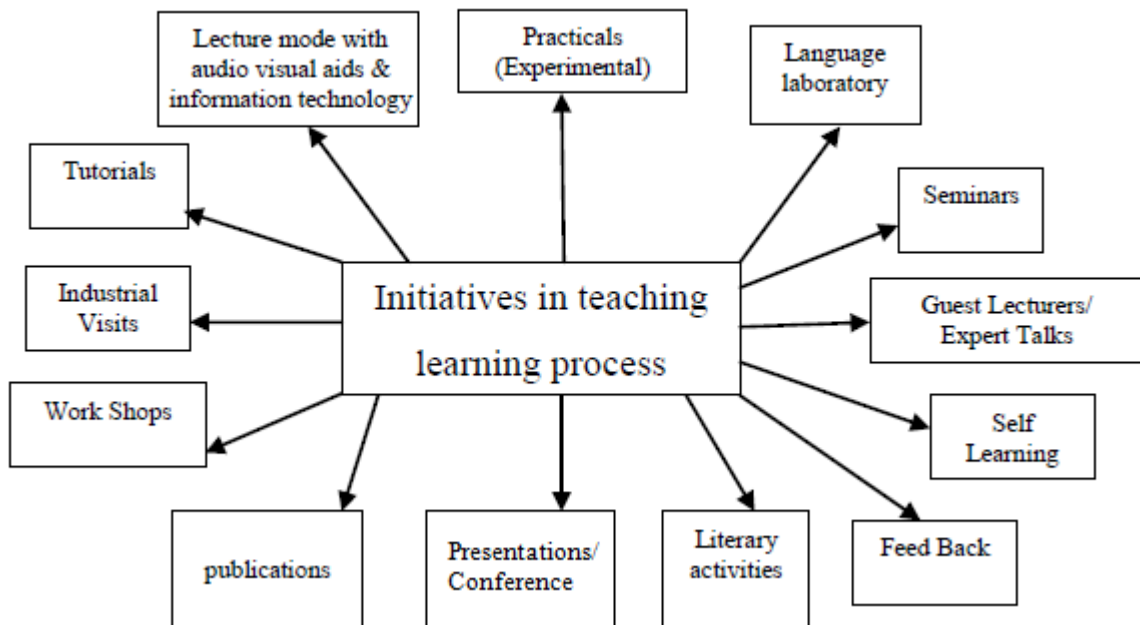


Fig. 5.2: Different initiates in teaching and learning process.

### 1. Improved/Innovative Classroom Teaching learning method

- The faculty use chalk and board and audio-visual aids in teaching.
- Students are encouraged to actively interact during the lecture hour by getting the doubts clarified.
- Further, students are also encouraged to give seminars/presentations relevant to the subjects which add to their presentation and communication skills.
- Revising the topics covered in the previous class through simple questions and answers at the beginning of each class
- Repeating important points in each class
- Conducting Tutorial sessions for problematic contents.
- Revision of syllabus before examinations
- Identifying uniqueness of each student, understanding the variations among students

## [SELF ASSESSMENT REPORT]

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- Equal attention on the student, his strengths and limitations, along with the subject matter
- Effective counselling based on the student's individual social and financial background.
- Motivating students to set multiple career goals to sustain their interest in the learning process.
- Assigning complex design problems individually to enhance the problem skills of students
- Giving assignments to the students on topics beyond curriculum.

### 2. Improvement through Project-based learning

During pre-final year, the students are encouraged to carry out minor projects and in the final year major projects are executed under the guidance of faculty. The aim of project based learning is:

- Exposing students to real world through Examples.
- Presenting the real life engineering problems.
- Implementing the solutions of engineering problems using models and charts for better subject understanding.
- Providing exposure to real world of Engineering by taking students to on-going projects within and outside the campus.
- Building entrepreneurship skills.

### 3. Improvement through Computer-assisted learning

The department is equipped with sufficient number of computers, LCD projectors, internet facility, application software and system software which are effectively used for teaching and learning.

- Faculty members are making effective use of *virtual labs* for effective teaching.
- Use of e-resources.
- Using electronic presentations (PPT) on difficult topics for better understanding.
- Use of e-learning - resources from *National Programme on Technology Enhanced Learning* (NPTEL).
- Presenting videos which show the recent technologies.
- PPT is incorporated as an item in Course Plan in all subjects wherever relevant
- The *Google classrooms* an innovative tool which is very effectively used in our campus for every course. Faculty members add all students to it before commencement of every semester for every course. They also upload course plans, course materials, video lectures, question banks etc. It helps the students to come prepared to the class. The tools in the Google class

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room facilitate online assessment of students, which can be used to measure the outcomes of each course.

#### 4. **Guest Lectures**

Guest lectures are organized by industry and academic experts which provide industry exposure, entrepreneurship skills and exposure for higher studies to the students beyond the class room learning and curriculum. The details are provided in Sec.2.1.2.

#### 5. **Students Participation in Workshops/symposia**

Students are encouraged to participate in workshops and technical symposia organized by IES and various engineering colleges including IITs and NITs. This adds to the knowledge and enhances their knowledge, aptitude and communication skills. The details are provided in Sec.2.1.2.

6. **Special Classes:** - Communication skill classes are organized for the students, newspaper distribution, and online tests are conducted for placement preparation.

7. **Expert classes:** - T&P classes are organized, Experts lectures from industry and academia are invited to deliver lectures on the latest trends and thrust areas to improve the employability of students.

8. **Collaborative Learning:** - Through collaborative learning students are exposed to learn various topics and hands-on experience under different laboratories, related to program curriculum.

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### 5.6 Faculty as participants in Faculty development/ training activities /STTPs (15)

A Faculty scores maximum five points for participation

Participation in 2 to 5 days Faculty development program: **3 Points**

Participation > 5 days Faculty development program: **5 Points**

**Table 5.8**

Name	CAYm1 (2019-20)	CAYm2 (2018-19)	CAY m3 (2017-2018)
Dr. Shyamal Dev	3	5	5
Mr. Naresh Dashore	3	5	-
Mr. Somendra Vishwakarma	3	3	5
Mr. O. P. S. Rathore	3	3	3
Mr. Satyendra Kumar Sahu	3	5	5
Mr. Mahesh Kumar Prajapati	3	3	-
Mr. Ravindra Mohan	3	5	5
Mr. Yogendra Thakur	3	3	3
Mr. S. Rajasekharan	-	3	-
Mr. Neeraj Agarwal	3	3	3
Mr. Deepen Banoriya	3	5	5
Mr. Gurjeet Singh	3	3	5
Mr. Vijay Chouhan	3	3	3
Mr. Ramesh Bokde	3	5	-
Mr. Yogendra Prasad	3	-	3
Mr. Mahesh Kumar Yadav	3	-	5
Mr. Prakhar Chansuria	-	-	3
Mr. S. Rajasekharan	-	-	5
Mr. Prahalad Singh Parihar	3	-	3
Mr. Surendra Bharti	-	-	-
Mr. Satyanaryan Yadav	3	-	-
Mr. Padmakar Pachorkar	3	-	-
Dr. Sharad Rathore	3	-	-
Mr. Gaurav Kumar	3	-	-
Mr. Kishore Purswani	3	-	-
Sum	63	54	61
RF = Number of Faculty	23.15	22.7	21.75
Assessment [3*(Sum / 0.5RF)]	16.33	14.27	16.83
		15.81	

Average assessment over 3 years: 15

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### 5.7 Research and Development (30)

#### 5.7.1 Academic Research (10)

Academic research includes research paper publications, M-Tech guidance, and faculty receiving M-Tech. during the assessment period.

- Number of quality publications refereed/SCI Journals, citations, Books/Book Chapters etc. (6)
- Ph.D. guided /Ph.D. awarded during the assessment period while working in the institute (4)

All relevant details shall be mentioned.

**Table 5.9 -Faculty Pursuing/Awarded Ph.D.**

Faculty name	Research Topic	University	Guide	Date of registration	Number of quality publications in refereed /SCI Journals, citations, Books/ Book Chapters
Mr.Deepen Baroniya	Development of bio compatible polymers based composites for prosthetic application	MANIT, Bhopal	Dr. Rajesh Purohit, Professor MANIT, Bhopal Dr. R. K Dwivedi, Professor, MANIT, Bhopal	6 Aug 2014	7 (Scopus)
Mr.Gurjeet Singh	Studies on process optimization of injection moulding process using hybrid techniques	MANIT, Bhopal	Dr. M.K. Pradhan, Assistant Pofessor, Mechanical engineering department, MANIT, Bhopal Dr. Ajay Verma, Assistant Pofessor, Mechanical engineering department.	6 Aug 2014	4 (Scopus)

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**5.7.1. B. Faculty Publication:** Following table indicates the list of ME department faculty publications during the three assessment years.

**Table 5.10 Faculty publications details**

S. No.	Faculty	SCI	Scopus	UGC	Other Journals
1.	Mr. Pramod Sharma	10	8	-	-
2.	Mr. Neeraj Agrawal	1	7	-	4
3.	Mr. Deepen Baroniya	-	7	-	-
4.	Mr. Gurjeet Singh	-	3	-	2
5.	Mr. Padmakar Pachorkar	-	-	-	1
6.	Mr. Ravindra Mohan	-	-	-	25
7.	Mr. Harshit Shrivastava	-	-	-	1
8.	Mr. Jagdish Prasad	-	-	-	3

**Table 5.11 List of faculty publications**

S N	Name of the faculty	Title of the paper	Name of the Journal	Year	ISSN
1	Mr. Neeraj Agarwal	A New Constrained Based Multi Objective Optimization Method For Electric Discharge Machining	Lecture Notes in Mechanical Engineering. Springer, Singapore.	2021	2195-4356
2	Mr. Neeraj Agarwal	Ananya Algorithm: A Simple And New Optimization Algorithm For Engineering Optimization	IEEE Xplore	2021	978-1-7281-9062-4
3	Mr. Pramod Sharma	Thermal Analysis of Solar Air Heater by using Pebbles as an Absorber Material.	Lecture Notes in Mechanical Engineering	2021	2195-4356
4	Mr. Pramod Sharma	Failure Analysis of Alloy Steel Connecting Rod	Lecture Notes in Mechanical Engineering	2021	2195-4356
5	Mr. Pramod Sharma	Vibration Analysis of Rotating Machines: A Case Study	Advances in Clean Energy Technologies	2021	978-981-16-0234-4

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6	Mr. Pramod Sharma	Analysis of terrain of site MamatkhedaRatlam through wind modeling tool ArcGIS and WASP	Materials Today: Proceedings	2021	2195-4356
7	Mr. Neeraj Agarwal	Optimization Of Relative Wear Ratio During Edm Of Titanium Alloy Using Advanced Techniques	SN Applied Sciences	2020	2523-3971
8	Mr. Neeraj Agarwal	Optimisation Of EDM Process Parameters Using Jaya Algorithm	Materials Today: Proceedings	2020	2214-7853
9	Mr. Neeraj Agarwal	Effect Of Different Operating Parameters On Air Diffuser Of Air Conditioning System: A CFD Analysis	International Journal Of Engineering Research And Applications	2020	2248-9622
10	Mr. Neeraj Agarwal	Experimental Analysis Of Dual Fuel Engine Run On Gaseous Fuel	International Journal Of Engineering Research And Applications	2020	2248-9622
11	Mr. Neeraj Agarwal	A Review On Alternative To Diesel Fuel	International Journal Of Trend In Scientific Research And Development	2020	2456-6470
12	Mr. Pramod Sharma	Application Of A New Method To Develop A CFD Model To Analyze Wind Characteristics For A Complex Terrain	Sustainable Energy Technologies And Assessments Elsevier	2020	2213-1388
13	Mr. Pramod Sharma	Analysis Of Wind Characteristics Parameters With The Application Of Lidar And Mast	Wind Energy Willey	2020	1099-1824
14	Mr. Pramod Sharma	Application Of Lidar Technology To Predict Wind Resource For Modern Wind Turbines	International Journal Of Ambient Energy	2020	1430750
15	Mr. Pramod Sharma	Evaluation of two wind flow models for wind resource assessment for a site	E3S Web of Conferences	2020	2267-1242
16	Mr. Pramod Sharma	Modeling of Atmospheric Boundary Flows Using Experimental Investigation over Complex Terrain in a Non-Neutral Condition	Material Today Proceedings	2020	2214-7853
17	Mr. Deepen Banoriya	Wear Performance Of Titanium Reinforced	Advances In Materials And	2020	2374-0698



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		Biocompatible TPU	Processing Technologies		
18	Mr. Ravindra Mohan	Experimental Analysis Of Dual Fuel Engine Run On Gaseous Fuel	International Journal Of Engineering Research And Applications	2020	2248-9622
19	Mr. Jagdish Ahirwar	Performance And Emission Studies Of A Diesel Engine Fueled With Different Waste Plastic Pyrolysis-Diesel Blends	International Journal Of Advance Research And Innovative Ideas In Education	2020	2395-4396
20	Mr. Ravidra Mohan	Conversion of Waste Plastic to Energy by Pyrolysis Process: A Review	International Journal of Scientific Research & Development	2020	2321-0016
21	Mr. Neeraj Agarwal	Radial Over Cut Optimization Of Titanium Alloy For Electric Discharge Machining Using Advanced Optimization Technique – Jaya Algorithm	International Journal Of Engineering And Advanced Technology (Ijeat) Volume-8, Issue-6, August 2019.	2019	2249-8958
22	Mr. Neeraj Agarwal	EDM Parameters Optimization On Tool Wear Rate Using Advanced Optimization Of Titanium Alloy	International Journal Of Mechanical And Production Engineering Research And Development (IJMPERD)	2019	2249-8001
23	Mr. Neeraj Agarwal	Optimization Of Surface Roughness Using Jaya Algorithm In EDM	International Journal Of Scientific & Technology Research	2019	2277-8616
24	Mr. Pramod Sharma	Application Of Lidar And Measure Correlate Predict Method In Offshore Wind Resource Assessments	Journal Of Cleaner Production Elsevier	2019	0959-6526
25	Mr. Pramod Sharma	Analysis On Piezoelectric Energy Harvesting Small Scale Device – A Review	Journal Of King Saud University Science	2019	1018-3647
26	Mr. Pramod Sharma	Analysis of terrain characteristic using WAsP and windPRO	Energy procedia	2019	1876-6102
27	Mr. Pramod Sharma	Effect of atmospheric stability on the wind resource extrapolating models for large capacity wind turbines: a comparative analysis of power law, log law,	Energy procedia	2019	1876-6102

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		Deaves and harris model			
28	Mr. Deepen Banoriya	Development And Testing Of Polyurethane Based Composites Using Rapid Prototyping Techniques For Biomedical Applications-A Review	Materials Today: Proceedings	2019	2214-7853
29	Mr. Ravindra Mohan	“A Review On Heat Exchanger Using Various Design Arrangement Of Baffle”	IJRSTM, International Journal of Recent Technology Science & Management	2019	2455-9679
30	Mr. Ravindra Mohan	“Cfd Analysis Of A Shell And Tube Heat Exchanger Using Parameter Study Of Baffles”	IJRSTM, International Journal of Recent Technology Science & Management	2019	2455-9679
31	Mr. Ravindra Mohan	“Thermal Transient Analysis On Connecting Rod Using Finite Element Analysis”	IJRSTM, International Journal of Recent Technology Science & Management	2019	2455-9679.
32	Mr. Ravindra Mohan	“A Review On Ic Engine Connecting Rod”	International Journal Of Recent Technology Science & Management	2019	2455-9679.
33	Mr. Ravindra Mohan	“Parametric Study Of Swirl Diffuser Design For Air Flow In Airconditioning Of An Automobile”	International Journal Of Recent Technology Science & Management	2019	2455-9679.
34	Mr. Jagdish Ahirwar	Study Of Steel Industries In India	International Journal Of Engineering Development And Research	2019	2321-9939
35	Mr. Jagdish Ahirwar	A Review On Assembly Line Production Process R-134a & R-600a Fitted With Water Cooled Condenser	International Journal Of Research In Engineering, Science And Management	2019	2581-5792
36	Mr. Harshit Shrivatava	Comparative Analysis Of Refrigerator Using Refrigerant	International Journal Of Innovative Research In Technology	2019	2349-6002
37	Mr. Padmakar Pachorkar	Dynamic Analysis Of Leaf Spring Using Different Composite Materials	International Journal For Scientific Research & Development	2019	2321-0613

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38	Mr. Ravindra Mohan	A Review on the CFD Analysis of Nano Water Fluid on Helically Coiled Double Tube Heat Exchanger	IJO-Science	2019	2455-0108
39	Mr. Pramod Sharma	A Comparative Analysis Of Wind Resource Parameters Using Wasp And Windpro	International Journal Of Green Energy Taylor & Francis	2018	1543-5075
40	Mr. Pramod Sharma	A Preliminary Study Of Wind-Solar Hybrid Systems Potential In Jammu And Kashmir	International Journal Of Ambient Energy	2018	1430750
41	Mr. Pramod Sharma	Numerical And Experimental Analysis Of The Flow Over Sinusoidal Hills	International Journal Of Ambient Energy	2018	1430750
42	Mr. Neeraj Agarwal	A New Multi-Response Jaya Algorithm For Optimisation Of EDM Process Parameters	Materials Today: Proceedings	2018	2214-7853
43	Mr. Ravindra Mohan	“A Review On I. C. Engine Head Fins Design”	International Research Journal Of Engineering And Technology (Irjet) Www.Irjet.Net	2018	2395-0056
44	Mr. Ravindra Mohan	“I.C. Engine Cylinder Fins Transient Thermal Analysis By Using Ansys Software”	International Research Journal Of Engineering And Technology (Irjet) Www.Irjet.Net	2018	2395-0056
45	Mr. Ravindra Mohan	“Performance Evaluation Of Propane As Substitution To Freon And Mixture Of The Refrigerant In The Vapour Compression Refrigeration System”	Ijsrd - International Journal For Scientific Research & Development	2018	2321-0613
46	Mr. Ravindra Mohan	Performance Of Shape Memory Thermosetting Polyurethane Composite.	International Journal For Technological Research In Engineering.	2018	2347-9450
47	Mr. Ravindra Mohan	A Comprehensive Review On Solar Parabola Trough Collector	Ijo-Science Volume 4, Www.Ijocsince.Com	2018	2455-0108
48	Mr. Ravindra Mohan	“A Review On Thermal Analysis Of Swirl Diffuser”	International Journal Of Recent Technology Science & Management	2018	2455-9679.

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49	Mr. Gurjeet Singh	Multi response optimization of injection moulding process parameters to reduce cycle time and warpage	Materials Today proceedings	2018	2214-7853
50	Mr. Ravindra Mohan	Analysis of Global Solar Radiation in Solar Sector: An Empirical Feasibility study in India	International Research Journal of Engineering and Technology (IRJET)	2018	2395-0056
51	Mr. Ravindra Mohan	Comparative Analysis of Mechanical Efficiency of Domestic Heat without Nosecone and with Nosecone	International Research Journal of Engineering and Technology (IRJET)	2017	2395-0072
52	Mr. Ravindra Mohan	Thermo Hydraulic Performance of Solar Air Heater by using Double Inclined Discrete Rib Roghned Absorber Plate	International Research Journal of Engineering and Technology (IRJET)	2017	2395-0072
53	Mr. Ravindra Mohan	Conversion of Waste Plastic to Energy by Pyrolysis Process: A Review	International Journal of Scientific Research & Development	2020	2321-0016
54	Mr. Deepen Banoriya	Advanced Application Of Polymer Based Biomaterials	Materials Today: Proceedings	2017	2214-7853
55	Mr. Deepen Banoriya	Optimization Of Process Parameters Of Shot Peening Using Abqus	Materials Today: Proceedings	2017	2214-7853
56	Mr. Ravindra Mohan	Optimization Of Thermal Performance Of Natural Draft Cooling Tower With The Change Of Properties Of Moist Air And Psychometric Chart	International Journal Of Engineering Technology And Applied Science	2017	2548-0391
57	Mr. Ravindra Mohan	Study And Experimental Analysis Of Horizontal Ground Source HeatpumpSystem	International Research Journal Of Engineering And Technology (Irjet) Wwww.Irjet.Net	2017	2395-0056
58	Mr. Ravindra Mohan	A Review On Heat Transfer And Fluid Flow Over Wavy Channel Or Surface	Ijsrd - International Journal For Scientific Research & Development	2017	2321-0613
59	Mr. Ravindra Mohan	A Comprehensive Review On Thermodynamic Analysis Waste Heat Utilization By Gas Turbine Based Power Cycles	Ijsrd - International Journal For Scientific Research & Development	2017	2321-0613

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60	Mr. Ravindra Mohan	Computational Investigation Of Flow Stability Of Baffled Pipe- A Comprehensive Report	Ijsrd - International Journal For Scientific Research & Development	2017	2321-0613
61	Mr. Ravindra Mohan	Evaluation Of Vapour Compression Refrigeration Cycle And Application Of Heat Pump	International Journal Of Engineering Technology And Applied Science	2017	2395-3853
62	Mr. Gurjeet Singh	A Brief Review on injection moulding manufacturing process	Materials Today proceedings	2017	2214-7853
63	Mr. Neeraj Agarwal	Optimization Of Different Machining Parameters Of En24 Alloy Steel In Cnc Turning By Use Of Taguchi Method	International Journal Of Engineering Research And Applications	2012	2248-9622
64	Mr. Deepen Banoriya	Optimization Of Electric Discharge Machining Of M2 Tool Steel Using Grey Relational Analysis	Materials Today: Proceedings	2015	2214-7853
65	Mr. Deepen Banoriya	Modern Trends In Rapid Prototyping For Biomedical Applications	Materials Today: Proceedings	2015	2214-7853
66	Mr. Deepen Banoriya	Application Of Rapid Prototyping	Processing And Fabrication	2014	3409-3418
67	Mr. Ravindra Mohan	Heat Transfer Enhancement Of Solar Air Heater By Using Artificial Roughness Double Inclined Ribs	International Research Journal Of Engineering And Technology (Irjet)	2016	2395-0056
68	Mr. Gurjeet Singh	Effect of injection moulding process parameter on tensile strength using Taguchi method	International Journal of Mechanical, Aerospace, Industrial, Mechatronic and Manufacturing Engineering	2015	91950263
69	Mr. Gurjeet Singh	A Review of the Effect of Process Parameters on the Performance of Plastic Injection Molding Process to Control the Warpage in Plastics	Materials Science Forum	2015	830-831
70	Mr. Gurjeet Singh	An Injection Moulding Process: A Review	Materials Today: Proceedings	2016	2214-7853

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71	Mr Pramod Sharma	A Review on Electromagnetic Forming Process	Procedia Material Science	2014	2211-8128
72	Mr Pramod Sharma	Experimental investigation of Al 6061/Al <sub>2</sub> O <sub>3</sub> Composite and Analysis of its mechanical properties on onshore wind tower using the hybrid technique for Indian Condition	Procedia Materials Science	2014	2211-8128

**Table 5.12 List of Books publications**

S.N	Author(s)	Title	Publisher	Year	Details
1	Mr. Pramod Sharma	Design and optimization of 150 m higher wind monitoring tower	Lambert academic publishing	2019	ISBN: 978-620-0-45608-3
2	Mr. Pramod Sharma	Effect of Atmospheric Stability on Wind Resource Assessment	Lambert academic publishing	2019	ISBN: 978-620-0-46429-3

### 5.7.2 Sponsored Research (5)

**Table 5.13 Funded Research**

S · N ·	Title of the Project	Funding Agency	Year	Amount Sanctioned( INR)	Department of Principal Investigator	Remarks
1	STTP on Training on Manufacturing Practices, Maintenance & Characterization Techniques	AICTE	2019-2020	3,95,000	Dr. Shyamal Dey	Communicated, Not received

## [SELF ASSESSMENT REPORT]

### 5.7.3 Development activities (10)

#### A. Product Development –

**Table 5.15 - Products Development in Mechanical Engineering Department**

S. N.	Session	Faculties	Title of Project
1	2017-2018	Mr. Neeraj Agarwal	Low cost solar water heater
2	2017-2018	Mr. Neeraj Agarwal	Solar water purifier
3	2018-2019	Mr. Ravindra Mohan	Solar Dryer
4	2019-2020	Mr. Deepen Banoriya	Low cost treadmill
5	2019-2020	Mr. Ramesh Bokde	Pedal operated washing machine
6	2020-2021	Mr. Padmakar Pachorkar	Ultraviolet disinfecter (patent applied)
7	2021-2022	Mr. Padmakar Pachorkar	Duster thumping device



**Fig. 5.4 Ultraviolet disinfecter machine developed by Prof. Padmakar Pachorkar**

## [SELF ASSESSMENT REPORT]

**Table 5.16- Best Projects Guided by Faculty members**

2020-2021					
S · N ·	Title of the Project	Name of the Students	Enrollment No.	Guide	PO/PSO
1	Battery Charger With Sterling Engine	Kanhaiya Kumar Sah Krishna Kumar Mahafuj Ansari Aditya Kumar Puri Aditya Sharma	0177ME161041 0177ME161043 0177 EC161049 0177ME161004 0177ME161005	Ravindra Mohan	PO1,PO2,PO6,P O7,PO9,PO10,P O11,PO12,PSO 1,PSO3
2	Design And Fabrication Of Automated Drain/Gutter Cleaner Machine	Aakash Gupta Anshu Kumar Arman Husaain Azharuddin Khan	0177ME161001 0177ME161013 0177ME161015 0177ME161020	Deepen Banoriya	PO1,PO2,PO3,P O4,PO6,PO7,P O9,PO10,PO11, PO12,PSO1,PS O3
3	Footstep Power Generator	Azahrudin Khan Hariom Kumar Singh Manish Kumar Md Aftab Alam Aman Kumar Singh	0177ME161018 0177ME161032 0177ME161046 0177ME161049 0177ME161010	Ramesh Bokde	PO1,PO2,PO6,P O7,PO9,PO10,P O11,PO12,PSO 1,PSO3
4	“360 Degree Flexible Rotating Light Drill Machine	Md Fardeen Md Jahangir Md Mohib Ansar Md Sazzad Md Shafique Eqbal Mrityunjay Kumar	0177ME161053 0177ME161054 0177ME161058 0177ME161064 0177ME161065 0177ME161068	Padmakar Pachorkar	PO1,PO2,PO3,P O6,PO7,PO9,P O10,PO11,PO1 2,PSO1,PSO3
5	Hybrid Energy Generator	Durgesh Singh Harsh Raj Jawed Akhtar Kamlesh Kumar Parit Krishna Kumar M Laxman Rao	0177ME161029 0177ME161033 0177ME161038 0177ME161040 0177ME161044 0177ME161045	Chhatar Singh Mewada	PO1,PO2,PO6,P O7,PO9,PO10,P O11,PO12,PSO 1,PSO3



## [SELF ASSESSMENT REPORT]

2019-2020					
S. N.	Title of the Project	Name of the Students	Enrollment No	Guide	PO/PSO
1	Motorized Jack	Subodh Thakur Sumit Shrivastava Sanu Kumar Thakur Ramesh Kumar	0177ME151112 0177ME151113 0177ME151103 0177ME151091	Gurjeet Singh	PO1, PO2, PO3, PO9, PO10, PO11, PO12 , PSO1, PSO2, PSO3
2	Sensor control braking system	Anish Kumar Giri Chandan Kumar Dayanand Kumar Shahrukh Mansuri Kundan Kumar	0177ME151117 0177ME151033 0177ME151036 0177ME163D0 3 0177ME151051	Neeraj Agarwal	PO1, PO2, PO3, PO9, PO10, PO11, PO12 , PSO1, PSO3
3	Pneumatic punching machine	Kumar Sanu Ojha Ashok Kumar Mehra Aakash Kumar Ashwini Prasad	0177ME151058 0177ME151023 0177ME151011 0177ME151027	Deepen Banoriya	PO1, PO2, PO3, PO4, PO9, PO10, PO11, PO12 , PSO1, PSO2, PSO3
4	Conveyer belt	Wasim Ahmed Ravi Shankar Singh Vikash Kumar Suraj Kumar	0177ME151121 0177ME151100 0177ME151118 0177ME151114	Yogendra Thakur	PO1, PO2,PO3, PO9, PO10 PO11,PO12, PSO1, PSO3
5	Automatic operated hydraulic bridge	Mayank Dongere Abhijeet Kumar Randhir Kumar	0177ME151056 0177ME151003 0177ME151067	Ramesh Bokde	PO1, PO2, PO3, PO9, PO10, PO11, PO12 , PSO1, PSO3

## [SELF ASSESSMENT REPORT]

2018-2019					
S. N.	Title of the Project	Name of the Students	EnrollmentNo.	Guide	PO/PSO
1	To design ,manufacture & fabricate a single sitter go-cart	Nikesh Kumar Krishna Kumar Singh Md.Hussain Ravish Ranjan Sahail Tanveer Susheel Kumar	0177ME141066 0177ME141044 0177ME141061 0177ME141088 0177ME141105 0177ME141113	Ravindra Mohan	PO1,PO2,PO3,P O4,PO6,PO9,P O10,PO11,PO1 2,PSO1,PSO2, PSO3
2	Shaking machine	Amir Azam Imran Ansari Indrajeet Singh Md Quasim Ali	0177ME141009 0177ME141035 0177ME141037 0177ME141051	Naresh Dashore	PO1, PO2,PO3, PO9 PO10, P11, PO12, PSO 1
3	Solar tree	Anand Kumar Singh Anurag Mishra ChetanChavan Rajesh kumar Mukul Sheode	0177ME141012 0177ME141017 0177ME141028 0177ME141082 0177ME141063	Yogendra Thakur	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO11, PO12 , PSO1, PSO3
4	Electricity generation by busy traffic	Arman Ali Md Asif Khan Suri Arfan Ali Md.Shabbir Ansari	0177ME141018 0177ME141049 0177ME141050 0177ME141055	Gurjeet Singh	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2
5	Automatic tyre inflation	Md Akil Gyasuddin Alam Rahmatullah Ansari Reyaz Ansari	0177ME141048 0177ME141032 0177ME141078 0177ME141089	Neeraj Agarwal	PO1, PO2, PO3, PO9, PO10, PO11, PO12 , PSO1, PSO3

## [SELF ASSESSMENT REPORT]

2017-2018					
S. N.	Title of the Project	Name of the Students	EnrollmentNo.	Guide	PO/PSO
1	Electricity regenerative power by brake	Md.Imroz Ahmad Jai Shankar Singh Aslam Ansari Md. Imran Md.Shamsuddin	0177ME131065 0177ME131041 0177ME131019 0177ME131064 0177ME131062	Neeraj Aggarwal	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2
2	Power generation by shock absorber	Adarsh Kumar Sharma Ankit Gupta Chandrakant Dubey	0177ME131004 0177ME131011 0177ME131023	Ravindra Mohan	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO11, PO12, PSO1, PSO2
3	Automatic cycle stand retrieval system	Satyaprakash Yadav Jaydeep Dogney Chandan Kumar Singh	0177ME131099 0177ME131044 0177ME131022	Naresh Dashore	PO1, PO2, PO3, PO9, PO10, PO11, PO12, PSO1, PSO3
4	Hydraulic JCB	Manish Kumar Upadhyay Krishna Kamal Gupta Prince Kumar Dilip Kumar	0177ME131050 0177ME131047 0177ME131081 0177ME131031	Satya Narayan Yadav	PO1, PO2, PO3, PO4, PO6, PO9, PO10, PO 11, PO12 , PSO1, PSO2, PSO 3
5	Pedal operated Hacksaw machine	Sheikh Anzar Hussain Neelesh Patel Md Meraj Ansari	0177ME131106 0177ME131072 0177ME131059	Yogendra Thakur	PO1, PO2, PO3, PO4, PO9, PO10, PO 11, PO12 , PSO1, PSO3

## [SELF ASSESSMENT REPORT]

### B. Research Laboratories

- Research lab has Computers with essential software.
- E-journals are available
- All other labs are open for the students to completion of their projects throughout the day.
- Research lab is exclusively for the research and project work with the hardware and software facilities listed below:

**Table – 5.17**

Sr. No.	Name of the Facilities	Utilization
1.	R & D Lab	UG/PG students and Faculty members utilize for their mini projects, projects, and research activities.

- **Hardware/ Software Facilities:**

**Table – 5.18**

S. No.	Name of the Facilities
1.	Desktop computer systems
2.	Micro-meter, Vernier callipers, Combination set
3.	Pressure gauge, Thermocouple set, RTD & Slip gauge.
4.	Bench vice
5.	Basic machines for fabrication (portable cutter, grinder, drill m/c)
6.	Basic tools (spanner & Allen key set)
7.	AutoCAD software
8.	OpenFOAM
9.	Matlab

### C. Project Laboratories:

- Project lab with PC is used for project work.
- Technical support for the students is available throughout the day.
- All other labs are open for the students to completion of their projects throughout the day.
- Project/Research lab is exclusively for the research and project work with the hardware and software facilities listed below:

## [SELF ASSESSMENT REPORT]

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- Project lab is equipped with all basic tools.

### **D. Instructional Materials:**

- Laboratory Manuals,
- Data Sheets
- Power Point Presentation
- Handouts
- Subject notes.
- Video Lectures

### **E. Instructional Manuals**

- AutoCAD manual
- Open FOAM Manual
- CNC Manual programming manual
- AutoCAD 3D operation manual
- Heat treatment process charts
- Lathe machine operation manual
- Steam Turbine chart
- Milling machine instruction manual
- Shaper operation manual
- Velocity measurement of a fluid flow

### **F. Working models/charts/monograms etc.**

Charts displayed in all Laboratories. This prototype models helps the students to understand the working of basics and recent technologies in a better manner. Also this can be used for better teaching and learning process.

**Table 5.19 - Charts**

<b>S.n.</b>	<b>Particular</b>	<b>Lab</b>
1	Fe-C equilibrium chart	Material Science lab
2	Non-Conventional Machining process	Machine shop
3	Parts of Lathe machine	Machine shop
4	Heat Engine cycles	Thermodynamics and TEGD lab

## [SELF ASSESSMENT REPORT]

5	Psychometric chart	Refrigeration and air conditioning lab
6	Operations of a Milling machine	Machine shop
7	Non-destructive testing	Strength of Materials lab
8	Mohr's circle diagram	Strength of Materials lab
9	Application of gyroscope	Dynamics of machine lab
10	Types of bearings	Machine design lab
11	Types of threads	Machine drawing lab
12	Types of gears and gear trains	Theory of machines lab
13	Types of non-conventional machines	Machine shop
14	Types of casting	Manufacturing lab
15	Types of welding	Manufacturing lab
16	Workshop tools	Workshop
2020-21		
1	Type of heat exchanger	HMT Lab
2	Refrigeration System	Refrigeration and air conditioning lab

**Table 5.20 - Working models**

S No.	Name of Model
1	Single stage spur gear train
2	Double stage gear train
3	Epicyclic gear train
4	Gear Box with clutch
5	Gearbox
6	Spur gear
7	Helical gear
8	Centrifugal clutch
9	Single plate clutch
10	Multi plate clutch
11	Conical friction clutch
12	Claw clutch
13	Band block brake
14	Band brake
15	Internal expanding Braking System

## [SELF ASSESSMENT REPORT]

16	Disc brake
17	Prony brake
18	Inversion of four bar link mechanism
19	Chain drive with sprockets
20	Double stage belt drive
21	Simple belt drive
22	Cam and follower working models
23	Whitworth quick return mechanism
24	Oscillation cylinder mechanism
25	Locomotive coupling mechanism
26	Ackerman steering mechanism
27	Gyroscopic model
28	Cut section working model of 4 stroke single cylinder petrol engine with motor
29	Cut section working model of 4 stroke single cylinder diesel engine with motor
30	Cut section model of Differential gear box
31	Steam reaction turbine
32	Hydraulic Ram Cut section model
33	Impulse turbine
34	Cut section model of centrifugal pump
35	Cut section models of reciprocating pump
36	IC engine water cooling system
37	Cut section model of tractor steering system
38	Spark ignition system of IC engine
39	Models of steam engine

### 5.7.4 Consultancy (From Industry)

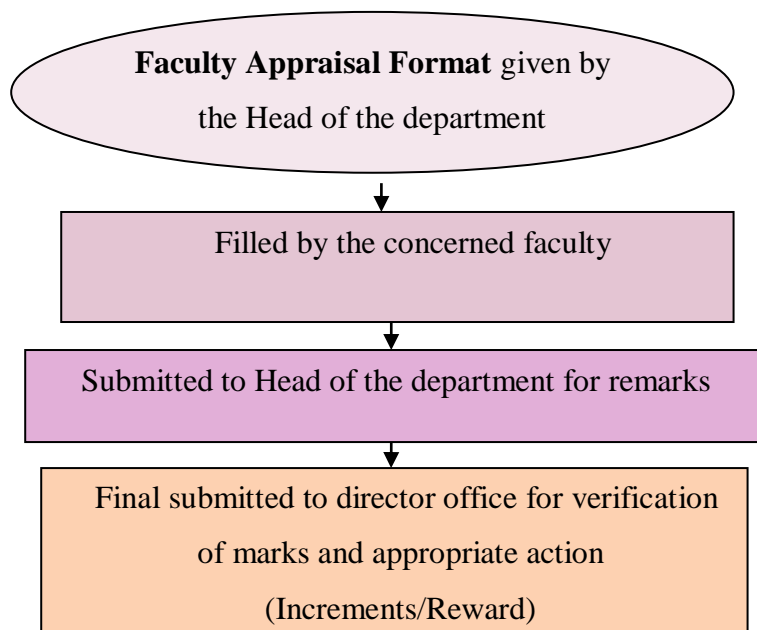
**Table 5.21 Consultancy (From Industry) 2019-20**

Project Title	Duration	Funding Agency	Amount
Smart inflating thermal imaging helmet	October 2019 to June 2020	Fitwell	145000
<b>Total</b>			<b>145000</b>

## [SELF ASSESSMENT REPORT]

### 5.8 Faculty Performance Appraisal and Development System (FPADS) (30)

- **A well-defined system for faculty appraisal for all the assessment years (10)**
  - Faculty Performance Appraisal format is collected from each faculty in which they need to show their innovations and research for their self-renewal to cope up with changes in technology and develop expertise for effective implementation of the curricula. The format of Faculty Performance Appraisal format is provided in annexure.
  - Institute organizes a meeting every month for faculty for feedback in which they discuss about the class conduct, performance, assignment, unit test, class test and activity of students. For the same faculty feedback is also considered on results, behaviour and own performance for active participation and achievements, discipline and quality basis, complied annually for two semesters (even and odd). Institute acknowledge faculty on the basis of self-appraisal report. Increments are assigned given according to appraisal report.
  - **Process for the appraisal –**
    - Format given by the Head of the department
    - Filled by the concerned faculty
    - Submitted to Head of the department for remarks
    - Final submitted to director office for verification of marks and appropriate action (Increments/Reward)



**Fig. 5.3 Flow chart of Faculty Appraisal Process**

- **Faculty Appraisal Performa**



## [SELF ASSESSMENT REPORT]

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**Key points for faculty appraisal are:**

1. Students Aggregate Attendance
2. Results of Previous Semester Subjects Taught
3. Research Papers/ Book Published/ICT Tool uses
4. Grant received from AICTE/UGC/MAPCST/Other Government bodies/Consultancy
5. Students Projects/Product made by faculty
6. Students Feedback
7. Extra-Curricular involvement/FDP /Conferences /Seminar(Attended / Organized)
8. New Lab Establishment / Lab Maintenance/ Uses of virtual labs
9. Ph.D. /M. Tech Thesis Guided
10. Responsibility (Exam Control Room/TG/Anti Ragging/ Monitoring).

**[SELF ASSESSMENT REPORT]**

**Table 5.22**

**Faculty Appraisal Performa 2018-2019**

(Information Sheet)

1	Name of the Faculty Member	<b>Mr. Deepen Banoriya</b>										
2	Designation	<b>Assistant Professor</b>										
3	Department	<b>Mechanical Engineering Department</b>										
4	Institute	<b>IES College of Technology Bhopal(0177)</b>										
5	Qualification	<b>M. Tech, Ph.D*</b>										
6	<b>Subjects taught in last Session: 2019-2020</b>											
S.No.	Name of Subject	Branch	Sem	Sub. code	No. of Students	Aggregate % Attendance	% of result	Result			Student Feedback %	HO D Verification
								No. of students passed with A+	No. of students passed with A	No. of students passed with B+/B		
a	Material Technology	Mechanical	III	ME303	115	90 %	97 %	5	39	15		
b	Instrumentation & Control	Mechanical	IV	ME402	117	91%	97 %	5	33	25		
TOTAL												
7	Research Papers/ Book Published/ICT Tool uses											
	1	"Development and Testing of Polyurethane based Composites using Rapid Prototyping Techniques for Biomedical Applications-A Review" <b>Materials Today: Proceedings, Volume 18, Pages 5410-5415</b>										

**[SELF ASSESSMENT REPORT]**

8	Grant received from AICTE/UGC/MAPCOST/Other Government bodies/Consultancy										
9	Extra Curricular involvement/FDP /Conferences /Seminar(Attended / Organized)										
	<b>S.N</b>	<b>Name of Event</b>	<b>Title</b>			<b>Detail of Organizer</b>	<b>Sponsored By</b>	<b>Date/Duration</b>			
	a.	FDP	3D Printing & Design with Interdisciplinary Applications			Maulana Azad National Institute of Technology (MANIT), Bhopal	AICTE	4 <sup>th</sup> Nov 2019 to 8 <sup>th</sup> Nov 2019			
	b	STTP	4 <sup>th</sup> Generation Manufacturing Technologies with Innovative Application			RGPV Bhopal	TEQIP -III	14 <sup>th</sup> October 2019 to 18 <sup>th</sup> October 2019			
	c	FDP	Student Induction Program (UHV-I)			IES College of Technology, Bhopal	AICTE & RGPV	9 <sup>th</sup> Jan 2020 to 11 <sup>th</sup> Jan 2020			
10	<b>Students Projects Guided/Product made by faculty</b>	<b>B.E.</b>	Yes	<b>No. of Project</b>	1	<b>No. of Product made by faculty</b>			<b>1</b>		
		<b>Ph.D/M. Tech</b>	No	<b>No. of Thesis</b>	0						
11	<b>Extra-Curricular Duties Performed:</b>										
		1	Worked as ED Cell committee member,								
		2	Worked in College discipline committee								
12	Administration Duties of Mentor/Anti Ragging/Monitoring Duties: (Excluding Counseling)			1	Performed the duties of Mentor						
				2	Member of anti-ragging Committee						

## [SELF ASSESSMENT REPORT]

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13	New Lab Establishment / Lab Maintenance/ Uses of virtual labs								
								(Name .....)	
								Date:	

## [SELF ASSESSMENT REPORT]

➤ **Its implementation and effectiveness (20)**

Head of the department evaluate appraisal for awarding marks and forwarded to director office for final evaluation (Increment /Rewarded).

- **Faculty Appraisal Evaluation Rubrics**

**Table – 5.23**

<b>Faculty Appraisal Evaluation Rubrics</b>					
S.No	Title	Verification Authority	Marking Scheme	Obtained Marks	Signature of Verified Authority
1	Students Aggregate Attendance (20Marks)	HOD & Principal	$< 40\% = 0$ $< 40 \text{ to } 50\% = 5$ $< 50 \text{ to } 65\% = 10$ $< 65 \text{ to } 75\% = 15$ $> 75 = 20$		
2	Results of Previous sem Subjects Taught(15Marks)	HOD & Principal	<u>No. of students with respect to grade A+/A/B+/B</u> If total A+/A/B+/B $> 30\%$ then 15 if A+/A/B+/B $> 20\%$ then 8 A+/A/B+/B $> 10\%$ then 5		
3	Research Papers/ Book Published/ICT Tool uses (10Marks)	Principal	If 1 book published award =5, ICT Tool uses =5 1 SCI Paper Published = 5 3 Papers with ISSN/UGC = 5 if Published up to 2 papers = 2 NIL = 0		
4	Grant received from AICTE/UGC/MPCoST/Other Government bodies/Consultancy (5Marks)	Principal	YES = 5 NO = 0		
5	Students Projects/Product made by faculty(10Marks)	HOD & Principal	If among best project = 10 Otherwise if guided =5 Product made by		

## [SELF ASSESSMENT REPORT]

			faculty=5		
			Not Guided = 0		
6	Students Feedback(20Marks)	HOD &Principal	Excellent = 20		
			Very Good = 18		
			Good = 15		
			Average = 10		
			Satisfactory = 5		
7	Extra Curricular involvement/FDP /Conferences /Seminar(Attended / Organized) 5 Marks	HOD/ Principal	Yes (Actively involved) = 05		
			Participated = 02		
			Organized=03		
			NO = 0		
8	New Lab Establishment / Lab Maintenance/ Uses of virtual labs (5Marks)	HOD/ Principal	If YES = 5		
			NO = 0		
9	Ph.D. /M. Tech Thesis Guided (5Marks)	HOD/ Principal	1 Mark/Thesis if completed within time Maximum mark = 05		
10	Responsibility	HOD/	If doing with full cooperation then 05		
11	(Exam Control Room/TG/Anti Ragging/ Monitoring 5Marks)	Principal	doing without cooperation then 3		
			Refusing = 0		
	Forwarded by HOD		Signature of Faculty		Principal

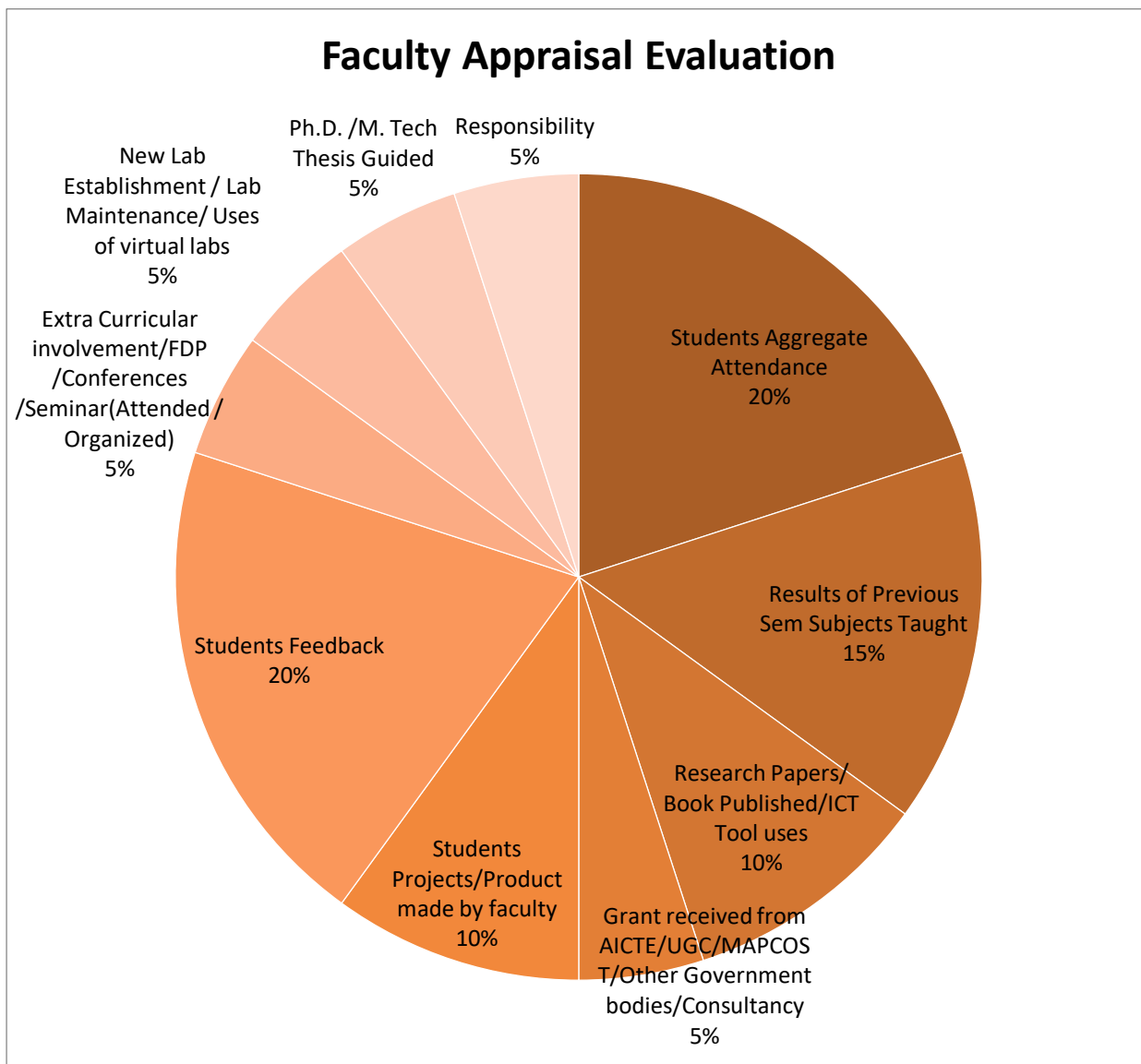


Figure 5.5 Flow chart of Faculty Appraisal Process

## [SELF ASSESSMENT REPORT]

### 5.9 Visiting/Adjunct/ Emeritus Faculties (10)

Adjunct faculty also includes Industry experts. Provide details of participation and contributions in teaching and learning and/or research by visiting /adjunct/ Emeritus faculty etc.

For all the assessment years: Provision of in visiting/having visiting/adjunct/emergitus faculty (1) Minimum 50 hours per year interaction with adjunct faculty from industry/retired professors etc.

(Minimum 50 hours interaction in a year will result in 3 marks for that year; 3marks x 3Years = 9 marks)

**Table 5.24**

Sl. No.	Academic Year	Year	Name of the course	Name of the Industry Expert	Hours
1	2020-2021	III	Industrial Engineering & Ergonomics	Mr. Yogendra Prasad Shrivastava	156
2		III	Machine Component Design	Dr. S.C. SONI	
3		II	Manufacturing Technology	Mr. P.N. Mishra	
4	2019-2020	II	Manufacturing Technology	Mr. P. N. Mishra	151
5		III	Industrial Engineering & Ergonomics	Dr. S.C. Jain	
6		III	Machine Component Design	Dr. S C. Soni	
7	2018-2019	II	Manufacturing Technology	Mr.P. N. Mishra	103
8		III	Industrial Engineering & Ergonomics	Dr. S.C. Jain	

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## [SELF ASSESSMENT REPORT]

<b>CRITERION 6</b>	<b>Facilities and Technical Support</b>	<b>80</b>
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### 6.1 Adequate and Well-Equipped Laboratories, and Technical Manpower (30)

#### Adequate and Well-Equipped Laboratories, and Technical Manpower (30)

- 1 **Adequacy of Laboratory:** The adequate well equipped laboratories are available to run the entire program specific curriculum.
- 2 **Equipment of Laboratory:** The lab has all the required equipments as per the curricular. The maintenance of the laboratory equipment's are excellent with best services and laboratories are well equipped with air ventilation, good ambience with adequate lighting facility, fan facility, power supply to run the machine
- 3 **Adequacy of Man Power:** The students are also allowed to do lab experiments after their lab hours within working hours with technical support after getting the permission from the staff in charge of the respective lab. Beyond working hours, the laboratories are available for the students to do their projects. Faculty and technicians use to support the project works during late hours too. Availability of adequate and qualified technical supporting staff as per norms listed below.

S. N.	Name of the Laboratory	No. of students per setun (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1	Workshop practice Lab	30	1. Anvil (Black Smithy Shop) 2. Arc Welding Machine 3. Aprons (Welding Shop) 4. Bench Vice (Fitting Shop) 5. Bench Grinder (Fitting Shop) 6. Ball peen Hammer (Fitting Shop) 7. Bastard File (Fitting Shop) 8. Bevel Square (Carpentry Shop) 9. Blows (Black Smithy Shop) 10. Center Punch (Fitting Shop) 11. Carpentry Vice (Carpentry Shop) 12. Claw Hammer (Carpentry Shop) 13. Chisels Tongs (Black Smithy Shop) 14. Cable Lug (Welding Shop) 15. Chipping Hammer (Welding Shop) 16. Carpentry Stone (Carpentry Shop) 17. Die-Set (Fitting Shop) 18. Drill Machine (Fitting Shop) 19. Drill Machine Portable 20. Electrical Grinder 21. Electrode Rod(Welding Shop) 22. Electrode Holder (Welding Shop) 23. Earthing Clamp (Welding Shop) 24. Flat Chisel (Fitting Shop) 25. Files Wooden (Carpentry Shop) 26. FirmerChisel (Carpentry Shop)	12hrs	Rajkumar Sahu	Lab Assistant	ITI Fitter

## [SELF ASSESSMENT REPORT]

S. N.	Name of the Laboratory	No. of students per setum (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
			27. Flat Tongs (Black Smithy Shop) 28. Furnace (Black Smithy Shop) 29. Foundry Tool Kit (Foundry Shop) 30. File Handle (Welding Shop) 31. Gouges (Carpentry Shop) 32. Gad Tongs (Black Smithy Shop) 33. Goggles (Plain) (Welding Shop) 34. Goggles (Welding Shop) 35. Hand Hammer (Fitting Shop) 36. Hack Saw (Fitting Shop) 37. Half Round File (Carpentry File) 38. Hand Gloves (Black Smithy Shop) 39. Hammer (Black Smithy Shop) 40. Hand Gloves (Welding Shop) 41. Hammer (Welding Shop) 42. Hose Clamp- Hose Pipe 43. Inside Caliper (Fitting Shop) 44. Jack Plane (Carpentry Shop) 45. LPG Burner (Welding Shop) 46. Lighter (Welding Shop) 47. Micrometer (Fitting Shop) 48. Marking Gauge (Fitting Shop) 49. Measuring Tape (Fitting Shop) 50. Mortise chisel (Carpentry Shop) 51. Mallet (Carpentry Shop) 52. Mould Box (Foundry Shop) 53. Mallet Hammer (Foundry Shop) 54. Outside Caliper (Fitting Shop) 55. Oxy-Acetylene Welding Set 56. Pipe Vice (Fitting Shop) 57. Round Files (Fitting Shop) 58. Ring Spammer (Fitting Shop) 59. Reamer (Fitting/machining shop) 60. Smooth Files (Fitting Shop) 61. Squarefiles (Fitting Shop) 62. Split-Die (Fitting Shop) 63. Steel Scale (Fitting Shop) 64. Screw Driver (Fitting Shop) 65. Surface Plate (Fitting Shop)				
2	Engineering Mechanics Lab	30	1. Bell Crank Lever 2. Screw Jack 3. Parallel Force Apparatus (Share Force) 4. Polygon Law Of Forces 5. Bending Moment Apparatus 6. Simple Jib Crane Rotating 7. Disc Apparatus 8. Friction Slide Apparatus	8 hrs	Sanjeev Thakur	Lab Assistant	B.E.

## [SELF ASSESSMENT REPORT]

S. N.	Name of the Laboratory	No. of students per setum (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
			9. Moment Law Apparatus 10. Fly Wheel Apparatus				
3	Engineering Graphics	30	Drawing Hall with & 60 Drawing Table AutoCAD software Model of cylinder cut section Model of prism Model of cube Model of pyramids Model of tetrahedron Model of octahedron Model of plane (square, circle, pentagon) Section of solid model (sphere, cylinder, cone, prism) IsomarsChalk board geometry drawing tool set	12 hrs	Sanjay Girhare	Lab Assistant	B.E.
4	Basic Mechanical Engineering	30	1. Cochran Boiler Model 2. Babcock And Wilcox Boiler Model 3. Single Start Worm & Worm Wheel Model 4. Double Start Worm & Worm Wheel Model 5. Triple Start Worm & Worm Wheel Model 6. Locomotive Boiler Model 7. Cornish Boiler Model 8. Level Safety Valve Model 9. Spring Loaded Safety Valve Model 10. Combined High Steam And Low Steam Water Safety Valve Model 11. Stop Valve Hopkinson Type model 12. Feed Check Valve model 13. Pressure Gauge model 14. Blow Off Cock model 15. Reducing Valve model 16. Fusible Plug model 17. Anti-Priming Pipe model 18. Expansion Steam Trap model 19. Float Steam Trap 20. Green Economizer 21. Water level indicator model 22. Two Stroke Petrol Engine Model 23. Two Stroke Diesel Engine Model 24. Four Stroke Petrol Engine Model 25. Four Stroke Diesel Engine Model 26. Model Of Steam Engine	8 hrs	Durga Prasad	Lab Assistant	B.E

## [SELF ASSESSMENT REPORT]

S. N.	Name of the Laboratory	No. of students per setum (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
			27. Reciprocating Engine Mechanism Model 28. Model of Lathe Machine				
5	Materials Technology Lab	30	1. IzodCharpy Test Apparatus 2. Hardness Testing Machine Apparatus 3. Heat Treatment Charts	8 hrs	Dinesh Kumar	Lab Assistant	B.E.
6	Strength of materials Lab	30	1. Compression Testing Rig 2. Hardness Testing machine 3. Impact Testing Machine 4. Fatigue Testing Machine	8 hrs	Dinesh Kumar	Lab Assistant	B.E.
7	Manufacturing Process Lab	30	1.Arc Welding Machine 2.Foundry Tool Kit (Foundry Shop) 3.Oxy-Acetylene gas Welding Set (Welding Shop) 4.Pattern Making (Carpentry) 5.Anvil 6.Swage block 7.Lathe Machine 8.Milling Machine 9.Shaper Machine 10. Drilling Machine 11. Bench grinder 12. Lathe Cutting tools 13. Milling machine tool 14. Shaper machine tool 15. Holding & marking tools	8 hrs	Rajkumar Sahu	Lab Assistant	ITI Fitter
8	Thermal engineering lab	30	1. Lamont Boiler Model 2. Benson Boiler Model 3. Cochran Boiler Model 4. Babcock And Wilcox Boiler Model 5. Locomotive Boiler Model 6. Boiler Model 7. Thermocouple	8 hrs	Prabhat Diwedhi	Lab Assistant	B.E.
9	Instrumentation & Control Lab	30	1. Thermocouple 2. Prony Brake Dynamometer model 3. RTD 4. Dial gauge with stand 5. Inside & outside spring caliper 6. Vernier calipers 7. Micrometer 8. Combination set 12 inch 9. Feeler gauge (set of 32) 10. Wire gauge steel ( for 36)	8 hrs	Mahesh Kumar	Lab Assistant	B.E.

## [SELF ASSESSMENT REPORT]

S. N.	Name of the Laboratory	No. of students per setum (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
10	Theory Of Machines Lab (Dynamics of Machine & Kinematics of Machines)	30	<ol style="list-style-type: none"> <li>1. Centrifugal Clutch model</li> <li>2. Multi Plate Clutch model</li> <li>3. Single Plate Clutch model</li> <li>4. Conical Clutch model</li> <li>5. Claw Clutch model</li> <li>6. Band Brake model</li> <li>7. Band &amp; Block Brake model</li> <li>8. Cam And Follower model</li> <li>9. Universal Governor Model</li> <li>10. Motorized Gyroscope Model</li> <li>11. Epicyclic Gear model</li> <li>12. Inversions Of Four Bar Link Mechanism</li> <li>13. Flat Belt Pulley model</li> <li>14. Rope Belt Pulley model</li> <li>15. "V" Belt Pulley model</li> <li>16. Cone Belt Pulley model</li> <li>17. Different Type Of Gear Model (All4)</li> <li>18. Slide Crank Mechanism model</li> <li>19. Chain drive pulley model</li> <li>20. Whitworth quick return</li> <li>21. Hook's coupling</li> <li>22. Disc brake model</li> <li>23. End cam with translating follower</li> <li>24. Tangent cam with roller oscillating follower</li> <li>25. Universal coupling</li> <li>26. Bevel gear</li> <li>27. Brake cylinder</li> <li>28. Spur gear</li> <li>29. Helical gear</li> <li>30. Locomotive coupling bar mechanism</li> <li>31. Seller's coupling</li> <li>32. Steam engine model</li> <li>33. Flexible coupling</li> <li>34. Electronic ignition system</li> </ol>	8 hrs	Abhishek Mourya	Lab Assistant	Diploma
11	Fluid Mechanics Lab	30	<ol style="list-style-type: none"> <li>1. Pitot Tube apparatus</li> <li>2. Venture Meter And Orifice Meter apparatus</li> <li>3. Bernoulli's Theorem Apparatus</li> <li>4. Discharge Over 'V' Notch apparatus</li> <li>5. Free Vortex Flow apparatus</li> <li>6. Force Vortex Flow</li> <li>7. Frictional losses in pipe</li> <li>8. Metacentric height</li> </ol>	8 hrs	Raman Pawar	Lab Assistant	Diploma

## [SELF ASSESSMENT REPORT]

S. N.	Name of the Laboratory	No. of students per setum. (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
12	Manufacturing Technology Lab	30	CNC Simulation software Lathe Machine Milling Machine Shaper Machine Cutting tools	8 hrs	Nilesh Yadav	Lab Assistant	B.E.
13	Software Lab & CAD Lab	30	AutoCAD software 30 Nos computer	8 hrs	Sanjay Girhare	Lab Assistant	B.E.
14	IC Engines Lab	30	<ol style="list-style-type: none"> <li>1. 4 Stroke Single Cylinder Petrol Engine</li> <li>2. 4 Stroke Single Cylinder Diesel Engine</li> <li>3. 4 Stroke Petrol Engine Cut Section Model</li> <li>4. Section Gear Box</li> <li>5. Section Gear Box With Clutch</li> <li>6. Wiring Layout With Lighting System Model</li> <li>7. Tractor Steering Model</li> <li>8. Battery Ignition System Model</li> <li>9. Fuel Supply System Model</li> <li>10. Coil Ignition System Model</li> <li>11. Cooling System</li> <li>12. Car Steering Model</li> <li>13. Connecting Rod</li> <li>14. Piston With Ring</li> <li>15. Crankshaft</li> <li>16. Single cylinder 4-stroke petrol engine drive.</li> <li>17. Diesel Engine test rig</li> <li>18. Petrol engine test rig</li> </ol>	8 hrs	Rajkumar Sahu	Lab Assistant	ITI Fitter
15	Mechanical Vibration Lab	30	Whirling of Shaft Universal vibration Apparatus	8 hrs	Sumit Awadhiya	Lab Assistant	B.E.
16	FEM CFD & CAD Lab	30	<ol style="list-style-type: none"> <li>1. 30 Nos Computer</li> <li>2. Openfoam (CFD software)</li> <li>3. Sci Lab Software</li> </ol>	8 hrs	Sanjay Girhare	Lab Assistant	B.E.
17	Python Lab	30	Python programming software	8 hrs	Vasudev Phate	Lab Assistant	B.E.

## [SELF ASSESSMENT REPORT]

S. N.	Name of the Laboratory	No. of students per setum. (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
			(30 nos. computer )				
18	Thermal Engineering and Gas Dynamics Lab	30	<ol style="list-style-type: none"> <li>1. High Pressure Boiler Model</li> <li>2. Counter Flow-Jet Condenser Model</li> <li>3. Lamont Boiler Model</li> <li>4. Benson boiler model</li> <li>5. De Level Turbine Model</li> <li>6. Turbo Jet Gas Turbine Model</li> <li>7. Pure Reaction Turbine model</li> <li>8. Impulse Turbine model</li> <li>9. Air And steam Pressure Turbine model</li> <li>10. Jet Condenser model</li> <li>11. Surface Condenser model</li> <li>12. Joules Apparatus model</li> <li>13. Parallel And Counter Flow Heat Exchanger</li> </ol>	8 hrs	Mahesh Kumar	Lab Assistant	B.E.
19	Machine Component Design Lab	30	Drawing hall with 60 nos drawing table Model of machine components Model key Model of spline shaft Compression spring	8 hrs	Abhishek Mourya	Lab Assistant	Dipl oma
20	RDBMS Lab	30	30 nos. computer software	8 Hrs	Nitin Dubey	Lab Assistant	Dipl oma
21	Refrigeration and Air conditioning	30	Vapor compression test rig Study model of domestic refrigeration system. Psychrometer Refrigerant filling kit (45 ° flaring tool, pinch off plier, tube cutter, pressure gauge, Halogen leak detector, tube, small cylinder) Battery Hydrometer (for battery gravity checking)	8 Hrs	Raman Pawar	Lab Assistant	Dipl oma
22	CAD/CAM/ CIM	30	AutoCAD software CNC simulation software	8 Hrs	Prabhat Diwedhi	Lab Assistant	B E
23	MATLAB	30	30 nos. computer	8 Hrs	Dharmendr	Lab	BE

## [SELF ASSESSMENT REPORT]

S. N.	Name of the Laboratory	No. of students per setum (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
	and R Programming		MATLAB software R- Programming software		a Prajapati	Attendant	
24	Heat & Mass Transfer Lab	30	1. Parallel & counter flow apparatus 2. Stefan Boltzmann Apparatus 3. Thermocouple calibration test rig	8 Hrs	Mahesh Kumar	Lab Assistant	B.E.
25	Operation Research lab	30	MATLAB SciLab (Open source software) Excel software	8 Hrs	Abhishek Moraiya	Lab Attendant	Dipl oma
26	Automobile Lab	30	1. Cut section model of four wheeler 2. Car body model 3. Cut Section Gear box 4. Cut section model of Tractor Steering Mechanism 5. Model of Car steering mechanism 6. Ignition system 7. Dissembled car engine & parts 8. Cut section model of the gear box of four wheeler 9. Two wheeler model (scooter) 10. Go kart model 11. Cut section model of worm gear box 12. Ackerman steering model	8 hrs	Raman Pawar	Lab Attendant	Dipl oma
27	Machine Drawing & Design	30	60 drawing table Stuffing box Footstep bearing Cotter joint Knuckle joint	8 Hrs	Sanjay Girhare	Lab Attendent	B E



## [SELF ASSESSMENT REPORT]

### 6.2 Additional facilities created for improving the quality of learning experience in laboratories (25)

S. N.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students are expected to have enhanced learning	Relevance to POs/PSOs
1	Smart Class Room	<ul style="list-style-type: none"> <li>E-board &amp; projector facility with the seating capacity of 60.</li> <li>Fully equipped with furniture and teaching aids.</li> </ul>	<ul style="list-style-type: none"> <li>Smart class room is used for animated visuals and video lectures.</li> <li>These visually attractive methods of teaching are sometimes more interesting as compared to teaching in a classroom.</li> </ul>	Throughout the semester	The graphs, design, models, simulation and fabrication of difficult subjects can be easily analyzed and visualized.	PO3, PO4, PO5, PSO-1 & PSO-3
2	Departmental Library	Departmental library has a collection of text books, reference books, project / seminar report and NPTEL instruction material	<ul style="list-style-type: none"> <li>To provide academic support to students.</li> <li>To provide advanced information of the seminars and projects.</li> </ul>	Throughout the semester	Improved student learning process	PO1, PO-2, PO-4, PSO-1, PSO-2 & PSO-3
3	NPTEL Instructional material available	Providing to the students through the central and departmental library	<ul style="list-style-type: none"> <li>Understand teaching and learning about the new technology in the field of Mechanical Engineering</li> </ul>	Throughout the semester	To understand important concept of various subject and modern tool used in mechanical engineering	PO-1, PO-2, PO-5&PSO1
4	Training on Auto CAD	Students would be trained in computer aided drafting through Auto CAD software	Improve machine designing skill	As per requirement	It helps users creating designs in either 2D or 3D so that they can visualize the construction. CAD enables the development, modification, and optimization of the design process	PO1,PO2, PO3,PO4, PO5,PO12

## [SELF ASSESSMENT REPORT]

5	MOU with CRISP Bhopal on various Lab & Industrial Visit	<ul style="list-style-type: none"> <li>Students can understand : 1)Manufacturing Technology (CNC Technology, CAD/CAM ( Pro-E, CATIA, Solid Works &amp; I-DEAS), AutoCAD. 2)Industrial Automation (PLC, Variable Frequency Drives, Field Instrumentation, MMI, Hydraulics, Pneumatics)</li> <li>Organization of Industrial Visit</li> </ul>	It will help them in grabbing various job opportunities in MNCs.	As Per requirement	Enhance learning in machine design, control & fabrication.	PO1,PO2, PO3,PO4, PO5,PO12 ,PO8
6.	MOU with CIPET Bhopal on various Lab & Industrial Visit	<ul style="list-style-type: none"> <li>Students can understand is providing Training, Technical and Consultancy Services in Design, CAD/CAM/CAE, Tool Room, Plastic Processing and Testing</li> </ul>	It will help them in grabbing various job opportunities in MNCs.	As Per requirement	Enhance learning in Manufacturing Process & Technology	PO1,PO2, PO3,PO4, PO5,PO12 ,PO8
7.	Training and placement classes	<ul style="list-style-type: none"> <li>Training on reasoning, group discussion, and technical skill by experts.</li> </ul>	Job oriented training and to improve logical reasoning and technical skills.	As per time table for pre final year students	Employability and entrepreneurs hips	PO4, PO5, PO8, PO12
8	Virtual Lab	Virtual lab used for training.	To make the student more conversant about the practical.	As per requirement	Enhance learning in course curriculum	PO1, PO2, PO4, PO5

### 6.3 Laboratories: Maintenance and overall ambiance (10)

To ensure high quality technical education to the students, the college provides best possible infrastructure facilities in the campus.

The Department is equipped with sophisticated laboratories and state of art instruments to satisfy the curriculum requirements. All laboratories are spacious, well ventilated and provided with adequate electrical fittings to take care of ambiance. Salient features regarding maintenance and ambiance of laboratory facilities are as follows;

#### ➤ Electricity, telecom facility, drinking water, and security

Electricity: Electrical power is supplied to IES College through 33 K.V 3 - phase feeder. The supply is received through 33 K.V, 200KVA transformer located inside the campus.

## [SELF ASSESSMENT REPORT]

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The college has 125K.V.A. Jackson genset also.

Water supply: There are bore wells and well also in the campus with adequate yield to fully meet the water requirement for drinking, laboratory use and other purposes.

Academic Building Maintenance: Estate Supervisor looks after maintenance of buildings and green covers.

### ➤ **Laboratory Equipment Maintenance:**

- All the equipment in the laboratories is maintained on a regular basis by the concerned laboratory technicians under the guidance and supervision of the Faculty members.
- General servicing is done before commencement of academic session. Servicing is also done whenever necessary.
- An equipment maintenance register is maintained separately for each laboratory to record the maintenance, repairs and servicing if any carried out for the equipment.
- For Computers: Routine complaints are looked after by an internal team of programmers and technicians
- For large & expensive equipment: Malfunctioning of equipment is referred to the supplier of the equipment for necessary servicing and repairs
- Qualified technical assistants are available for maintenance of the equipments and software in labs.

### ➤ **Ambience, green cover, environment preservation etc.**

- Ambience has been given special importance for the students to feel refreshed when they enter the campus.
- Green lawn is developed and trees are grown in the campus for good ambience and greenery
- To add to protection of environment and to reduce the load on conventional electrical energy, 100 kW solar power plant is located on the rooftop.
- As per university curriculum department has well equipped labs.
- All laboratories are acoustics having sufficient natural light, proper ventilation with tubes and fan arrangement.
- For proper ventilation and natural light, sufficient numbers of windows are available in every laboratory and class room.
- All Labs are open for students and faculties for projects and research.
- Laboratory manuals are provided to the students.
- Each lab is equipped with green/white board facilities.
- Fire extinguishers are provided on all the floors.

### **6.4 Project laboratory (5)**

- Project lab is used for project work.
- Technical support for the students is available throughout the day.
- All other labs are open for the students to completion of their projects throughout the day.

## [SELF ASSESSMENT REPORT]

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- Project/Research lab is exclusively for the research and project work with the hardware and software facilities listed below:

Table 1 Project laboratory

Sr. No.	Name of the Facilities
1.	OpenFOAM software
2.	AutoCAD software
3.	Micrometer, vernier callipers
4.	K-type thermocouple,
5.	Lathe machine
6.	Furnace
7.	Arc Welding machine
8.	Gas welding machine
9.	Bench vice
10.	Electrical Grinder, files, Hack Saw
11.	Micrometer, vernier callipers, K-type thermocouple, measuring tape
12.	Scilab software

### Research & Development Lab

It is used by faculty & students for research work.

#### 6.5 Safety measures in laboratories (10)

The following safety measures are used in all the labs:

1. Do's and don'ts are displayed with specific safety rules and instructions are given to students.
2. Fire extinguishers are available at each floor.
3. First aid boxes are kept in the department.
4. Faulty apparatus are identified and serviced at the earliest.
5. Clean and structured laboratories are maintained.
6. Instruction display in lab that use of cell phones is strictly prohibited.
7. Instruction display on door that don't enter in the lab without permission.
8. The switching of power supply has been handled only by authorized person.

## [SELF ASSESSMENT REPORT]

S.N.	Laboratory Name	Safety measure
1	Workshop practice Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed.</li> <li>2. Be attentive when working on any machine tool.</li> <li>3. Loose &amp; full sleeve clothes not to be wear.</li> <li>4. Any locket in the neck is not allowed.</li> <li>5. Put welding goggle &amp; hand gloves while working in welding shop.</li> <li>6. Do not wear shorts, sandals, or open-toed shoes in lab.</li> <li>7. Fire extinguishers are available at each floor.</li> <li>8. First aid box are kept in workshop</li> <li>9. Clean and structured laboratories are maintained.</li> <li>10. Faulty apparatus are identified and serviced at the earliest.</li> <li>11. Use of cell phones is strictly prohibited.</li> <li>12. Report faulty electrical equipment to the supervisor.</li> </ol>
2	Engineering Mechanics lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. Faulty apparatus are identified and serviced at the earliest.</li> </ol>
3	Engineering Graphics Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured graphics classroom are maintained.</li> <li>5. Use of cell phones is strictly prohibited.</li> </ol>
4	Basic Mechanical Engineering Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed.</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. Use of cell phones is strictly prohibited.</li> </ol>
5	Materials Technology Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> </ol>

## [SELF ASSESSMENT REPORT]

		<ol style="list-style-type: none"> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. Faulty apparatus are identified and serviced at the earliest.</li> </ol>
6	Strength of materials Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Keep distance from the apparatus like Impact testing machine &amp; Compression testing machine while working on these machine.</li> <li>3. Sample must be prepared as per drawing &amp; specification.</li> <li>4. Fire extinguishers are available at each floor.</li> <li>5. First aid box are kept in department.</li> <li>6. Clean and structured laboratories are maintained.</li> <li>7. Faulty apparatus are identified and serviced at the earliest.</li> <li>8. Use of cell phones is strictly prohibited.</li> </ol>
7	Manufacturing Process Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. Do not wear shorts, sandals, or open-toed shoes in lab.</li> <li>6. Handle the machine with care.</li> <li>7. Use of cell phones is strictly prohibited.</li> <li>8. Proper maintenance of the machine shop with proper lubrication &amp; preventive maintenance.</li> <li>9. Do not wear shorts, sandals, or open-toed shoes in lab.</li> </ol>
8	Thermal engineering Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. Do not wear shorts, sandals, or open-toed shoes in lab</li> <li>6. The switching of power supply has been handled only by authorized person.</li> <li>7. No unauthorized personnel are permitted to operate machinery</li> <li>8. Use of cell phones is strictly prohibited.</li> </ol>

## [SELF ASSESSMENT REPORT]

9	Instrumentation & Control Lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. First aid box are kept in department.</li><li>4. Clean and structured laboratories are maintained.</li><li>5. Use of cell phones is strictly prohibited.</li></ol>
10	Theory of Machines Lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. First aid box are kept in department.</li><li>4. Clean and structured laboratories are maintained.</li><li>5. Students must maintain the decorum of the lab.</li><li>6. Use of cell phones is strictly prohibited.</li></ol>
11	Fluid Mechanics Lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed.</li><li>2. Do not wear shorts, sandals, or open-toed shoes in lab.</li><li>3. Fire extinguishers are available at each floor.</li><li>4. First aid box are kept in department.</li><li>5. Clean and structured laboratories are maintained.</li><li>6. Use of cell phones is strictly prohibited.</li></ol>
12	Manufacturing Technology Lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. First aid box are kept in department.</li><li>4. Clean and structured laboratories are maintained.</li><li>5. Use of cell phones is strictly prohibited.</li></ol>
13	Software Lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. First aid box are kept in department.</li><li>4. Clean and structured laboratories are maintained.</li><li>5. Use of cell phones is strictly prohibited.</li></ol>
14	IC Engines lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. First aid box are kept in department.</li><li>4. Clean and structured laboratories are maintained.</li><li>5. The machine has been handled only by authorized person.</li><li>6. Use of cell phones is strictly prohibited.</li></ol>
15	Mechanical	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li></ol>

## [SELF ASSESSMENT REPORT]

	Vibration Lab	<ol style="list-style-type: none"> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. The switching of power supply has been handled only by authorized person.</li> <li>6. Use of cell phones is strictly prohibited.</li> </ol>
16	FEM CFD Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. Use of cell phones is strictly prohibited.</li> </ol>
17	Python Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. Clean and structured laboratories are maintained.</li> <li>4. Use of cell phones is strictly prohibited.</li> </ol>
18	Thermal Engineering and Gas Dynamics Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. Use of cell phones is strictly prohibited.</li> </ol>
19	Machine Component Design Lab	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. First aid box are kept in department.</li> <li>4. Clean and structured laboratories are maintained.</li> <li>5. The switching of power supply has been handled only by authorized person.</li> <li>6. Use of cell phones is strictly prohibited.</li> </ol>
20	Refrigeration and Air conditioning	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. Clean and structured laboratories are maintained.</li> <li>4. Use of cell phones is strictly prohibited.</li> </ol>
21	CAD/CAM/CIM	<ol style="list-style-type: none"> <li>1. Do's and don'ts are displayed</li> <li>2. Fire extinguishers are available at each floor.</li> <li>3. Clean and structured laboratories are maintained.</li> </ol>



## [SELF ASSESSMENT REPORT]

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		4. Use of cell phones is strictly prohibited.
<b>22</b>	Heat & Mass Transfer Lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. Clean and structured laboratories are maintained.</li><li>4. Use of cell phones is strictly prohibited.</li></ol>
<b>23</b>	Operation Research lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. Clean and structured laboratories are maintained.</li><li>4. Use of cell phones is strictly prohibited.</li></ol>
<b>24</b>	Automobile Lab	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. Clean and structured laboratories are maintained.</li><li><b>4.</b> Use of cell phones is strictly prohibited.</li></ol>
<b>25</b>	Machine Drawing & design	<ol style="list-style-type: none"><li>1. Do's and don'ts are displayed</li><li>2. Fire extinguishers are available at each floor.</li><li>3. Clean and structured laboratories are maintained.</li><li>4. Use of cell phones is strictly prohibited.</li></ol>

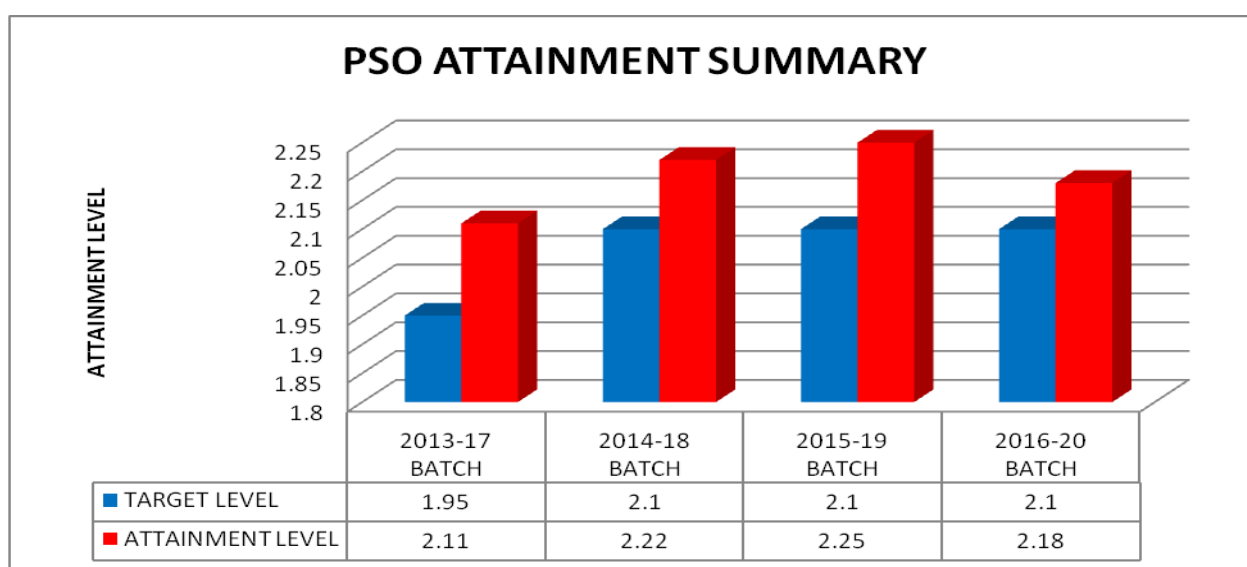
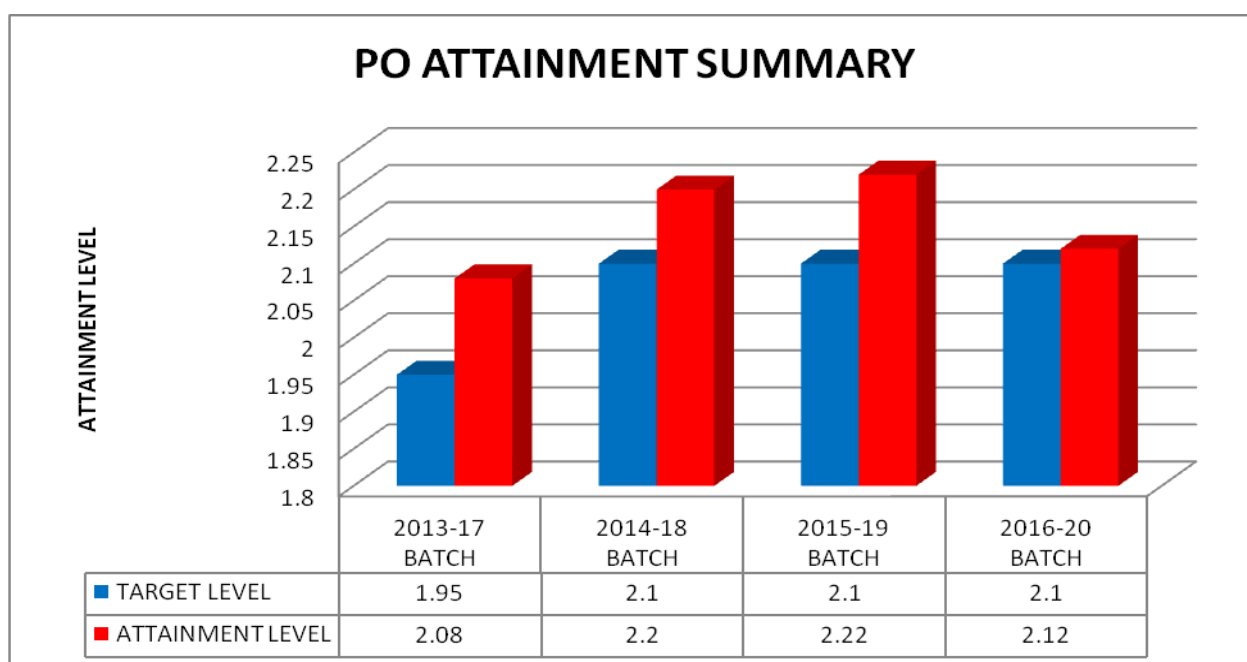
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## [SELF ASSESSMENT REPORT]

<b>CRITERION 7</b>	<b>CONTINUOUS IMPROVEMENT</b>	<b>50</b>
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### 7.1. ACTIONS TAKEN BASED ON THE RESULTS OF EVALUATION OF EACH OF THE POs & PSOs (20)

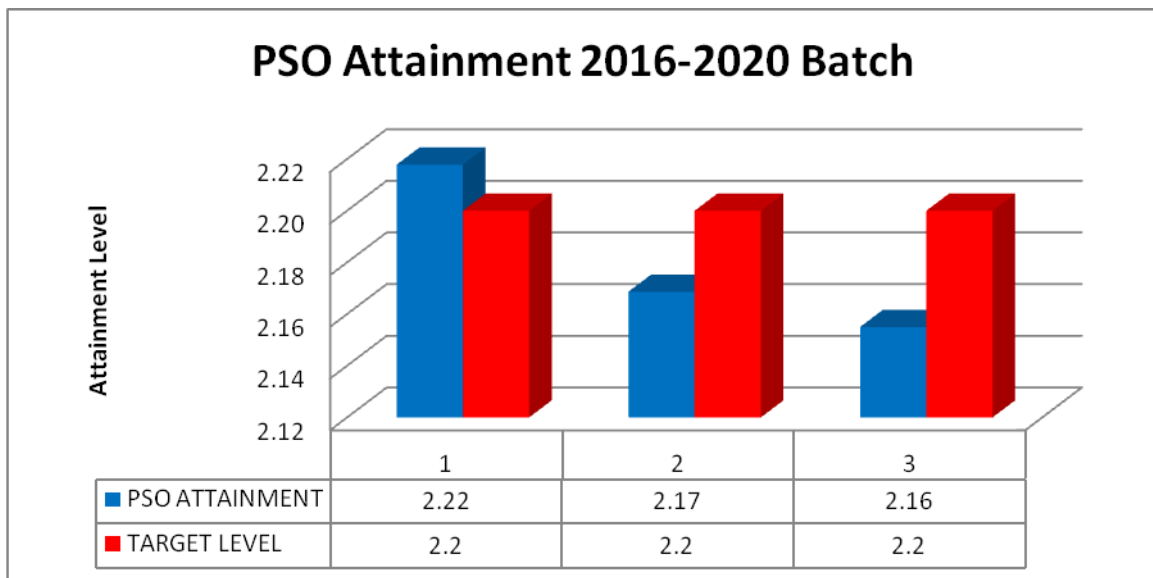
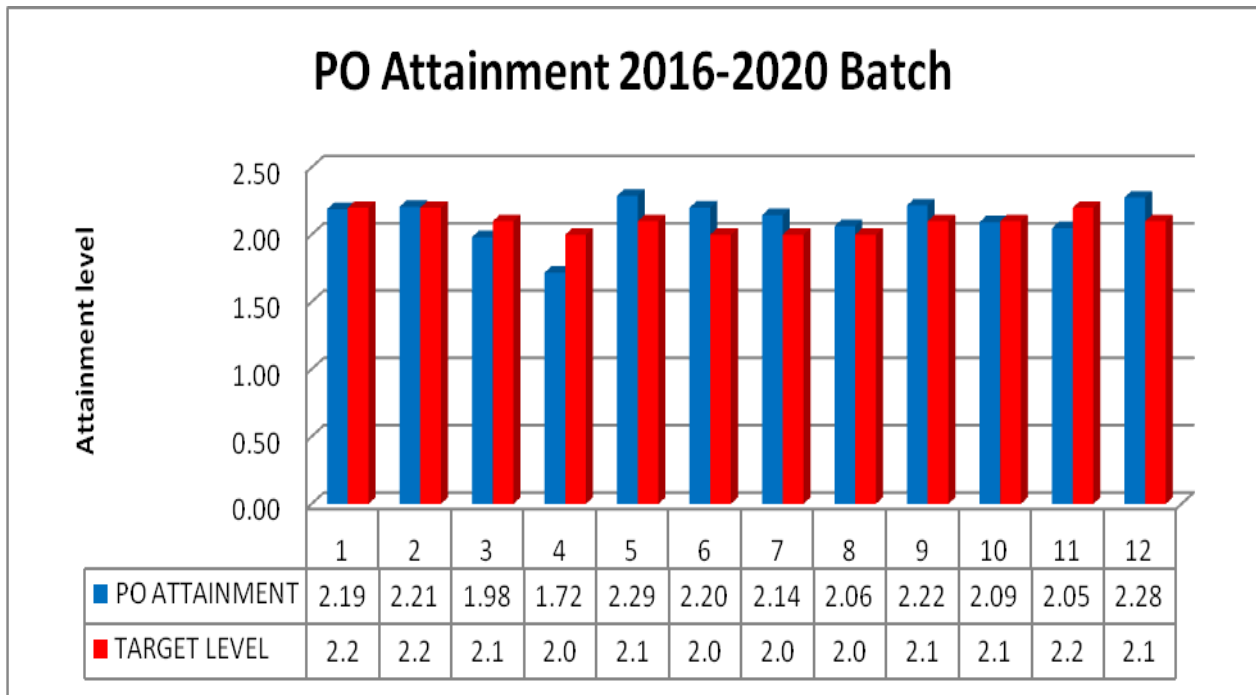
Identify the areas of weaknesses in the program based on the analysis of evaluation of POs & PSOs attainment levels. Measures identified and implemented to improve POs & PSOs attainment levels for the assessment years. To enhance the POs and PSOs attainment levels for the next assessment years.



Measures are identified and implemented in next academic session.

## [SELF ASSESSMENT REPORT]

2020-21



## [SELF ASSESSMENT REPORT]

POs	Target Level	Attainment Level	Observations
<b>PO1: Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.2	2.19	<b>Observations</b> <b>Target Not attained</b> 1. Lack of implementing the basic concept of Strength of materials and unable to solve the complex problems of the Strength of materials. 2. Lack of understanding the principle and few topics of Fluid mechanics.
<b>Actions</b> 1. Remedial/Revision classes were conducted to solve problem of Strength of materials. 2. Tutorial classes were conducted for more practice in Fluid Mechanics.			
<b>PO-2: Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	2.2	2.21	<b>Observations</b> <b>Target attained</b> Students should have better understanding in mathematical and conceptual part of Thermodynamics.
<b>Actions</b> 1. Webinar and expert lectures were organized to improve conceptual understanding. 2. More mathematical problems were assigned as part of assignment. 3. Remedial/Revision classes were conducted to solve analytical problems of thermodynamics.			
<b>PO-3: Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	2.1	1.98	<b>Observations</b> <b>Target not attained</b> Students facing difficulty in understanding complex mathematical problems related to application of Dynamics of Machines, Design of Machine Element and Heat and mass transfer.
<b>Actions</b> 1. Complex problems related to application of Heat and mass transfer in engineering have been given to students. 2. Assignments related to complex problems were given to students for the above mentioned subjects. 3. NPTEL classes were organized by department of mechanical engineering.			

## [SELF ASSESSMENT REPORT]

<p><b>PO-4: Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.</p>			
<b>PO4</b>	<b>2.0</b>	<b>1.72</b>	<p><b>Observations</b>  <b>Target not attained</b>                      The course of Dynamics of machine has scope for further improvement.</p>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Assignments related to complex problems were given to students for the above mentioned subjects</li> <li>2. NPTEL, instructional materials like ppt, videos and notes for improving problem solving skills in design and development were provided.</li> </ol>			
<p><b>PO-5: Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.</p>			
<b>PO5</b>	<b>2.1</b>	<b>2.29</b>	<p><b>Observations</b>  <b>Target attained</b></p> <ul style="list-style-type: none"> <li>• The courses of Metal Cutting &amp; Machine Tools need more understanding and practice in few topics.</li> </ul>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Webinar on CNC Machines was conducted.</li> <li>2. Various design lab sessions regarding application of Design/Analysis tools such as AutoCAD were organised.</li> </ol>			
<p><b>PO-6: The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
<b>PO6</b>	<b>2.0</b>	<b>2.20</b>	<p><b>Observation</b>  <b>Target attained</b>                      The students need more awareness reasoning contextual knowledge to assess safety, legal and cultural issues in real life.</p>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Students were motivated to take a part in various social technical events such as NCC etc.</li> <li>2. Morning assembly scheduled every Monday to develop awareness about global awareness and social responsibilities.</li> </ol>			
<p><b>PO-7: Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
<b>PO7</b>	<b>2.0</b>	<b>2.14</b>	<p><b>Observation</b>  <b>Target attained</b>                      Students need more awareness about global and environmental issues.</p>

## [SELF ASSESSMENT REPORT]

<b>Actions</b>			
<ol style="list-style-type: none"> <li>Students were explained the working of solar panel of 100 kW and its importance on environment in the campus.</li> <li>The verdant ambiance has been felicitated as the first "Green Building Campus of MP" by IGBC, Hyderabad.</li> <li>Importance of being the first Tobacco Free Campus of the State by M.P. Government was explained to the students.</li> </ol>			
<b>PO-8: Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
<b>PO8</b>	<b>2.0</b>	<b>2.06</b>	<b>Observation</b> <b>Target attained</b> The students are doing better in field of engineering but need improvement in ethical & moral knowledge.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>Students were encouraged to enroll in NCC to follow ethics in all domains of engineering courses.</li> <li>Students participated in special Monday assembly to develop professional ethics through several activities.</li> </ol>			
<b>PO-9: Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
<b>PO9</b>	<b>2.1</b>	<b>2.22</b>	<b>Observation</b> <b>Target attained yet few gaps were identified</b> <ol style="list-style-type: none"> <li>It has been observed sometimes some students did not perform given task individual as required.</li> <li>Requirement of more team work capacity among students.</li> </ol>
<b>Actions</b>			
<ol style="list-style-type: none"> <li>Online Technical events were organized to enhance leadership qualities in individuals as well as to make them work in team.</li> <li>Students participated in events like online -seminar, workshop, and projects to improve their interpersonal skills.</li> </ol>			
<b>PO-10: Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
<b>PO10</b>	<b>2.1</b>	<b>2.09</b>	<b>Observation</b> <b>Target Not attained</b> The communication, presentation and report writing skills of the students need to be improved.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>Soft skill trainings were conducted to enhance various aspects of communication/technical talks by group discussions, presentations and new learning outcomes.</li> <li>Alumni talks were conducted.</li> </ol>			

## [SELF ASSESSMENT REPORT]

<p><b>PO-11: Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
<b>PO11</b>	<b>2.2</b>	<b>2.05</b>	<p><b>Observation</b>  <b>Target not attained</b></p> <ol style="list-style-type: none"> <li>1. Some students were not able to manage and implement technical knowledge in projects effectively.</li> <li>2. Needed improvement in project management and financial skills.</li> </ol>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Students were motivated to participate in online project</li> <li>2. Students were advised to participate in more online webinars and Project Management and finance related activities.</li> <li>3. Industrial visits and industrial trainings were organized.</li> </ol>			
<p><b>PO-12:Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.</p>			
<b>PO12</b>	<b>2.1</b>	<b>2.28</b>	<p><b>Observation</b>  <b>Target attained</b></p> <p>Yet students found it to be difficult to get acquainted with the recent updates.</p>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. The habit of self learning as independent learning using you tube/ NPTEL was developed.</li> </ol>			
<p><b>PSO 1:</b> To strength the students' knowledge base with theory and practice in mechanical engineering and prepare then to analyse real life mechanical engineering problems with innovative solutions.</p>			
<b>PSO1</b>	<b>2.2</b>	<b>2.22</b>	<p><b>Observation</b>  <b>Target attained</b></p> <p>Yet students need to be more efficient to solve real life mechanical engineering problems.</p>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Students were encouraged for project based learning and case study of real life examples.</li> <li>2. Students participated in online expert talks/seminars.</li> </ol>			
<p><b>PSO 2:</b> To impart in depth education and training in mechanical engineering to ensure that the students acquire core competency to become ready for the industry, academic and research organizations.</p>			
<b>PSO2</b>	<b>2.2</b>	<b>2.17</b>	<p><b>Observation</b>  <b>Target Not attained</b></p> <p>It was observed that students were not comfortable with some core mechanical subjects.</p>
<p><b>Actions</b></p>			

## [SELF ASSESSMENT REPORT]

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1. Students were motivated to participate in online expert lectures on IC Engines.
2. Students were advised to use ICT tools & YouTube videos to visit virtual plant related to curriculum.

**PSO 3:** To provide an excellent environment for the students to inculcate lifelong learning skills along with due integrity and ethics for the benefit of the society.

<b>PSO3</b>	<b>2.22</b>	<b>2.16</b>	<b>Observation</b> <b>Target Not attained</b> <ul style="list-style-type: none"><li>• Lack of inter personal skill was observed.</li><li>• Lack in EQ was observed</li></ul>
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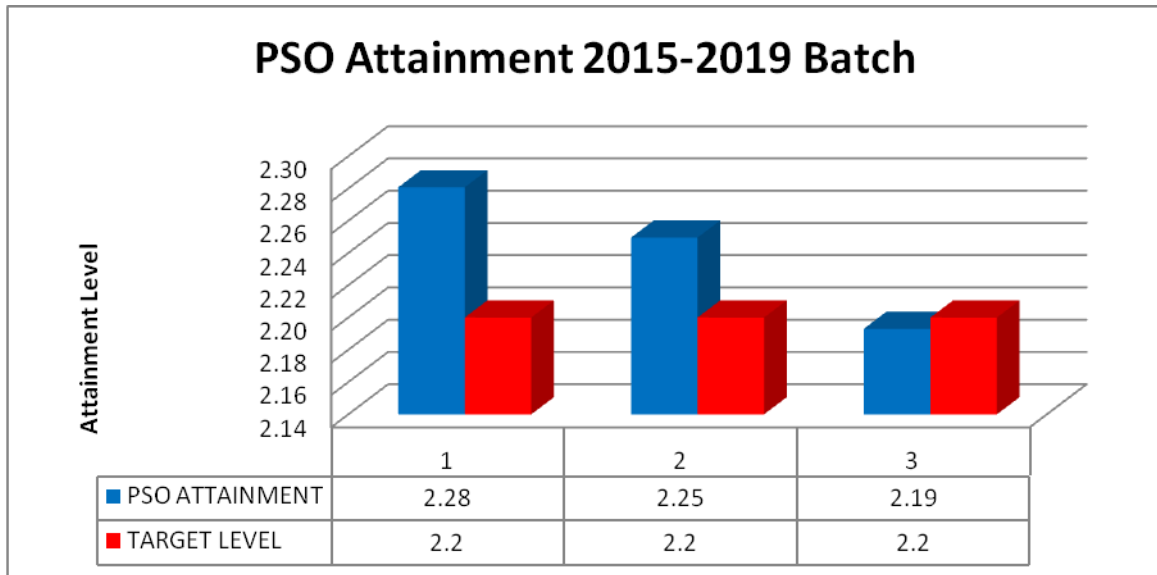
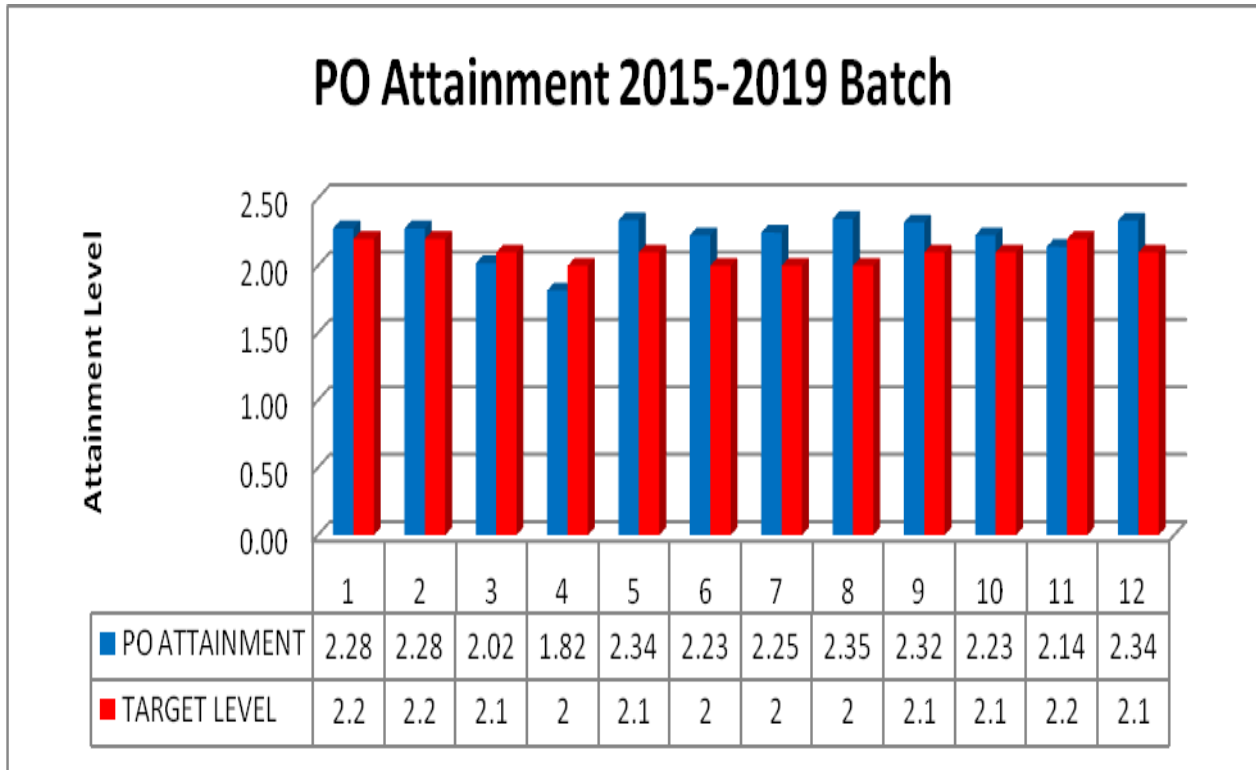
**Actions**

1. Students were advised to attend webinars related to human values, Ethics etc.
2. Online classes are arranged for personality development by T & P cell.



# [SELF ASSESSMENT REPORT]

2019-2020



## [SELF ASSESSMENT REPORT]

POs	Target Level	Attainment Level	Observations
<b>PO1: Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
<b>PO1</b>	<b>2.2</b>	<b>2.28</b>	<b>Observations</b> <b>Target attained</b> Students need more practice in courses Mathematics and Engineering drawing.
<b>Actions</b> <ol style="list-style-type: none"> <li>1. Remedial/Revision classes were conducted to solve problem of Mathematics and Engineering drawing.</li> <li>2. Tutorial classes were conducted for more practice in Mathematics and Engineering drawing.</li> </ol>			
<b>PO-2: Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
<b>PO2</b>	<b>2.2</b>	<b>2.28</b>	<b>Observations</b> <b>Target attained</b> Problem in understanding the concepts and fundamentals of Strength of Materials & Theory of Machines.
<b>Actions</b> <ol style="list-style-type: none"> <li>1. More assignments were given on Strength of Materials &amp; Theory of Machines.</li> </ol>			
<b>PO-3: Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			
<b>PO3</b>	<b>2.1</b>	<b>2.02</b>	<b>Observations</b> <b>Target not attained</b> The courses Design of Machine Elements and Dynamics of Machine need more understanding of complex and tough design based problems.
<b>Actions</b> <ol style="list-style-type: none"> <li>1. Complex problems related to application of design in mechanical engineering have been given to students.</li> <li>2. Students were encouraged to actively participate in various activities organized by department of mechanical engineering.</li> <li>3. Remedial classes were conducted to solve the problem of design in machinery.</li> </ol>			
<b>PO-4: Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
<b>PO4</b>	<b>2</b>	<b>1.82</b>	<b>Observations -Target not attained</b> Few topics of Mathematics III and Heat and Mass Transfer needs more practise.

## [SELF ASSESSMENT REPORT]

<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. More complex problems related to application of higher order differential equations in advanced heat transfer problems were introduced in tutorials.</li> <li>2. Students were motivated to go through NPTEL videos and notes for improving problem solving skills in mathematics.</li> <li>3. More tutorials have been solved in remedial classes.</li> </ol>			
<b>PO-5: Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.			
<b>PO5</b>	<b>2.1</b>	<b>2.34</b>	<b>Observations</b> <b>Target attained</b> Lack of understanding of computer programming and computer aided engineering courses.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Extra lab sessions on various CAD design software's were organised.</li> <li>2. Workshops and training programs for enhancing their IT skills including analysis of complex engineering problems were organized.</li> </ol>			
<b>PO-6: The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.			
<b>PO6</b>	<b>2</b>	<b>2.23</b>	<b>Observation</b> <b>Target attained</b> Still students need understanding of some concepts of courses like thermodynamics.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Students participated in technical activities to enhance their knowledge to assess societal context.</li> <li>2. Students were actively participated in different social and cultural events organized in department.</li> </ol>			
<b>PO-7: Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.			
<b>PO7</b>	<b>2</b>	<b>2.25</b>	<b>Observation</b> <b>Target attained</b> <ul style="list-style-type: none"> <li>• The courses energy conservation and management needs more understanding</li> <li>• The understanding of issues of global and environmental awareness among the student should be improved.</li> </ul>
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Various activities in which global and environmental issues are addressed were organized like expert lectures, industrial visits etc.</li> </ol>			

## [SELF ASSESSMENT REPORT]

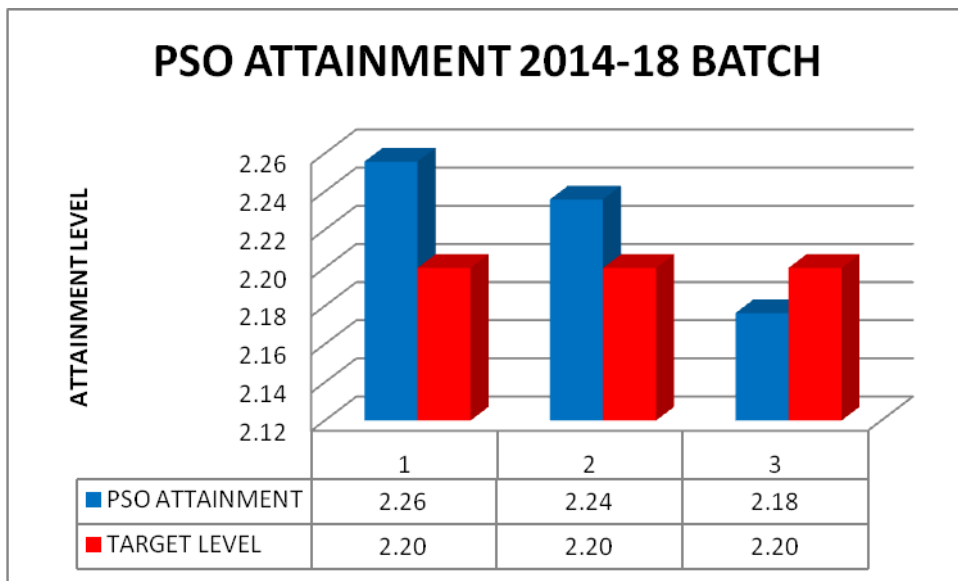
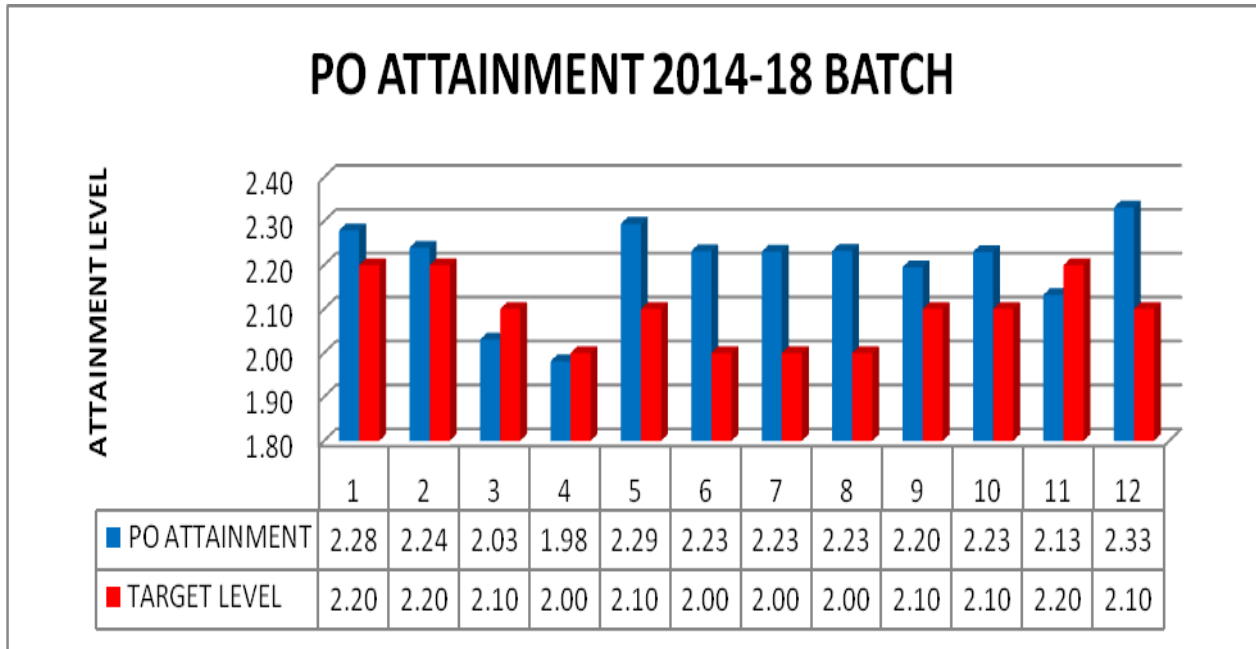
<b>PO-8: Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
<b>PO8</b>	<b>2</b>	<b>2.35</b>	<b>Observation</b> <b>Target attained</b> Still students are not able to apply ethical principle & responsibilities towards engineering practice.
<b>Actions</b> <ol style="list-style-type: none"> <li>Students were encouraged to enroll in NCC to follow ethics in all domains of engineering courses.</li> <li>Students were encouraged to follow all guidelines related to tobacco free campus and understanding their responsibility towards society.</li> </ol>			
<b>PO-9: Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
<b>PO9</b>	<b>2.1</b>	<b>2.33</b>	<b>Observation</b> <b>Target attained</b> Still lesser co-ordination among the team members during the project work.
<b>Actions</b> <ol style="list-style-type: none"> <li>Technical events were organized to enhance leadership qualities in individuals as well as to make them work in team.</li> <li>Students were actively participated in various sports activities organized to develop the skill of team work and leadership quality.</li> </ol>			
<b>PO-10: Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
<b>PO10</b>	<b>2.1</b>	<b>2.23</b>	<b>Observation</b> <b>Target attained</b> Communication skills of the students needs improvement
<b>Actions</b> <ol style="list-style-type: none"> <li>Soft skills training were conducted to enhance various aspects of communication/technical talks by group discussions, presentations and new learning outcomes.</li> <li>Students were motivated to take part in public speaking competition and article writing.</li> <li>The students with good soft skills formed a group with average students and helped them out in their weak areas and sessions like aptitude and group discussions.</li> <li>Students were encouraged to make a habit of reading English newspapers, articles, magazine and novels in library classes.</li> </ol>			
<b>PO-11: Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			

## [SELF ASSESSMENT REPORT]

<b>PO11</b>	<b>2.2</b>	<b>2.14</b>	<b>Observation</b> <b>Target not attained</b> Lack of project management and financial skills.
<b>Actions</b> 1. Students were encouraged to participate in various contest/project expo and other events in technical symposiums. 2. Students were encouraged to apply cost cutting methods in final year projects.			
<b>PO-12:Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
<b>PO12</b>	<b>2.1</b>	<b>2.34</b>	<b>Observation</b> <b>Target attained</b> Students have found lack of lifelong learning skills and updated technical knowledge.
<b>Actions</b> 1. Students were advised to utilize library hours for enhancing self learning through library assets. 2. Various seminar / workshop / expert lectures were organized.			
<b>PSO 1:</b> To strength the students' knowledge base with theory and practice in mechanical engineering and prepare then to analyse real life mechanical engineering problems with innovative solutions.			
<b>PSO1</b>	<b>2.2</b>	<b>2.28</b>	<b>Observation</b> <b>Target attained</b> It has been found that in some subjects students were not capable to solve real life problem with innovative solutions.
<b>Actions</b> 1. Students were encouraged to learn through real life projects. 2. Expert talks/seminars on mechanical design engineering problems were organised.			
<b>PSO 2:</b> To impart in depth education and training in mechanical engineering to ensure that the students acquire core competency to become ready for the industry, academic and research organizations.			
<b>PSO2</b>	<b>2.2</b>	<b>2.25</b>	<b>Observation</b> <b>Target not attained</b> Lack of practical knowledge in students in some of the courses.
<b>Actions</b> 1. Visits were organized for students in various core industries to gain in depth education in mechanical engineering systems. 2. Various seminar/expert lectures from industries organized.			
<b>PSO 3:</b> To provide an excellent environment for the students to inculcate lifelong learning skills along with due integrity and ethics for the benefit of the society.			
<b>PSO3</b>	<b>2.2</b>	<b>2.19</b>	<b>Observation</b> <b>Target not attained</b> Lack of inter personal skill has been observed.
<b>Actions</b> 1. Various technical activities for enhancing their lifelong learning skills were organized. 2. Various workshop / seminar / training were organized which helps the students to develop professional ethics for the benefit of the society.			

## [SELF ASSESSMENT REPORT]

2018-2019



## [SELF ASSESSMENT REPORT]

POs	Target Level	Attainment Level	Observations
<b>PO1: Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
<b>PO1</b>	<b>2.20</b>	<b>2.28</b>	<b>Observations</b> <b>Target attained</b> Yet Students are facing problem in few topics of Mathematics & Fluid mechanics.
<b>Actions</b> <ol style="list-style-type: none"> <li>1. Remedial/Revision classes were conducted to solve the problem of Mathematics-III &amp; Fluid mechanics.</li> <li>2. Tutorial classes were organized for more practice in Mathematics-III &amp; Fluid mechanics</li> </ol>			
<b>PO-2: Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
<b>PO2</b>	<b>2.20</b>	<b>2.24</b>	<b>Observations</b> <b>Target attained</b> Students facing problem in understanding the mathematical and conceptual part in Thermodynamics & Fluid mechanics.
<b>Actions</b> <ol style="list-style-type: none"> <li>1. Industrial visits and expert lectures were organized to improve conceptual understanding.</li> <li>2. More mathematical problems were assigned as part of assignments.</li> <li>3. Remedial/Revision classes were conducted to solve analytical problems of fluid mechanics and thermodynamics.</li> </ol>			
<b>PO-3: Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			
<b>PO3</b>	<b>2.10</b>	<b>2.03</b>	<b>Observations</b> <b>Target not attained</b> Students facing difficulty in understanding complex mathematical problems related to application of Dynamics of Machines and Heat and mass transfer.
<b>Actions</b> <ol style="list-style-type: none"> <li>1. Complex problems related to application of Heat and mass transfer in engineering have been given to students.</li> <li>2. Assignments related to complex problems were given to students for the above mentioned subjects.</li> <li>3. National seminar was organized by department of mechanical engineering related to advanced heat transfer problems.</li> </ol>			
<b>PO-4: Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			

## [SELF ASSESSMENT REPORT]

<b>PO4</b>	<b>2.00</b>	<b>1.98</b>	<p><b>Observations</b>  <b>Target not attained</b>                      The courses Strength of material and Dynamics of machine have scope for further for improvement.</p>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Real-life problems on design of beam were introduced in tutorials,</li> <li>2. NPTEL instructional materials like ppt, videos and notes for improving problem solving skills in design and development were provided.</li> </ol>			
<p><b>PO-5: Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.</p>			
<b>PO5</b>	<b>2.10</b>	<b>2.29</b>	<p><b>Observations</b>  <b>Target attained</b></p> <ul style="list-style-type: none"> <li>• The courses Dynamics of machines need more understanding and practise in few topics.</li> <li>• It is observed that students were lacking knowledge of advanced tool knowledge.</li> </ul>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Gears &amp; flywheel were discussed in Dynamics of machine revision classes.</li> <li>2. Various design lab sessions regarding application of Design/Analysis tools such as AutoCAD were organised.</li> <li>3. Student's visualized practical application of various CAD software's during industrial visit organised for them.</li> </ol>			
<p><b>PO-6: The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
<b>PO6</b>	<b>2.00</b>	<b>2.23</b>	<p><b>Observation</b>  <b>Target attained</b></p> <ul style="list-style-type: none"> <li>•The course production process, have scope for further improvement in terms of fundamental and conceptual understanding.</li> <li>•The students were not able to apply reasoning contextual knowledge to assess safety, legal and cultural issues in real life.</li> </ul>
<p><b>Actions</b></p> <ol style="list-style-type: none"> <li>1. Industry visit conducted to understand production process of the concerned product.</li> <li>2. Students participated in technical fair organized for them.</li> <li>3. Morning assembly was scheduled on every Monday.</li> <li>4. Students participated in different social activities like NCC, health campaign, Swatch Bharat mission and entrepreneurship development etc. organized in the college.</li> </ol>			
<p><b>PO-7: Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
<b>PO7</b>	<b>2.00</b>	<b>2.23</b>	<p><b>Observation</b>  <b>Target attained</b>                      Students need more awareness about global and environmental issues.</p>



## [SELF ASSESSMENT REPORT]

<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Students made projects related to consumption of energy and utilization of renewable energy resources in which global and environmental issues were addressed. (Ex. Wind – solar power generating systems).</li> <li>2. Students participated in swachh pakhwada under swachh bharat mission, swachh_bharat_abhiyaan campaign, workshops on cleanliness, and save water-save life.</li> <li>3. Students were explained the working of solar panel of 100 kW and its importance on environment in the campus.</li> <li>4. The verdant ambience has been felicitated as the first "Green Building Campus of MP" by IGBC, Hyderabad.</li> <li>5. Importance of being the first Tobacco Free Campus of the State by M.P. Government was explained to the students.</li> </ol>			
<b>PO-8: Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
<b>PO8</b>	<b>2.00</b>	<b>2.23</b>	<b>Observation</b> <b>Target attained</b> Students were not able to apply ethical principle & responsibilities towards engineering practice.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Students were encouraged to enroll in NCC to follow ethics in all domains of engineering courses.</li> <li>2. Students participated in entrepreneurship workshops and seminars organized by the department.</li> <li>3. Students participated in special Monday assembly to develop professional ethics through several activities.</li> </ol>			
<b>PO-9: Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
<b>PO9</b>	<b>2.10</b>	<b>2.20</b>	<b>Observation</b> <b>Target attained</b> Lack of co-ordination among the team members during the project work has been observed.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Technical events were organized to enhance leadership qualities in individuals as well as to make them work in team.</li> <li>2. Students participated in events like seminar, workshop, and projects to improve their interpersonal skills.</li> <li>3. Various sports activities such as Cricket, Volleyball, Kabaddi and Football to enhance their team work sprit were organized.</li> </ol>			
<b>PO-10: Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
<b>PO10</b>	<b>2.10</b>	<b>2.23</b>	<b>Observation</b> <b>Target attained</b> The communication, presentation and report writing skills of the students need to be improved.

## [SELF ASSESSMENT REPORT]

<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Soft skill trainings were conducted to enhance various aspects of communication/technical talks by group discussions, presentations and new learning outcomes.</li> <li>2. Students were motivated to take part in public speaking competition and article writing through activities organized in the department.</li> <li>3. The students with good soft skills formed a group with average students and helped them out in their weak areas and sessions like aptitude and group discussions.</li> <li>4. Students were encouraged to make a habit of reading English newspapers, articles, magazine and novels in library, classes.</li> <li>5. Newspaper clippings were also distributed among the students.</li> </ol>			
<b>PO-11: Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
<b>PO11</b>	<b>2.20</b>	<b>2.13</b>	<b>Observation</b> <b>Target not attained</b> <ol style="list-style-type: none"> <li>1. Some students were not able to manage and implement technical knowledge in projects effectively.</li> <li>2. Needed improvement in project management and financial skills.</li> </ol>
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Students were motivated to participate in project expo and other events in technical symposiums to enrich managerial skills for handling finance.</li> <li>2. Students were encouraged to participate in competition named Design Contest / Challenge on Grass root Technology/Local Innovation organized at Regional Science Center, Bhopal.</li> <li>3. Students were encouraged to apply cost benefit analysis in final year projects.</li> </ol>			
<b>PO-12:Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
<b>PO12</b>	<b>2.10</b>	<b>2.33</b>	<b>Observation</b> <b>Target attained</b> It was observed that life-long learning was not satisfactory.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. The habit of self learning as independent learning using you tube/ NPTEL was developed.</li> <li>2. Library hours were utilized by the students to ensure the effective use of journals, Magazines, Reference Books.</li> <li>3. Various seminar / workshop / industrial visit were organized.</li> </ol>			
<b>PSO 1:</b> To strength the students' knowledge base with theory and practice in mechanical engineering and prepare then to analyse real life mechanical engineering problems with innovative solutions.			
<b>PSO1</b>	<b>2.20</b>	<b>2.26</b>	<b>Observation</b> <b>Target attained</b> It was observed that students were lacking in solving real life mechanical engineering problems.

## [SELF ASSESSMENT REPORT]

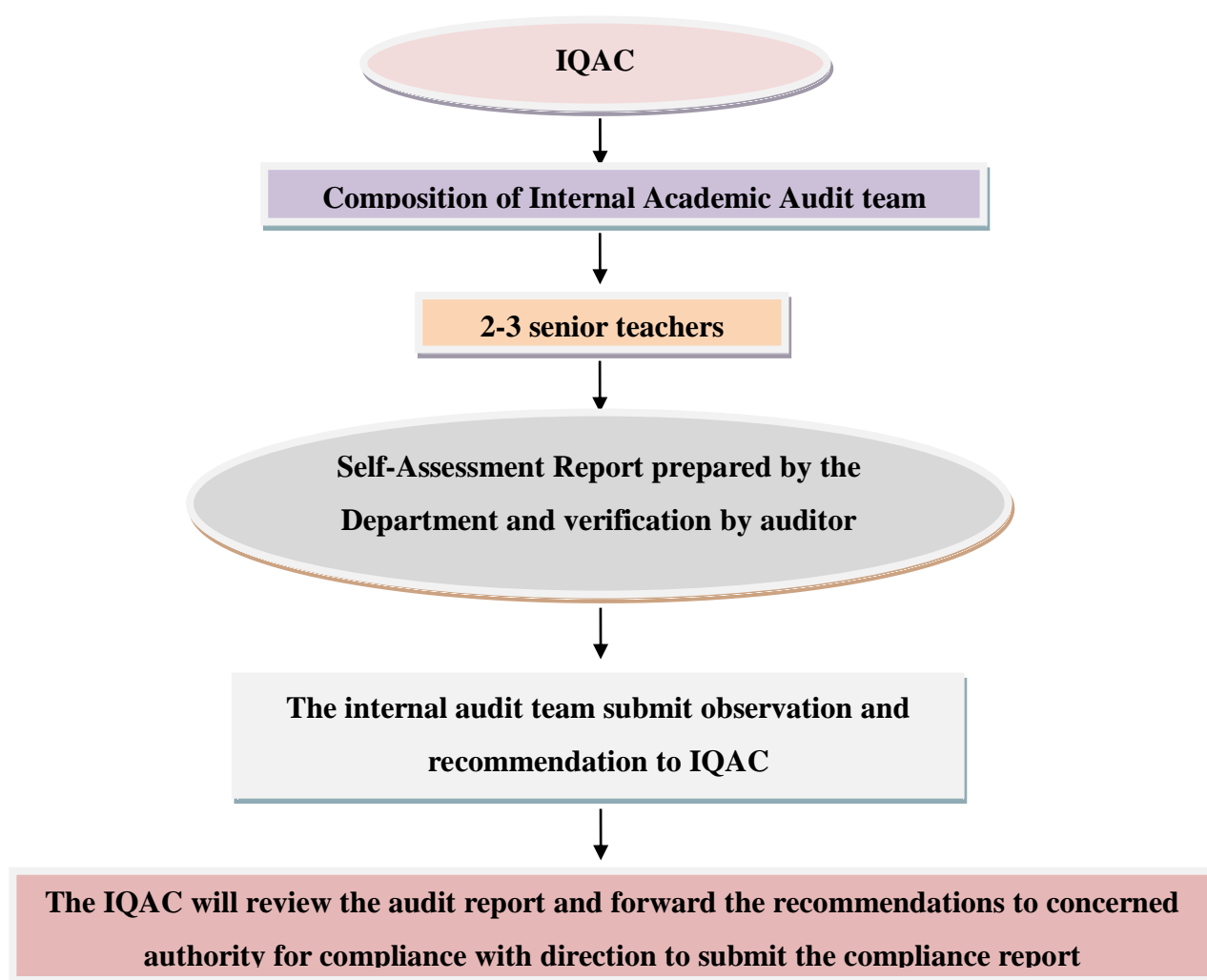
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Students were encouraged for project based learning and mini projects.</li> <li>2. Students participated in expert talks/seminars on design engineering problems: like Robotics/java/CAD workshops.</li> </ol>			
<b>PSO 2:</b> To impart in depth education and training in mechanical engineering to ensure that the students acquire core competency to become ready for the industry, academic and research organizations.			
<b>PSO2</b>	<b>2.20</b>	<b>2.24</b>	<b>Observation</b> <b>Target attained</b> Lack of in depth practical knowledge was observed in some core areas.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Students were motivated to participate in expert lectures on 3D printing.</li> <li>2. Students visited CIPET and liquid nitrogen plant to visualize real life application of mechanical engineering in industry.</li> </ol>			
<b>PSO 3:</b> To provide an excellent environment for the students to inculcate lifelong learning skills along with due integrity and ethics for the benefit of the society.			
<b>PSO3</b>	<b>2.20</b>	<b>2.18</b>	<b>Observation</b> <b>Target not attained</b> <ul style="list-style-type: none"> <li>• Lack of inter personal skill was observed.</li> <li>• Lack of updated technical knowledge</li> </ul>
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Students were motivated to participate in competition named Design Contest / Challenge on Grass root Technology/Local Innovation organized at Regional Science Center, Bhopal</li> <li>2. Various workshop / seminar / training were organized.</li> </ol>			

## [SELF ASSESSMENT REPORT]

### **7.2. ACADEMIC AUDIT AND ACTIONS TAKEN THEREFORE DURING THE PERIOD OF ASSESSMENT (10)**

#### **A. OVERVIEW OF ACADEMIC AUDIT**

Internal Audit shall be done by committee formed by IQAC of the institutions. Internal academic audit is scheduled at end of semester to review the academic and other activities in the department. The department is expected to develop a strong outcome based approach in teaching-learning. The audit team will assess the activities involved in developing learning outcomes, design and development activities in curriculum, teaching-learning process, student learning assessment process and student engagement programs. The audit team will also assess the quality and quantity of research outcomes in the department.



**FIGURE 7.1 ACADEMIC AUDIT FLOW CHART**

## [SELF ASSESSMENT REPORT]

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### **B. ACADEMIC AUDIT COMMITTEE**

In the department of Mechanical Engineering, the Internal Quality Assurance Committee (IQAC) of the institute forms a committee for the Academic audit process. Members of this Academic audit team consist of 2- 3 senior faculty members. The team monitors and enhances the quality of teaching & learning process and student development process, through appropriate guidelines for both faculty and students.

### **C. COMPOSITION OF INTERNAL ACADEMIC AUDIT TEAM**

**The Internal Audit team usually consists of 2-3 senior teachers of the institution.**

### **D. GOAL OF AUDIT**

The team during Academic Audit process monitor the conduct of the course, adherence to the course plan, time schedule, completion of the syllabus, standard of internal tests and evaluation process, inspection of labs, monitoring of student development programs and also addresses the difficulties faced by students and takes suitable actions. Following area to be audited:

1. Adherence to Academic Calendar
2. Completion of syllabus
3. Adherence to CO, PSOs, PEOs in course coverage, internal exams, assignments and practical's.
4. Student feedback
5. Action taken against feedback
6. PO, PSO and CO mapping and attainments
7. Gap identification and action taken
8. Course beyond curriculum / Adherence to Co-curricular calendar
9. Research activities in the department
10. Placement report

### **E. FREQUENCY OF AUDIT**

The Academic audit process is conducted twice in a year. One audit in each semester

### **F. STAGES OF THE ACADEMIC AUDIT PROCESS**

Stages of the academic audit process involve the following stages:

1. IQAC provide the department to fill Self-Assessment Report with evidence-based documentation.

## [SELF ASSESSMENT REPORT]

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2. Department peer review and evaluate the Self-Assessment Report
3. Internal audit by the internal audit team constitute by IQAC
4. On the basis of their observations, the internal audit team submit observations recommendations to the IQAC
5. The IQAC will review the audit report and forward the recommendations to concerned authority for compliance with direction to submit the compliance report
6. Department implement the suggestions and recommendations of the internal audit team.

### G. SELF-ASSESSMENT REPORT

IQAC shall provide the departments with Self-Assessment Report at the end of the semester after the results are declared. The department will fill the report and present it to the Internal Audit team, which would give its recommendations and observations on the reports and submit it to IQAC. It shall include all the activities of the department with supporting documents/ evidence. Give emphasis to the following points:

- The Course plan and Teaching plan
- Innovations implemented for the teaching, learning and evaluation
- Strategies put into practice for the implementation of Outcome-Based Learning (OBE) and PO, PSO and CO mapping
- Remedial/Revision classes, mentoring and counselling, programmes and activities
- Research, publication, consultancy, project, Tie-ups and collaboration etc.
- Seminar/ Conference/ Workshops conducted by the department as well as attended by the staff and students outside the college including paper presentation and chairing the sessions, Start-ups by students and alumni etc
- Teacher Performance Appraisal, feedback analysis of teachers along with Action Taken Report.
- Best/ exemplary Practices, Green initiatives, Waste management, *Swatch Bharat*, 'Interdepartmental competition', 'Interdepartmental cooperation', etc.
- Minutes of the department meetings, staff and students welfare activities
- Industry interactions activities
- Strengths, weaknesses, Opportunities and Threats/ Challenges of the department describing initiatives to address practices that need improvement
- Follows Bloom's Taxonomy and ensures targets set by faculty are realistic
- Future plans and its implementation strategies and priority-wise plans for improvement

## [SELF ASSESSMENT REPORT]

### FOLLOWING ARE THE FINDINGS DURING ACADEMIC AUDIT PROCESS BY IQAC TEAM IN CAY (2020- 21):

#### AUDIT: 01

<ul style="list-style-type: none"><li>• Require to add more online practices in teaching learning process.</li></ul>
<ul style="list-style-type: none"><li>• Remedial classes are scheduled in reference to academic progress of the student.</li></ul>
<ul style="list-style-type: none"><li>• Awareness programme for impact of COVID-19 should be organized.</li></ul>
<ul style="list-style-type: none"><li>• Start-up and Entrepreneurial activities should be improved</li></ul>
<ul style="list-style-type: none"><li>• Intellectual Property Right awareness activity should be organized.</li></ul>
<ul style="list-style-type: none"><li>• Job Oriented training and webinar should be improve</li></ul>
<ul style="list-style-type: none"><li>• Activity related to Automotive Industry should be organized.</li></ul>
<ul style="list-style-type: none"><li>• The uses of Virtual labs classes should be enhance.</li></ul>
<ul style="list-style-type: none"><li>• More emphasis is needed on the seminars, expert lecture and industrial visits.</li></ul>

#### TABLE 7.2.1 ACTION TAKEN AND IMPROVEMENT

DESCRIPTION OF ACTIVITY
<ul style="list-style-type: none"><li>• Remedial classes were conducted.</li></ul>
<ul style="list-style-type: none"><li>• Organized expert lecture and workshop.</li></ul>
<ul style="list-style-type: none"><li>• Started model base study.</li></ul>
<ul style="list-style-type: none"><li>• Organized seminar, expert lecture and industrial visits.</li></ul>
<ul style="list-style-type: none"><li>• Innovative idea submitted by students.</li></ul>
<ul style="list-style-type: none"><li>• Students aware about real life problems.</li></ul>
<ul style="list-style-type: none"><li>• Different COVID-19 awareness programme organized.</li></ul>
<ul style="list-style-type: none"><li>• Seminar, guest lectures and workshop were organized</li></ul>
<ul style="list-style-type: none"><li>• Alumni webinars are organized</li></ul>
<ul style="list-style-type: none"><li>• Faculty members attended Seminars/ Workshops/ FDPs conducted by various institutions.</li></ul>
<ul style="list-style-type: none"><li>• Speaking and writing communication classes were conducted</li></ul>
<ul style="list-style-type: none"><li>• Co-Curricular activity and department events were organized.</li></ul>
<ul style="list-style-type: none"><li>• Course Beyond syllabus lectures were conducted</li></ul>
<ul style="list-style-type: none"><li>• Virtual labs were conducted.</li></ul>
<ul style="list-style-type: none"><li>• Social events were organized.</li></ul>

## [SELF ASSESSMENT REPORT]

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### FOLLOWING ARE THE FINDINGS DURING ACADEMIC AUDIT PROCESS BY IQAC

#### TEAM IN CAY (2019- 20):

##### **AUDIT: 01**

<ul style="list-style-type: none"><li>• The university syllabus does not include Practical training of industrial robotics so workshop on robotics system must be conducted.</li></ul>
<ul style="list-style-type: none"><li>• More technical activities are required to add in departmental co-curricular/ activity calendar.</li></ul>
<ul style="list-style-type: none"><li>• Suggestion is given to include content beyond the syllabus in few theoretical subjects (Design of wind solar hybrid systems, AI).</li></ul>
<ul style="list-style-type: none"><li>• For the understanding of subjects, project based learning is needed.</li></ul>
<ul style="list-style-type: none"><li>• The quality of the question paper should be improved.</li></ul>
<ul style="list-style-type: none"><li>• Require to give more emphasis on skills development programs.</li></ul>
<ul style="list-style-type: none"><li>• More industrial visits and Expert lectures recommended</li></ul>
<ul style="list-style-type: none"><li>• Measures to be taken to improve communication</li></ul>

##### **AUDIT: 02**

<ul style="list-style-type: none"><li>• Suggestion given to include interactive teaching modes such as PPT and video lectures for the delivery of lectures</li></ul>
<ul style="list-style-type: none"><li>• More emphasis is needed on the training, workshop and industrial visits.</li></ul>
<ul style="list-style-type: none"><li>• Faculty development program is needed to improve faculty member's skills.</li></ul>
<ul style="list-style-type: none"><li>• More encouragement is required to motivate students towards the project learning.</li></ul>
<ul style="list-style-type: none"><li>• Required to give more assignments on mathematical and numerical based</li></ul>



## [SELF ASSESSMENT REPORT]

**TABLE 7.2.2 ACTION TAKEN AND IMPROVEMENT**

Description of Activity
<ul style="list-style-type: none"><li>• In Departmental Activity calendar some activities were added.</li></ul>
<ul style="list-style-type: none"><li>• Interactive lecture methods such as Video lectures, Power point presentations were included</li></ul>
<ul style="list-style-type: none"><li>• Industrial visits in CIPET, Liquid nitrogen plant, and BHEL Bhopal were organized</li></ul>
<ul style="list-style-type: none"><li>• To assess students' knowledge of engineering practices, framework, and problem solving abilities various tests are taken</li></ul>
<ul style="list-style-type: none"><li>• Class Tests are taken after every unit completion</li></ul>
<ul style="list-style-type: none"><li>• Assignment based on COs is given to the students after completion of each unit</li></ul>
<ul style="list-style-type: none"><li>• The various technical events are conducted.</li></ul>
<ul style="list-style-type: none"><li>• MoU with some industries for mutual exchange of expertise, to provide more exposure to the student regarding Industrial practices were taken up</li></ul>
<ul style="list-style-type: none"><li>• Experts from industry deliver guest lectures.</li></ul>
<ul style="list-style-type: none"><li>• Alumni meets/ get together are organized</li></ul>
<ul style="list-style-type: none"><li>• Faculty members attended Seminars/ Workshops/ FDPs conducted by various institutions.</li></ul>
<ul style="list-style-type: none"><li>• More remedial classes conducted</li></ul>

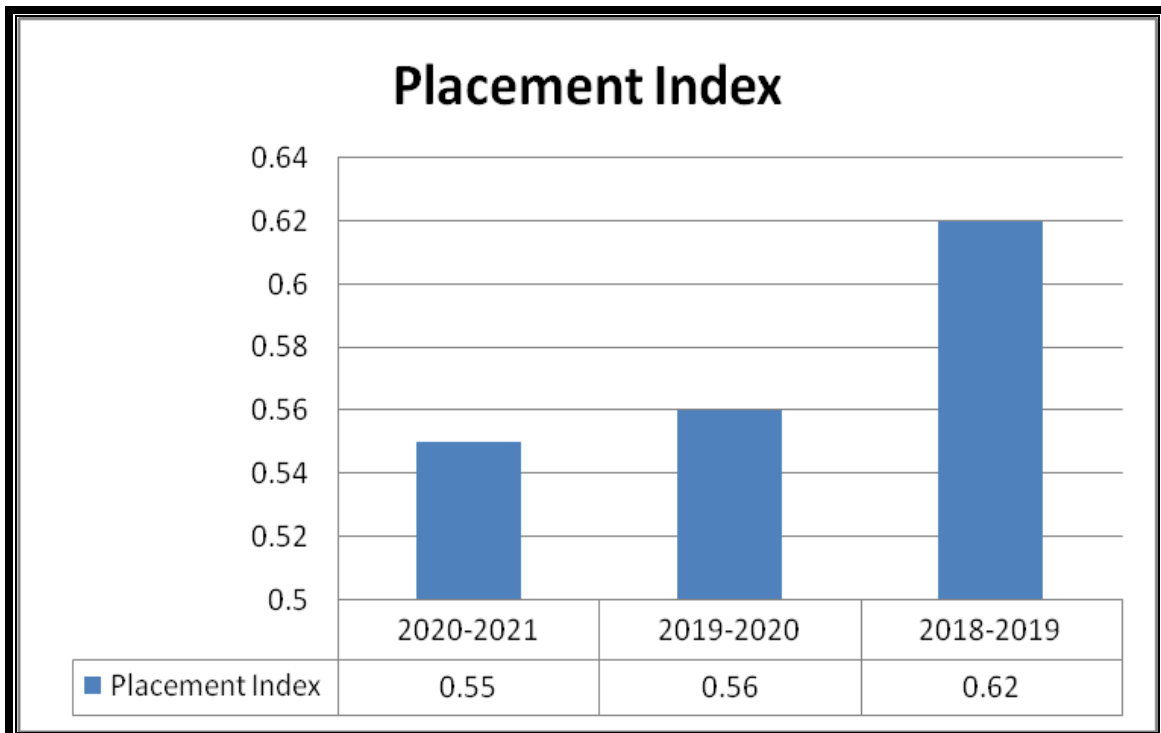
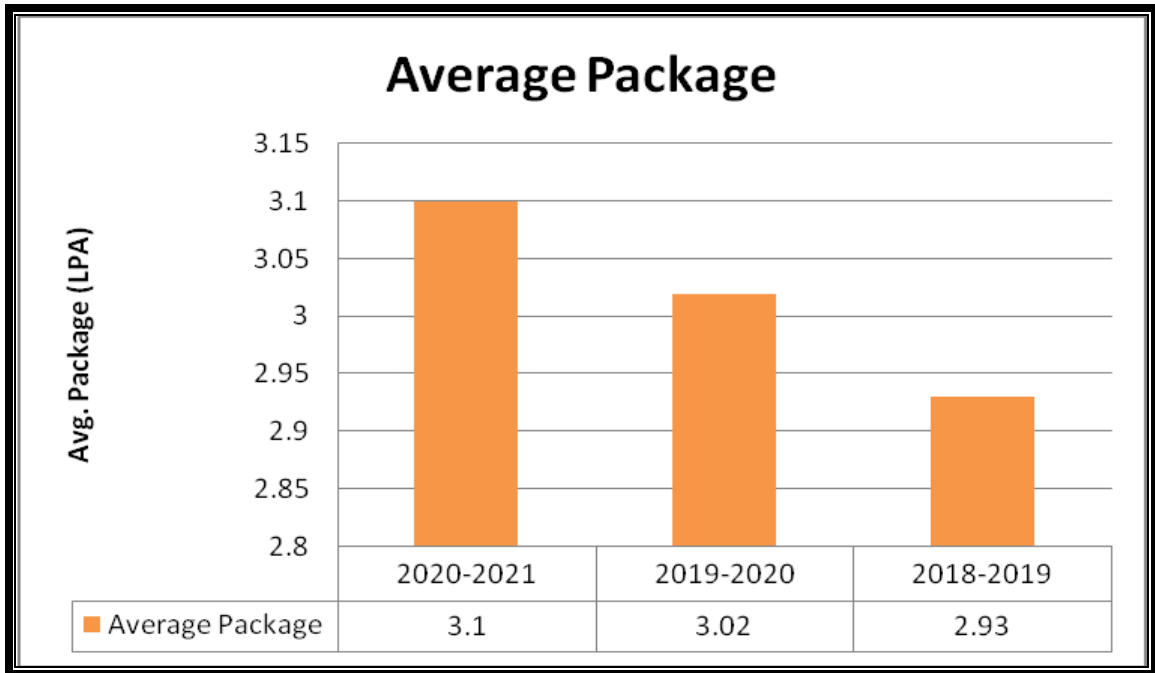
## [SELF ASSESSMENT REPORT]

### **7.3 IMPROVEMENT IN PLACEMENT, HIGHER STUDIES AND ENTREPRENEURSHIP (10)**

<b>ITEM</b>	<b>CAY (2020-21)</b>	<b>CAY m1 (2019-20)</b>	<b>CAYm2 (2018-19)</b>
Total No. of Final Year Students(N)	111	105	82
No. of Students Placed in Companies or Government Sector (X)	62	59	51
No. of Students admitted to higher studies with valid qualifying scores (GATE or Equivalent State or National Level Tests, GRE, GMAT, etc.)(Y)	0	2	2
No. of students turned entrepreneur in engineering / technology(Z)	0	0	0
Placement Index: (X+Y+Z)	62	61	53
Placement Index: (X+Y+Z)/N	<b>.55</b>	<b>.58</b>	<b>.64</b>
Average placement= (P1 + P2 + P3)/3	<b>.59</b>		

### **PLACEMENT SUMMARY**

<b>S.N</b>	<b>Academic Year</b>	<b>No of Selection</b>	<b>Average Package</b>
1	2020-2021	62	3.10
2	2019-2020	59	3.02
3	2018-2019	51	2.93



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2018-19			
S. No	Company	No of Selection	Package
1	Artech	5	2.3
2	Authbridge	5	2
3	Bhilwara Technology	4	1.8
4	Ceasfire	7	4
5	eClerx	6	2.3
6	EPIC R	6	2.61
7	J Group Robotics	10	2.4
8	PIAGGIO	3	3
9	Topper Technology	5	6

2019-20			
S. No	Company	No of Selection	Package
1	Asahi India Galss Ltd.	16	1.44
2	Ceasfire	10	4
3	JBM Auto System Pvt. Ltd.	7	1.2
4	PIAGGIO	3	3
5	Pyramid IT	4	3
6	Repro India	8	2.5
7	Topper Technologies	11	6

2020-21			
S. No	Company	No of Selection	Package
1	Asahi India Galss Ltd.	9	1.8
2	Ceasfire	6	4
3	XL Dynamics	7	3.5
4	PIAGGIO	3	3
5	Pyramid IT	7	3
6	Repro India	7	2.5
7	Topper Technologies	9	6
8	JBM Auto System Pvt. Ltd.	9	1.4
9	Epic Research	5	2.75

## [SELF ASSESSMENT REPORT]

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Based on this table we will have to give analysis (Placement, higher studies, entrepreneurship wise and how & why such implement took place.

### **ACTION TAKEN BY THE FACULTY MEMBERS**

- Faculty members incorporate changes suggested by the academic committee, if any gaps are found, to ensure quality deliverables.
- Faculty members are required to match the pace of their deliverables as per the students' requirements as well as they have to schedule the lecture plans in such a way that the syllabus is completed on time. To achieve this they arrange extra lectures and cope-up with the syllabus.
- Regular analysis of the results of internal assessment examination of all subjects is done and concerned faculties are guided to take necessary actions.
- Remedial classes are scheduled in reference to academic progress of the student.
- Faculty members attend FDP as required for overall development of teaching skills in terms of communication and technology.
- The academic audit is carried out at the beginning of the semester as soon as the faculty members are ready with their course files.
- The academic observation is carried out considering two criteria – feedback from students (requested to the authorities) and randomized observation.
- FDP for communication skill development and improving methods of teaching-learning are being carried out regularly by the learning and development department.
- Technical FDP, expert lectures, seminars etc. are being arranged by the individual departments at least once in a semester.

## [SELF ASSESSMENT REPORT]

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### 7.4 IMPROVEMENT IN THE QUALITY OF STUDENTS ADMITTED TO THE PROGRAM (10)

Assessment is based on improvement in terms of ranks/score in qualifying national level entrances tests (JEE Main), percentage of Physics, Chemistry and Mathematics marks in 12th standard and percentage marks of the lateral entry student.

Item		CAY(2020-21)	CAY(2019-20)	CAYm1(2018-19)
National Level Entrance Examination (JEE MAIN)	No. of Students admitted	10	12	15
	Opening Score/Rank	343921	524097	216151
	Closing Score/Rank	863177	1138645	914558
Lateral entry details (DIPLOMA PERCENTAGE)	No. of Students admitted	23	22	24
	Opening Score/Rank	192	298	92
	Closing Score/Rank	3974	3438	3257
Average CBSE/Any other Board Result of admitted Students (Physics, Chemistry & Mathematics)		110	108	105

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## [SELF ASSESSMENT REPORT]

<b>CRITERION 8</b>	<b>First Year Academics</b>	<b>50</b>
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### 8.1. First Year Student-Faculty Ratio (FYSFR) (5)

Assessment =  $(5 \times 20)/\text{Average FYSFR}$  (Limited to Max. 5)

1. Civil Engineering (120)
2. Computer Science Engineering(180)
3. Electronics and Communication Engineering(120)
4. Electrical and Electrical Engineering(120)
5. Mechanical Engineering(120)

**Table 8.1 Data for first year courses to calculate the FYSFR**

<b>Year</b>	<b>Number of Students (Approved Intake Strength)</b>	<b>Number of faculty members (Considering Fractional Load)</b>	<b>FYSFR</b>	<b>Assessment = (5 x 20)/ FYSFR (Limited to Max 5)</b>
<b>2020-2021</b>	<b>660</b>	<b>40</b>	<b>17</b>	<b>5.00</b>
<b>2019-2020</b>	<b>660</b>	<b>39</b>	<b>17</b>	<b>5.00</b>
<b>2018-2019</b>	<b>660</b>	<b>36</b>	<b>18</b>	<b>5.00</b>
<b>Average</b>	<b>660</b>	<b>38</b>	<b>17</b>	<b>5.00</b>

### 8.2. Qualification of Faculty Teaching First Year Common Courses (5)

Assessment of qualification =  $(5x + 3y)/RF$ , x= Number of Regular Faculty with PhD, y = Number of Regular Faculty with Post-graduate qualification RF= Number of faculty members required as per SFR of 20:1, Faculty definition as defined in 5.1

## [SELF ASSESSMENT REPORT]

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**Table 8.3 Assessment of faculty qualification**

Year	X	Y	RF	Assessment of faculty qualification (5X + 3Y )/RF
	(No of Regular Faculty with PhD)	(No of Regular Faculty with PG Qualification)	( No of Faculty as per SFR of 20:1)	
2020-2021(CAY)	13	31	33	4.00
2019-2020 (CAYm1)	11	32	33	4.00
2018-2019 (CAYm2)	8	28	33	3.00
Average Assessment	10.7	30.3	33.00	3.67



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S. No.	Name	PAN No	Qualification	Area of Specialization	Designation	Date of Joining	Date on which Designated as Professor/ Associate Professor	Currently Associated (Y/N)	Nature of Association (Regular/Contract/ Adjunct)	If contractual mention Full time or Part time	Date of Leaving (In case Currently Associated is "No")
1.	Dr. VINEETA JAIN	AEJJP5862Q	PH.D	PHYSICS	PROFESSOR	24/08/15	-	Y	Regular	-	-
2.	Dr. DHIRENDRA KUMAR GUPTA	ALBPG8333J	PH.D	PHYSICS	PROFESSOR	27/08/12	-	Y	Regular	-	-
3.	Dr. SONALI SAHA	CWDPS4671N	PH.D	PHYSICS	ASSOCIATE PROFESSOR	01/07/2020	-	Y	Regular	-	-
4.	Dr. SANGEETA JANGID	AMJPT1755E	PH.D	PHYSICS	ASSISTANT PROFESSOR	28/12/13	-	Y	Regular	-	-
5.	Mrs. PREETI PANDEY	AXRPP0500C	M.SC	PHYSICS	ASSISTANT PROFESSOR	28/03/08	-	Y	Regular	-	-
6.	DR. ALKA RANI	GYDPS2665Q	PH.D	PHYSICS	ASSISTANT PROFESSOR	14/01/19	-	Y	Regular	-	-
7.	Dr. PREETI CHINCHOLIKAR	ASWEC5687	PH.D.	CHEMISTRY	PROFESSOR	01/08/2020	-	Y	Regular	-	-
8.	Dr. AMAR SINGH THAKUR	ACKPT2376G	PH.D., M.SC	CHEMISTRY	ASSOCIATE PROFESSOR	26/07/08	-	Y	Regular	-	-

**[SELF ASSESSMENT REPORT]**

9.	Dr. RASHMI SHRIVASTAVA	DHZPS7626R	PH.D.	CHEMISTRY	ASSISTANT PROFESSOR	14/08/15	-	Y	Regular	-	-
10.	Ms. SAVITRI SINGH	CMNPS4192J	M.SC.	CHEMISTRY	ASSISTANT PROFESSOR	07/01/12	-	Y	Regular	-	-
11.	DR. TAJINDER MAJITHIA	ATBPM1885H	PH.D.	CHEMISTRY	ASSISTANT PROFESSOR	01/07/19	-	Y	Regular	-	30.4.21
12.	MR. PRAMOD KUMAR SAKET	EZKPS4252P	M.SC.	PHYSICS	ASSISTANT PROFESSOR	17/08/19	-	Y	Regular	-	-
13.	Dr. GAURAV SHARMA	CLOPS4648M	P.HD	MATHS	ASSOCIATE PROFESSOR	01/07/2019	-	Y	Regular	-	-
14.	Dr. ARCHANA SINGH JADON	CIEPS2569E	P.HD.	MATHS	ASSOCIATE PROFESSOR	01/08/2020	-	Y	Regular	-	-
15.	Mrs. SARITA TRIPATHI	ARDPT9850F	M.SC.	MATHS	ASSISTANT PROFESSOR	07/01/10	-	Y	Regular	-	-
16.	Ms. SUJATA KUMBHARE	DMLPK0154D	M.SC.	MATHS	ASST PROFESSOR	10/05/13		Y	Regular	-	-
17.	Mrs. SIMRAN CHHABRA	AQVPC4574E	M.SC., M.PHILL	MATHS	ASST PROFESSOR	26/08/15		Y	Regular	-	-

**[SELF ASSESSMENT REPORT]**

18.	MR. DHIRAJ DIWEDHI	ALAPD1241K	M.SC.	MATHS	ASST PROFESSOR	04/09/17	-	Y	Regular	-	-
19.	MR. SACHIN DEV KUSHWAHA	CGJPK2956E	M.SC., M.PHILL	MATHS	ASST PROFESSOR	16/08/18	-	Y	Regular	-	-
20.	Ms. POOJA RANA	DAAPR0980K	M.SC.	MATHS	ASST PROFESSOR	31/07/17	-	Y	Regular	-	-
21.	MS. BHAVANA SHRIVASTAVA	CEWPS3370F	M.SC.	MATHS	ASST PROFESSOR	17/08/19	-	Y	Regular	-	-
22.	Dr. VANDANA VAISHNAV	AFSPV9496A	PH.D.	COMM.SKILLS	PROFESSOR	01/08/20	-	Y	Regular	-	-
23.	Ms. RUMEET BHATIA KAUR	AOQPB1546E	MA	COMM.SKILLS	ASST PROFESSOR	23/10/07	-	Y	Regular	-	-
24.	Ms. SHWETA TRIPATHI	ANUPT9397E	MA	COMM.SKILLS	ASST PROFESSOR	09/01/10	-	Y	Regular	-	-
25.	Ms. RICHA PANDEY	BBSPR6722A	MA	COMM.SKILLS	ASST PROFESSOR	16/01/10	-	Y	Regular	-	-
26.	Dr. UJJAWALA OJA	AAOPO2063R	PH.D.	COMM.SKILLS	ASST PROFESSOR	01/07/2020	-	Y	Regular	-	-

## [SELF ASSESSMENT REPORT]

27.	Ms. ANKITA GHOSH	CFKPW5752D	MA	COMM.SKILLS	ASST PROFESSOR	05/08/2020	-	Y	Regular	-	-
28.	Mr. VIJAY DHOTE	BEZPD3889J	M.Tech	CSE	Asst Professor	16/08/2018	-	Y	Regular	-	-
29.	Mr. SUDHEER LODHI	CHDPK7032E	M.Tech	CSE	Asst Professor	16/08/2018	-	Y	Regular	-	-
30.	Ms. ANKITA SINGH	CPUPS3283N	M.TECH	CSE	Asst Professor	14/08/2020	-	Y	Regular	-	-
31.	Mr. ASHISH PATHAK	BRMPP4718A	M.Tech	CSE	Asst Professor	01/07/2019	-	Y	Regular	-	-
32.	Mr. ASHISH RAGHUWANSHI	BVTPR6094J	M.Tech	EC	Asst Professor	25/06/2014	-	Y	Regular	-	-
33.	Mr. MAHAVIR KASHYAP	DWGPK2721F	M.Tech	Power System	Asst Professor	09/08/2017	-	Y	Regular	-	-
34.	Mr. SWAPNIL GUPTA	ARKPG6001A	ME	Power System	Asst Professor	01/08/2018	-	Y	Regular	-	-
35.	MR. NEERAJ AGARWAL	AIFPA5170N	M.TECH	MECHANICAL ENGINEERING	ASSOCIATE PROFESSOR	22/10/2012	-	Y	Regular	-	-
36.	MR.ARVIND AHIRWAR	AYMPA8095K	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	20/07/2015	-	Y	Regular	-	30/06/21
37.	MR. MANOJ MISHRA	BUAPM5043A	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	16/08/2018	-	Y	Regular	-	30/06/21

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38.	MR. ASHISH SAHU	FUQPS3583D	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	06/09/2018	-	Y	Regular	-	-
39.	Mr. MAHENDRA KUMAR	EJLPK8453D	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	16/08/2018	-	Y	Regular	-	-
40.	MR. DHRUVRAJ SINGH	GECPS4997Q	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/07/2019	-	Y	Regular	-	-
41.	Ms. PRAGATI GAJBHIYE	BMIPG7271E	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/07/2019	-	Y	Regular	-	-
42.	MR. HARSHIT SHRIVASTAVA	FRZPS3998L	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	18/03/2020	-	Y	Regular	-	-
43.	Mr. VIKESH KUMAR MEWADA	BETPM8744K	M.TECH	CIVIL ENGINEERING	ASSISTANT PROFESSOR	01/08/2017	-	Y	Regular	-	-
44.	Mr. DHANESH KHALOTIA	CLXPK3685F	M.TECH	CIVIL ENGINEERING	ASSISTANT PROFESSOR	05/09/2018	-	Y	Regular	-	-

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### 8.3. First Year Academic Performance (10)

Academic Performance = ((Mean of 1st Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks in First Year of all successful students/10)) x (number of successful students/number of students appeared in the examination) Successful students are those who are permitted to proceed to the second year

**Table 8.4 First Year Academic Performance**

Academic Performance	2019-2020 (CAY)	2018-2019 (CAYm1)	2017-2018 (CAYm2)
Mean of CGPA or mean percentage of all successful students(X)	7.65	6.62	6.72
Total Number of successful students(Y)	95	92	97
Total Number of students appeared in the examination(Z)	97	103	105
API ( $x*(y/z)$ )	7.49	5.91	6.21

**Total Average API: 6.53**

### 8.4. Attainment of Course Outcomes of first year courses (10)

**8.4.1. Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is done (5)**

**A) We are following the Assessment Process to evaluate the student's Academic Performance**

- ✓ Two Mid-Semester exams for maximum marks of 20 are conducted. The average of these two internal marks is taken for final internal assessment marks.
- ✓ 3 to 5 assignments given for evaluation of student's performance.
- ✓ The performance of every student in internal assessment with respect to the COs is recorded.
- ✓ End- semester University examination performance of students for the maximum mark of 70 is considered for external exam performance.
- ✓ The summation of these two performances is considered as cumulative assessment for a prescribed course outcome.

## [SELF ASSESSMENT REPORT]

- ✓ For laboratory assessment, the performance of a student in conduct of lab (10 marks), final lab internal test (10 marks) and external lab exam (30 marks) is considered.
- **Evaluation Scheme:**

**Table: 8.5 Evaluation Components (Grading System)\***

S. No	COMPONENT	MARKS	
<b>I</b>	<b>INTERNAL ASSESSMENTS</b>		
<b>1</b>	Mid Semester Tests	<b>20</b>	<b>30</b>
<b>2</b>	Quiz/ Assignment	<b>10</b>	
<b>II</b>	<b>END SEMESTER EXAMINATION</b>		<b>70</b>
<b>TOTAL</b>			<b>100</b>

**Table: 8.6 Evaluation Components Practical's (Grading System)\***

S. No	COMPONENT	MARKS	
<b>I</b>	<b>INTERNAL PRACTICAL ASSESSMENTS</b>		
<b>1</b>	Lab Work	<b>10</b>	<b>20</b>
<b>2</b>	Sessional / Viva-voce	<b>10</b>	
<b>II</b>	<b>END SEMESTER PRACTICAL</b>		<b>30</b>
<b>TOTAL</b>			<b>50</b>

**B. Assessment tools are categorized into two methods to assess the course outcomes as:**

**Direct method:**

Formative and Summative assessment are used for evaluation of the internal and external marks in a theory and practical subjects, based on Mid Semester examination, unit tests, assignments, seminar, group discussion, self study, tutorials, internal viva and end semester exam. Students are awarded internal and external marks on the basis of the performance in the above-noted criteria. Projects, internal reviews are conducted and evaluated for judging the level of students' standards. To know the learning status of the students, assignments are given. At the end of the semester examinations are conducted by the affiliated University- RGPV, Bhopal.

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**Table 8.7: Direct Assessment Method**

Direct Assessment Method		
S. No	Assessment Processes	Method Description
1.	Internal Assessment Test, Assignments, Quizzes, Internal Viva	Formative and Summative Assessment are used for evaluation of the Internal and external marks in theory and practical subjects, based on Mid semester examination, unit tests, assignments, seminar, group discussion, self study and tutorials generally conducted in between and on completion of course. An improvement test is conducted for those students who score very less marks in internal assessment before the end of the semester to give an opportunity to such students to improve their internal Assessment Marks. It is a metric to continuously assess the attainment of course outcomes. Average of the two Mid Semester marks, assignment marks and tutorials are taken as Internal Assessment Marks for the relevant subject.
2.	Theory / Practical Semester Examination.	Semester examinations are conducted by the affiliating University RGPV, Bhopal and the metric to assess whether all the course outcomes are attained or not are framed by the course owner. Semester Examination is more focused on attainment of course outcomes and uses descriptive exam pattern.
3.	Seminar, Presentations	Seminar in the first year will be conducted semester-wise; the student shall collect the information on the attended seminar on specialized topic(s), showing his/her understanding of the topic through presentation and viva-voce. It shall be evaluated by the committee consisting of Senior Faculty Members. The committee evaluates presentation based on following parameters: i) Presentation ii) Viva-voce



## [SELF ASSESSMENT REPORT]

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### **PO Assessment Tools:**

We are using following PO assessment tools:

- Internal/External Evaluation as per University exam.
- Lab Experiments
- Mentoring, software skills
- Technical Events/Workshop/conferences/Seminar/ Group discussion/Social Activities
- Course Beyond syllabus
- Problem Base Learning

Evaluation Process of Question paper setting

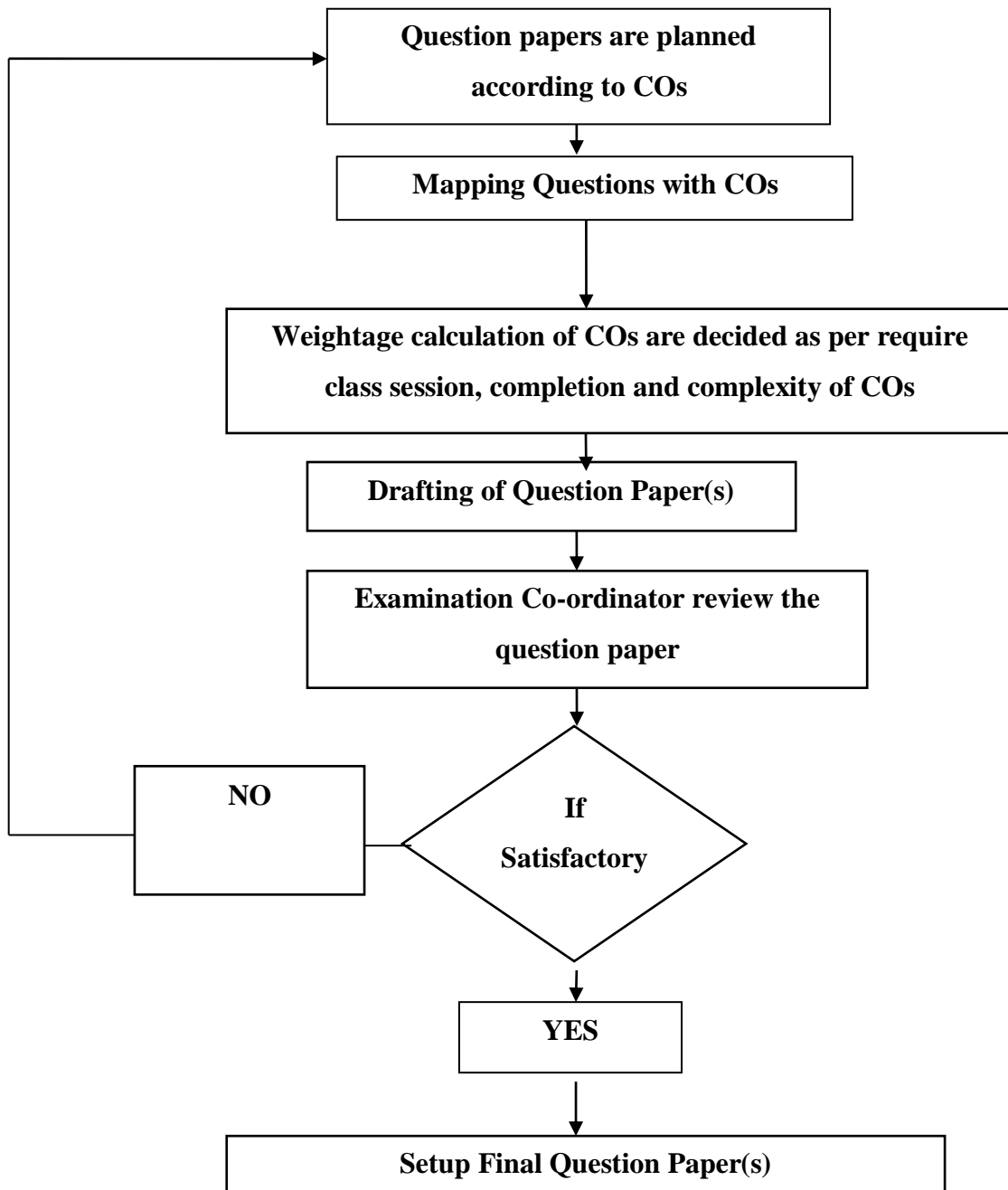


Figure 8.1 Evaluation Process

## [SELF ASSESSMENT REPORT]

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### **PO & CO-ATTAINMENT (2019-2020 Batch)**

Direct method is used to assess the program outcomes and outcomes

- Direct attainment of COs is determined from the performances of students in 30% of Internal Evaluation (IE) and 70% of Semester End Examination (SEE)
- 30% of Internal Evaluation (IE) is calculated from 67% of Mid Semester Examination and 33% of Assignment/theory quizzes.
- For assessment of Mid Semester Examination marks, two mid semester are conducted and final marks is consider as an average of two mid marks.
- First Mid Semester Examination is included four questions with respect to 40% Coverage of COs.
- Second Mid semester Examination is included six questions with respect to remaining 60% Coverage of COs.
- For assessment of assignment four or five assignments are given and each assignment includes three to five questions with respect to concern COs.
- For practical COs attainment is determined from the performances of students in 40% of Internal Evaluation (IE) and 60% of End Semester Examination (SEE).
- Direct method enables faculty to judge student's knowledge and skills from their performance in the continuous assessment tests, end-semester examinations, presentations, and classroom assignments etc. These methods provide a sample of what students know and/or can do and provide strong evidence of extent of student- learning.

The process of attainment is described in the flow chart

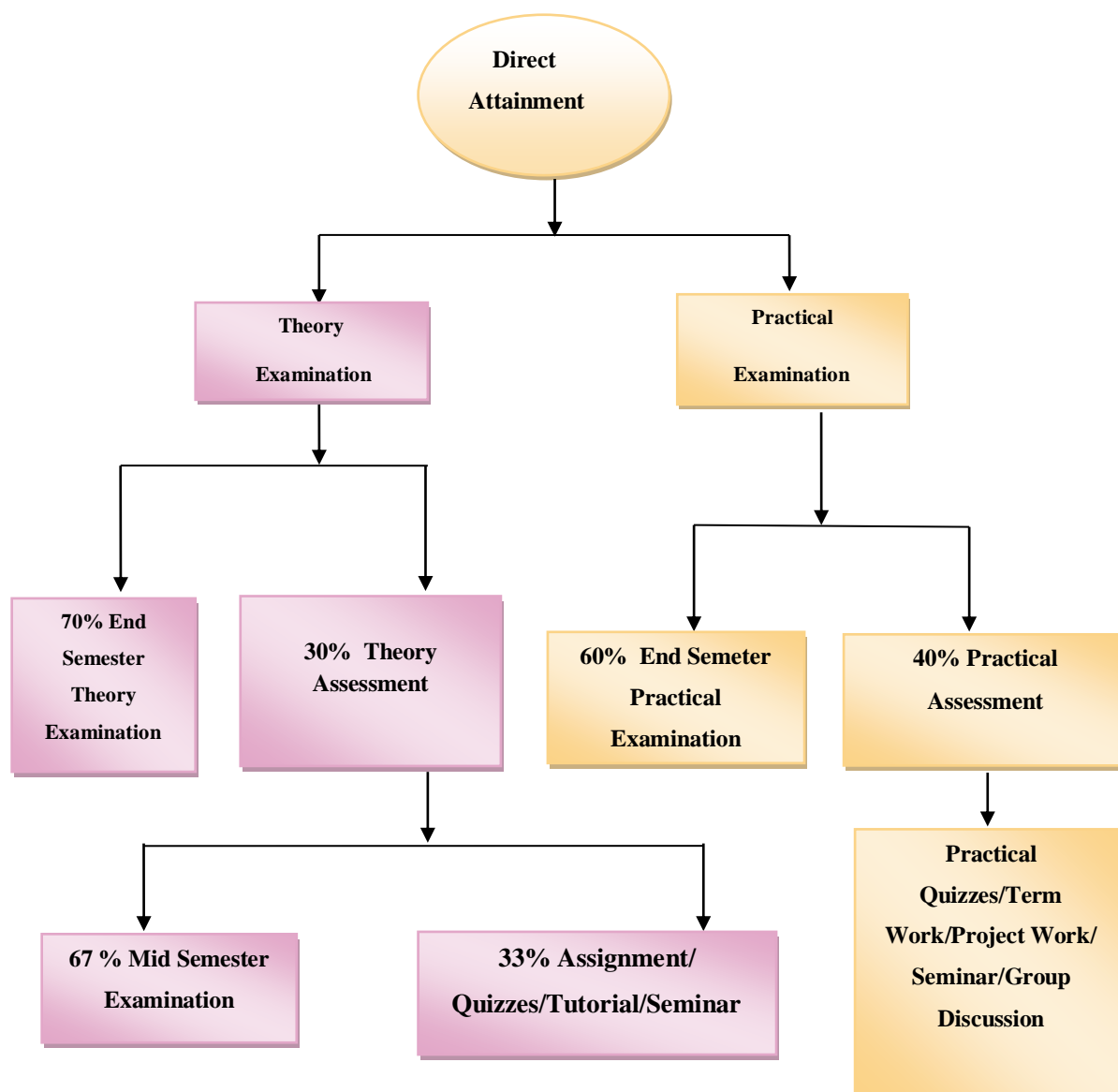


Figure 8.2 Flow Chart of Attainment Calculation

### Use of Rubrics for Evaluation and Assessment of PO's

- The Course/ Program outcomes are difficult to measure e.g. assessment of critical thinking, creativity, analytical skills, and problem solving etc. Hence the Department has adopted criterion referenced rubrics to assess the POs and COs, wherever appropriate. The Rubric criteria are either developed by faculty or sometimes even with consultation with students and distributed among concerned before an assignment, project or test.

## [SELF ASSESSMENT REPORT]

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- Rubrics are used for both formative and summative assessment of students. Same rubric is used for assessing an outcome so that the faculty is able to assess student progress and maintain the record of the same for each student.
- The rubrics are shared with students before being evaluated so that they are aware of the performance criteria and their weight age.

**Table 8.8 Internal & External Evaluation Rubrics (Theory Subject)**

<b>Rubrics</b>	
<b>External Evaluation</b>	<b>If 80% students achieve above 50 % marks then attained level is 3</b>
	<b>If 70% students achieve above 50% marks then attained level is 2</b>
	<b>If 60% students achieve above 50 % marks then attained level is 1</b>
<b>Internal Evaluation</b>	<b>If 80% students achieve above 60% marks then attained level is 3</b>
	<b>If 70% students achieve above 60% marks then attained level is 2</b>
	<b>If 60% students achieve above 60% marks then attained level is 1</b>

# [SELF ASSESSMENT REPORT]

## Lab Performance Evaluation Rubric

Student Name: -----

Enrollment Number: -----

Evaluation Date: -----

s.no	Method of Evaluation	Rubrics	Exceeds expectation(3)	Meets expectation(2)	Doesn't meet expectation(0-1)	Marks
1	Conduction of Experiments	Lab Participation	Student demonstrates an accurate understanding of the lab objectives and concepts. The student can correctly answer questions and if appropriate, can explain concepts to fellow classmates. Student is eager to participate and assists when needed.	Student arrives on time to lab, but may be unprepared. Answers to questions are basic and superficial suggesting that concepts are not fully grasped.	Student tardiness or unpreparedness makes it impossible to fully participate. If able to participate, Student has difficulty explaining key lab concepts. OR Student was absent from lab	
2		Equipment connection	Student has made correct equipment/component connections as per standard circuit diagrams.	Student needed guidance to make correct equipment/component connections as per standard circuit diagrams.	Student was unable to make correct equipment/Component connections as per standard circuit diagrams.	
3		Data Recording/Collection	Student has correctly measured the relevant parameters	Student has performed incorrect measurement of relevant parameters	Student was unable to identify /measure relevant parameters	
4		Results	Accurate results have been achieved	The achieved results are not accurate but are within tolerance range	No results are achieved OR The achieved results are meaningless	
5		Troubleshooting	Student has ability to detect and correct the errors	Student can detect the error but unable to correct it	Student was unable to detect the error	
6	Conduction of Experiments	Lab Report	Student demonstrates an accurate understanding of the lab objectives and concepts. Questions are answered completely and correctly. Graphs are neat, creative and include complete titles and accurate units. Errors, if any are minimal	Student has a basic knowledge of content, but may lack some understanding of some concepts. Questions are answered fairly well and/or graphs could have been done more neatly, accurately or with more complete	Student has problems with both the graphs and the answers. Student appears to have not fully grasped the lab content and the graph(s) possess multiple errors. OR Student turns in lab report late or the report is incomplete	

## [SELF ASSESSMENT REPORT]

				information.		
7	Ethics	Safety	Student carefully observes the safety rules and procedures during practical work	Student observes safety rules and procedures with minor deviation during practical work	Student does not care about safety rules during practical work.	
8	Ethics	Punctuality	Student was on time and stayed till the completion of task	Student was on time but wasted time outside the work place during the experiment.	Student was not on time and left class before time.	
9	Ethics	Workplace Clearance	The student uses the equipment responsibly and clears the leftovers at the work place on completion of lab work	The student has shown responsibility towards using the equipment while he didn't care about the cleanliness of work place	The student has shown irresponsibility using the equipment and didn't clear the leftovers at the workplace on completion of lab work	
10	Team Work	Research & gather information	Student has collected a great deal of information which goes beyond the basics.	Student has collected basic information related the topic.	Student has not collected any information that relates to the topic	
11		Fulfil team role's duties	Student has performed the duties assigned and actively assisted others.	Student has shown limited performance in the duties that are assigned	Student has not performed any duties of assigned team role.	
12		Listen to other teammates	Consistently listens and responds to other appropriately	Usually doing most of the talking rarely allowed others to speak.	Student shows an assertive behaviour and was unable to show respect towards other teammates.	
13	Conduction of Experiments	Familiarity with software	Student has full command on the basic tools of the software.	Student has limited command on the basic tools of the software.	Student has no idea how to use the basic tools of the software.	
14		Simulation Steps	Has applied all the steps in correct sequence to obtain the results.	Some steps are followed but not in proper sequence	Student has no idea regarding the steps to be followed to perform simulation	
15		Coding Skills	The code is completely functional and responds correctly producing the correct outputs.	The Code is correct with regard to syntax but required output is not correct.	The code has several syntax errors. Important parts of code are missing.	
16	Conduction of Experiments	Schematic of the Circuit	Schematic of circuit/board is made with proper connections/wiring.	Schematic of circuit/board is made with only basic proper connections/wiring	Schematic of circuit/board is made with only basic connections/wiring and has several errors.	
<b>Total Marks</b>						

# [SELF ASSESSMENT REPORT]

## STUDENT SEMINAR EVALUATION RUBRIC

**Student Presenter:** \_\_\_\_\_

**Evaluator Date:** \_\_\_\_\_

**Grading Scale:** \_\_\_\_\_

Evaluate the student's presentation					
	Inadequate	Average	Admirable	Outstanding	
Knowledge and Content	1	2	3	4	Score
<b>Organization of presentation</b>	Hard to follow; sequence or information is jumpy	Most of the information presented is in sequence	Information presented in logical sequence; easy to follow	Information presented as interesting story in logical, easy to follow sequence	
<b>Background content</b>	Material not clearly related to topic <b>or</b> background dominated seminar	Material sufficient for clear understanding <b>but</b> not clearly presented	Material sufficient for clear understanding <b>and</b> effectively presented	Material sufficient for clear understanding <b>and</b> exceptionally presented	
<b>Methods</b>	Methods too brief or insufficient for adequate understanding <b>or</b> too detailed	Sufficient for understanding <b>but</b> not clearly presented	Sufficient for understanding <b>and</b> effectively presented	Sufficient for understanding <b>and</b> exceptionally presented	
<b>Results (Figures, graphs, tables, etc.)</b>	Some figures hard to read	Majority of figures clear	Most figures clear	All figures clear	
	Some in inappropriate format	Majority appropriately formatted	Most appropriately formatted	All appropriately formatted	
	Some explanations lacking	Reasonably explained	Well explained	Exceptionally explained	
<b>Contribution of work</b>	Significance not mentioned or just hinted	Significance mentioned	Significance explained	Significance exceptionally well explained	
<b>Knowledge of subject</b>	Does not have grasp of information; answered only rudimentary questions	At ease with information; answered most questions	At ease; answered all questions <b>but</b> failed to elaborate	Demonstrated full knowledge; answered all questions with elaboration	
<b>Presentation Skills</b>					



## [SELF ASSESSMENT REPORT]

<b>Graphics (use of PowerPoint)</b>	Uses graphics that rarely support text and presentation	Uses graphics that relate to text and presentation	Uses graphics that explain text and presentation	Uses graphics that explain and reinforce text and presentation	
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### 8.4.2. Record the attainment of Course Outcomes of all first year courses (5)

Academic year (2019-2020)

Record the attainment of Course Outcomes of all courses with respect to set attainment levels

Setting of Target

Target of the course outcome has decided as per

- Average end semester marks
- Subject internal Assessment Average Marks
- Class session require for completion of course outcome

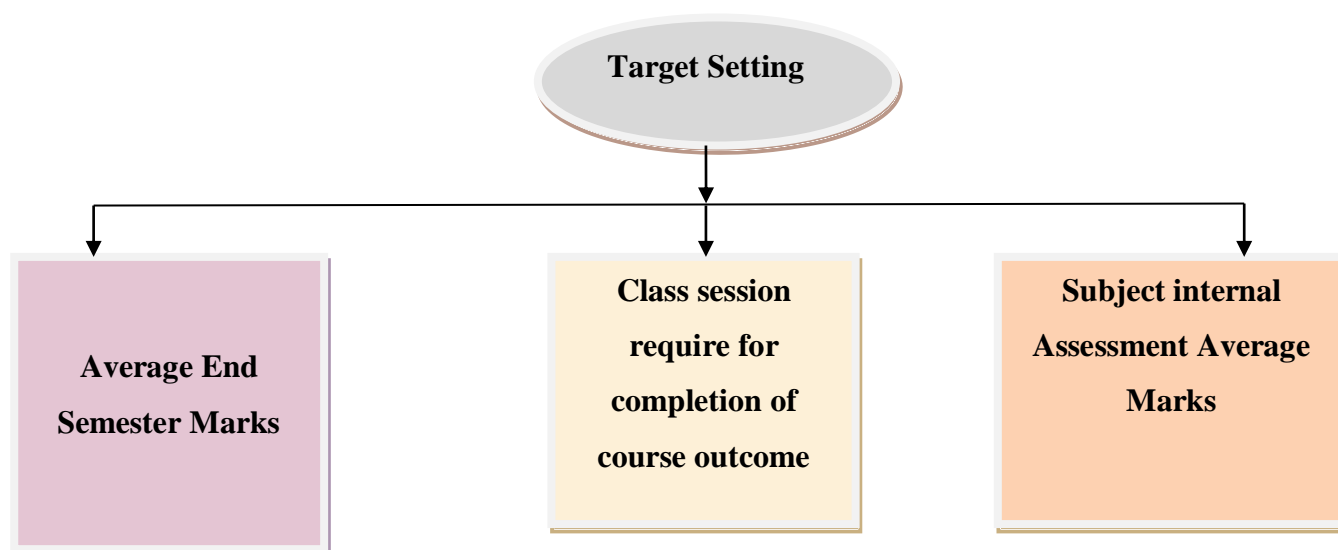
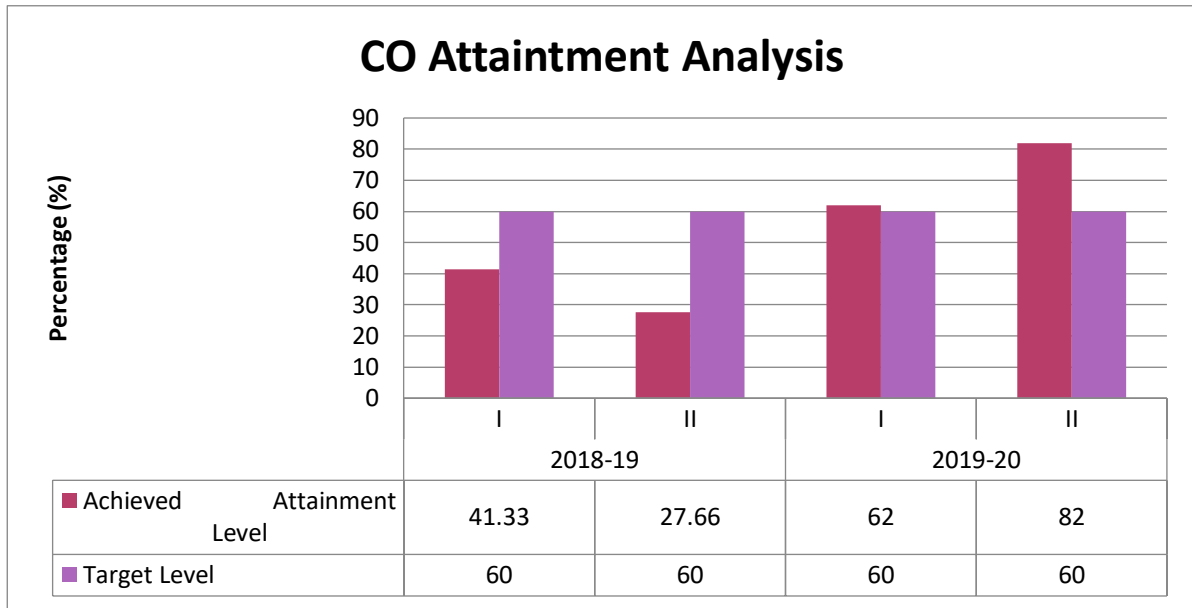


Fig. 8.3 Process of target setting

Table 8.9 CO Attainment Analysis

Session	2018-19		2019-20	
	I	II	I	II
<b>Target Level</b>	<b>60</b>	<b>60</b>	<b>60</b>	<b>60</b>
<b>Achieved Attainment Level</b>	<b>41.33</b>	<b>27.66</b>	<b>62</b>	<b>82</b>

## [SELF ASSESSMENT REPORT]



**Fig. 8.4 CO Attainment Analysis**

2019-2020 ME First Year					
Semester	Subject	Course Outcome	Target	Achieved CO Attainment	Status
<b>I</b>	<b>BT201</b>	<b>C201.1</b>	<b>1.5</b>	<b>1.8</b>	<b>0.3</b>
		<b>C201.2</b>	<b>1.5</b>	<b>1.9</b>	<b>0.4</b>
		<b>C201.3</b>	<b>1.5</b>	<b>1.9</b>	<b>0.4</b>
		<b>C201.4</b>	<b>1.5</b>	<b>1.9</b>	<b>0.4</b>
		<b>C201.5</b>	<b>1.5</b>	<b>1.9</b>	<b>0.4</b>
	<b>BT102</b>	<b>C102.1</b>	<b>1.2</b>	<b>0.6</b>	<b>-0.6</b>
		<b>C102.2</b>	<b>1.2</b>	<b>0.8</b>	<b>-0.4</b>
		<b>C102.3</b>	<b>1.2</b>	<b>0.7</b>	<b>-0.5</b>
		<b>C102.4</b>	<b>1.2</b>	<b>0.7</b>	<b>-0.5</b>
		<b>C102.5</b>	<b>1.2</b>	<b>0.7</b>	<b>-0.5</b>
	<b>BT203</b>	<b>C203.1</b>	<b>1.7</b>	<b>1.8</b>	<b>0.1</b>
		<b>C203.2</b>	<b>1.7</b>	<b>1.9</b>	<b>0.2</b>
		<b>C203.3</b>	<b>1.7</b>	<b>1.9</b>	<b>0.2</b>
		<b>C203.4</b>	<b>1.7</b>	<b>1.8</b>	<b>0.1</b>
		<b>C203.5</b>	<b>1.7</b>	<b>1.8</b>	<b>0.1</b>
	<b>BT204</b>	<b>C204.1</b>	<b>1.5</b>	<b>1.8</b>	<b>0.3</b>
		<b>C204.2</b>	<b>1.5</b>	<b>1.9</b>	<b>0.4</b>

## [SELF ASSESSMENT REPORT]

		C204.3	1.5	1.9	0.4	
		C204.4	1.5	1.9	0.4	
		C204.5	1.5	1.9	0.4	
	BT205	C205.1	1.5	1.8	0.3	
		C205.2	1.5	1.9	0.4	
		C205.3	1.5	1.9	0.4	
		C205.4	1.5	1.9	0.4	
		C205.5	1.5	1.9	0.4	
	BT206P	CL206.1	1.6	3	1.4	
		CL206.2	1.6	3	1.4	
		CL206.3	1.6	3	1.4	
		CL206.4	1.6	3	1.4	
		CL206.5	1.6	3	1.4	
	II	BT101	C101.1	1.7	2.7	1
			C101.2	1.7	2.9	1.2
C101.3			1.7	3	1.3	
C101.4			1.7	3	1.3	
C101.5			1.3	2.1	0.8	
BT202		C202.1	1.3	2.6	1.3	
		C202.2	1.3	3	1.7	
		C202.3	1.3	3	1.7	
		C202.4	1.3	3	1.7	
		C202.5	1.5	2	0.5	
BT103		C103.1	1.5	2.7	1.2	
		C103.2	1.5	3	1.5	
		C103.3	1.5	3	1.5	
		C103.4	1.5	3	1.5	
		C103.5	1.5	2.1	0.6	
BT104		C104.1	1.5	2.5	1	
		C104.2	1.5	2.7	1.2	
		C104.3	1.5	3	1.5	
		C104.4	1.5	3	1.5	
		C104.5	1.5	2.1	0.6	
BT105	C105.1	1.5	2.4	0.9		
	C105.2	1.5	2.7	1.2		

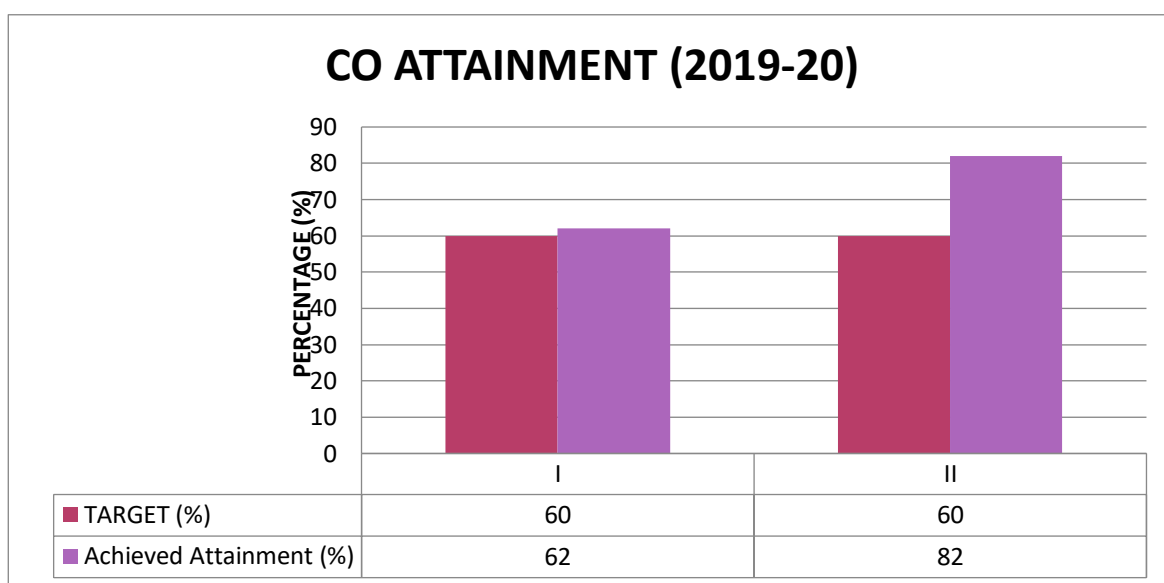
## [SELF ASSESSMENT REPORT]

		<b>C105.3</b>	<b>1.5</b>	<b>2.9</b>	<b>1.4</b>
		<b>C105.4</b>	<b>1.5</b>	<b>2.9</b>	<b>1.4</b>
		<b>C105.5</b>	<b>1.6</b>	<b>1.2</b>	<b>-0.4</b>
	<b>BT106P</b>	<b>CL106.1</b>	<b>1.6</b>	<b>1.2</b>	<b>-0.4</b>
		<b>CL106.2</b>	<b>1.6</b>	<b>1.6</b>	<b>0</b>
		<b>CL106.3</b>	<b>1.6</b>	<b>1.6</b>	<b>0</b>
		<b>CL106.4</b>	<b>1.6</b>	<b>1.2</b>	<b>-0.4</b>
		<b>CL106.5</b>	<b>1.6</b>	<b>1.8</b>	<b>0.2</b>
	<b>BT108P</b>	<b>CL108.1</b>	<b>1.6</b>	<b>2.2</b>	<b>0.6</b>
		<b>CL108.2</b>	<b>1.6</b>	<b>2.2</b>	<b>0.6</b>
		<b>CL108.3</b>	<b>1.6</b>	<b>2.6</b>	<b>1</b>
		<b>CL108.4</b>	<b>1.6</b>	<b>2.6</b>	<b>1</b>
		<b>CL108.5</b>	<b>1.7</b>	<b>2.7</b>	<b>1</b>
			<b>Target Level =1.5</b>	<b>Achieved Attainment Level =2.1</b>	<b>0.7</b>

**Table 8.10 Average of CO Attainment**

<b>2019-2020 Mechanical Engineering:</b>				
<b>CO Attainment</b>				
<b>Semester</b>	<b>Target%</b>	<b>Target Level</b>	<b>Achieved Attainment %</b>	<b>Achieved Attainment Level</b>
<b>I</b>	<b>60</b>	<b>1.8</b>	<b>62.00</b>	<b>1.86</b>
<b>II</b>	<b>60</b>	<b>1.8</b>	<b>82.00</b>	<b>2.46</b>

## [SELF ASSESSMENT REPORT]

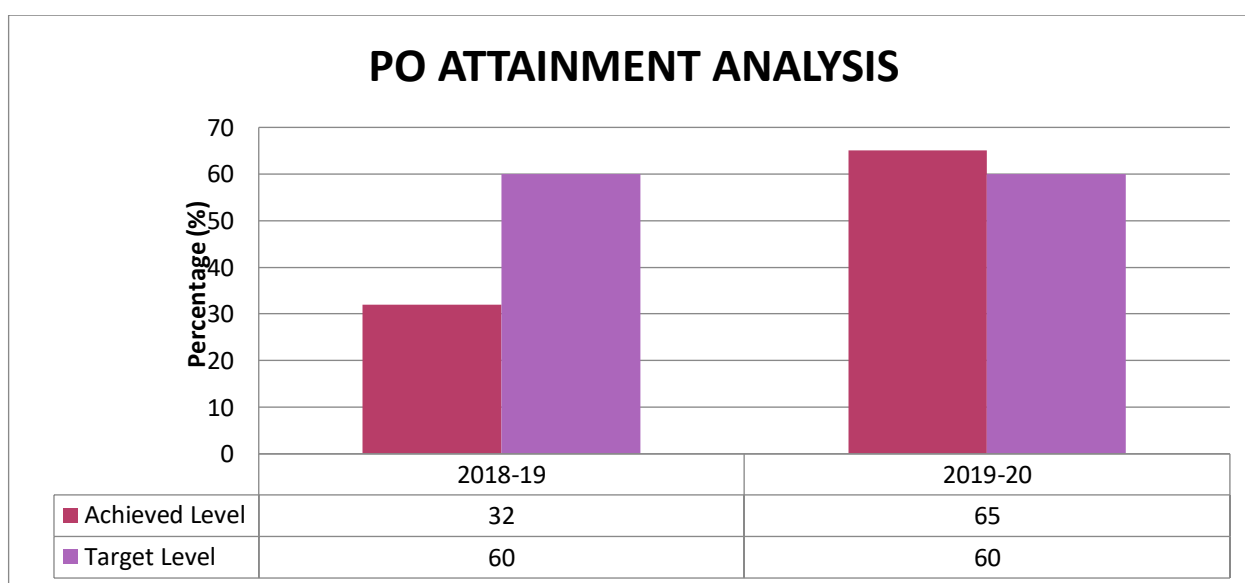


**Fig. 8.5 CO ATTAINMENT Graph (2019-20)**

### 8.5 Attainment of Program Outcomes from first year courses (20)

#### 8.5.1 Indicate results of evaluation of each relevant PO and/or PSO, if applicable (15)

PO Attainment Analysis		
Session	2018-19	2019-20
Achieved attainment (%)	32	65
Target Level (%)	60	60

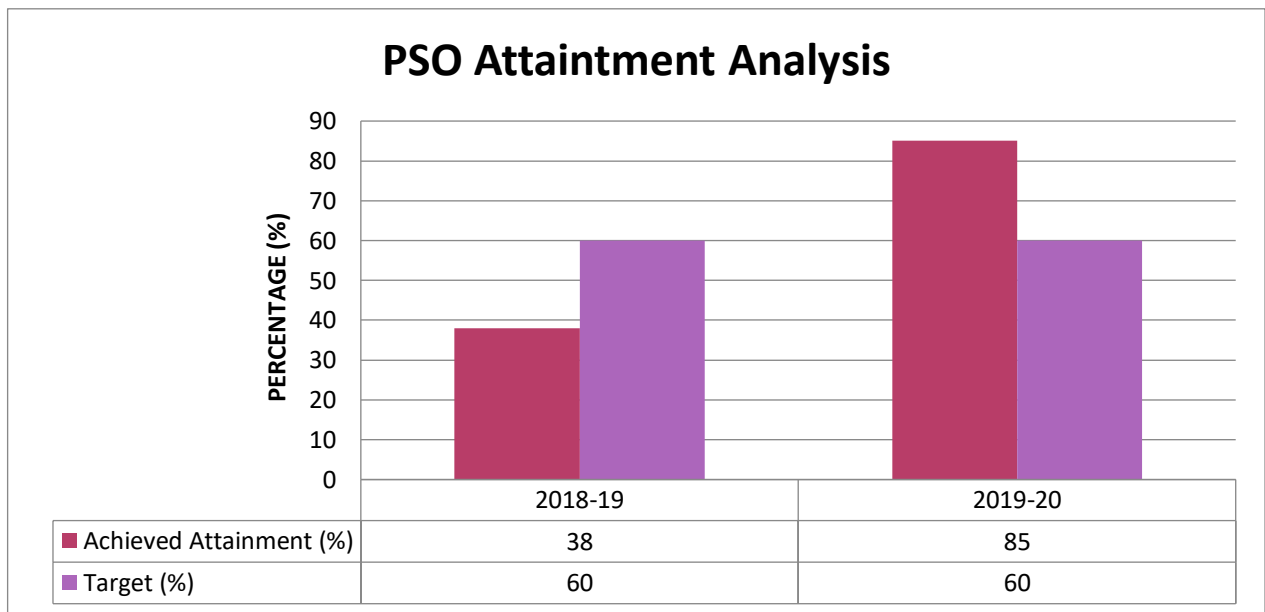


**Fig. 8.6 PO ATTAINMENT ANALYSIS**

# [SELF ASSESSMENT REPORT]

## PSO ATTAINMENT ANALYSIS

Session	2018-19	2019-20
Achieved attainment Level	38	85
Target Level	60	60



**Fig. 8.7 PSO ATTAINMENT ANALYSIS**

# [SELF ASSESSMENT REPORT]

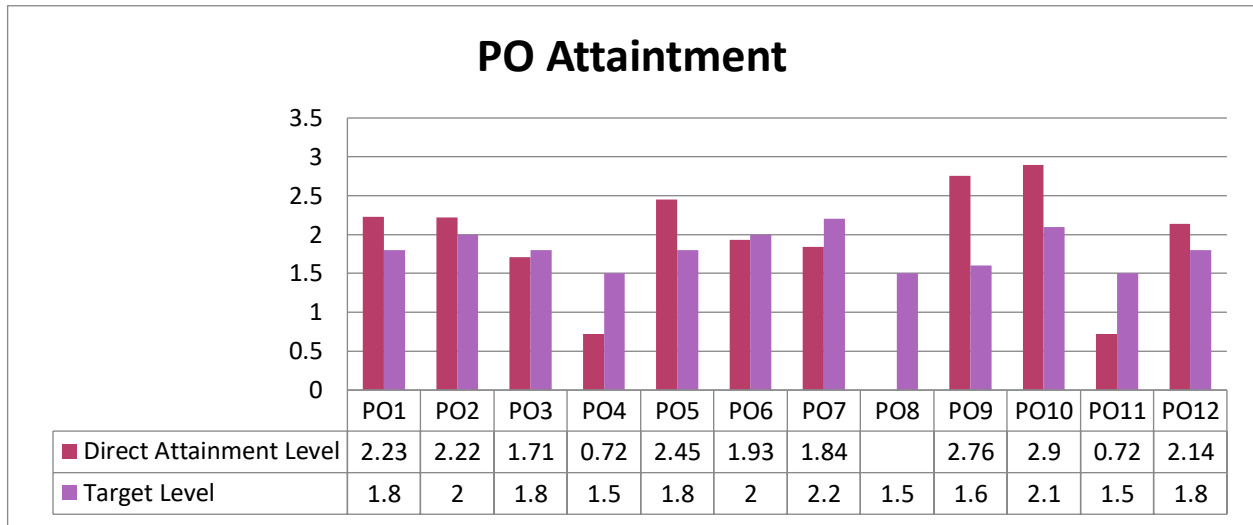
**Academic Year 2019-2020**

## Mechanical Engineering Attainment Summary

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>BT201</b>	1.85	1.85	-	-	-	0.72	-	-	3.00	-	-	1.85
<b>BT102</b>	0.72	0.71	0.74	0.72		0.72	0.81	-		-	0.72	0.72
<b>BT203</b>	1.84	1.84	-	-	-	-	-	-	3.00	-	-	0.69
<b>BT204</b>	1.88	1.86	-	-		1.89	1.91	-	3.00	-	-	1.88
<b>BT205</b>	1.86	1.87	0.72	-	3.00			-	3.00	-	-	1.86
<b>BT206</b>	3.0	3.0	-	-	3.0	3.0		-	3.0	3.0	-	3.0
<b>BT101</b>	2.78	2.78	-	-	-	-	-	-	-	-	-	2.67
<b>BT202</b>	2.79	2.74	2.81	-		2.68	2.81	-			-	2.70
<b>BT103</b>	2.70	2.72	-	-	2.70	-	-	-	2.64	2.81	-	2.80
<b>BT104</b>	2.66	2.57	-	-		-	-	-	-	-	-	2.62
<b>BT105</b>	2.55	2.58	-	-	2.42	-	-	-	-	-	-	2.57
<b>BT106</b>	1.9	2.1	2.0	-	1.8	-	-	-	2.1	-	-	2.0
<b>BT108</b>	2.4	2.3	2.3	-	1.8	2.6	-	-	2.4	-	-	2.4

<b>PO Attainment level</b>												
<b>Direct Attainment</b>	<b>2.23</b>	<b>2.22</b>	<b>1.71</b>	<b>0.72</b>	<b>2.45</b>	<b>1.93</b>	<b>1.84</b>	<b>-</b>	<b>2.76</b>	<b>2.90</b>	<b>0.72</b>	<b>2.14</b>
<b>Target</b>	1.8	2	1.8	1.5	1.8	2	2.2	1.5	1.6	2.1	1.5	1.8

## [SELF ASSESSMENT REPORT]



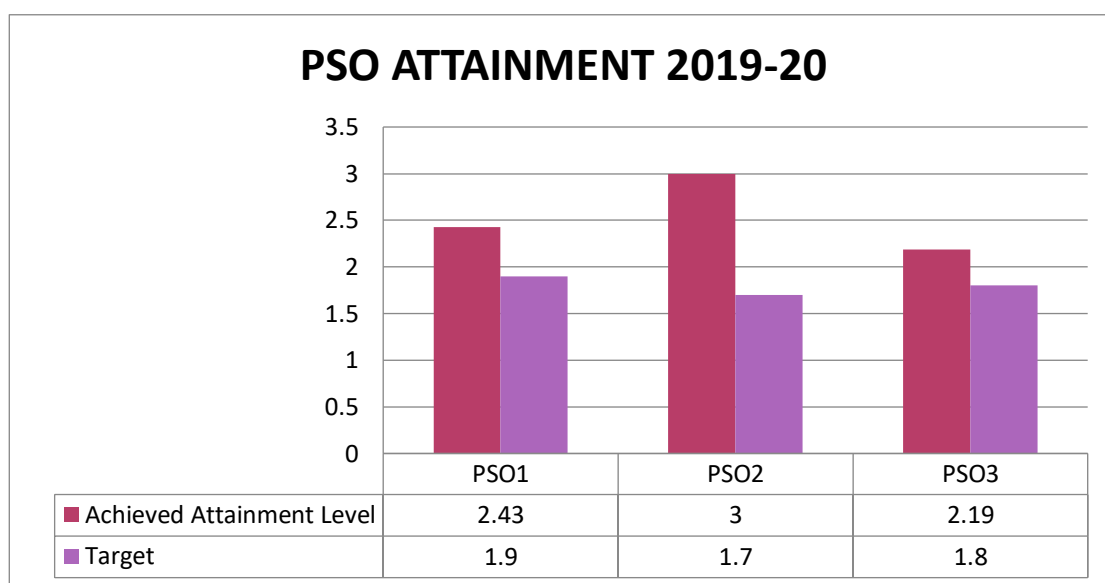
**Fig. 8.8 PO Attainment Graph (2019-20)**

**Table 8.11 PSO ATTAINMENT**

**ME (2019-2020)**

Subject Code	PSO1	PSO2	PSO3
<b>BT201</b>	-	-	1.85
<b>BT102</b>	-	-	0.72
<b>BT203</b>	-	-	1.85
<b>BT204</b>	-	-	1.86
<b>BT205</b>	1.87	-	1.86
<b>BT206</b>	3.0	3.0	3.0
<b>BT101</b>	-	-	2.78
<b>BT202</b>	-	-	2.79
<b>BT103</b>	-	-	2.70
<b>BT104</b>	-	-	2.65
<b>BT105</b>	-	-	2.63
<b>BT106</b>	-	-	2.0
<b>BT108</b>	-	-	1.8
<b>Direct Attainment</b>	2.43	3.00	2.19
<b>Target</b>	1.9	1.7	1.8





**Fig. 8.9 PSO Attainment Graph (2019-20)**

**8.5.2 Actions taken based on the results of evaluation of relevant POs (5)**

**(The attainment levels by direct (student performance) are to be presented through Program level Course-PO matrix as indicated)**

**PO Attainment Levels and Actions for improvement - CAY – Mention for relevant Pos**

POs	Target Level	Attainment Level	Observations
<b>PO1:</b> Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
<b>PO1</b>	1.8	2.23	<p><b>Observations</b></p> <p>1. Student's not acquainted with the Fundamental concepts in the mathematics /Problem- Oriented subjects.</p> <p>2. Apprehension of analysis, need to be well understood and improved</p>
<p><b>Actions</b></p> <p>1. Remedial/Revision classes were conducted through NPTEL classes.</p> <p>2. Extra design and analysis classes were conducted for understanding the section of solids in tutorial classes.</p> <p>3. More emphasis was given in mathematics basics on differentiation.</p> <p>4. Numerical problems on thermodynamics were solved in tutorial classes.</p>			

## [SELF ASSESSMENT REPORT]

**PO2:** Problem analysis: Identify, formulate, review research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

<b>PO2</b>	2.0	2.22	<p><b>Observations</b></p> <ol style="list-style-type: none"> <li>1. Need understanding of analytical skill in M-I, Electronics, Thevenin's theorem, spectroscopic techniques. In BME fluids module was difficult to understand.</li> <li>2. Students were facing problem in applying the basic principles</li> </ol>
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**Actions**

1. Audio-Visual lectures were conducted for clearing the concepts.
2. Regularly appeared questions in the previous exam of University Question Papers were solved in the classes.
3. Principles of spectroscopy had been made clear with animated video lectures.

**PO3:** Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.

<b>PO3</b>	1.8	1.71	<p><b>Observations</b></p> <ol style="list-style-type: none"> <li>1. Students find it difficult to solve engineering problems in BCE &amp;EM.</li> <li>2. Basic knowledge of design in EG is not well understood.</li> <li>3. Needs improvement in Programming</li> </ol>
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**Actions**

1. Some classes were delivered with the help of NPTEL lectures.
2. More emphasis was given on mathematical basic in the previous course like surveying, planning etc
3. Practical approach of teaching of BCE & EM was included.

**PO4:** Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

<b>PO4</b>	1.5	0.72	<p><b>Observations</b></p> <ol style="list-style-type: none"> <li>1. Students find difficulty in solving the engineering problems.</li> </ol>
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## [SELF ASSESSMENT REPORT]

			2. Subject involving both analysis and design as in EG, BME needs more understanding of the concepts.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Practical approach of teaching of topics in casting, carpentry and welding had been adapted.</li> <li>2. More practical problems and exercises were given for practice.</li> <li>3. Motivated students to participate in activities organized by MPCST &amp; inter-collegiate.</li> </ol>			
<b>PO5:</b> Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.			
<b>PO5</b>	1.8	2.45	<b>Observations</b> Students are unfamiliar with the use of modern tools.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Training/workshop were conducted to enhance the usage of modern tool.</li> <li>2. More English spoken &amp; written classes were conducted for practice</li> <li>3. Use of Projector was more beneficial for acquiring presentation skill as well as development of familiarity of ICT Tool.</li> </ol>			
<b>PO6:</b> The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.			
<b>PO6</b>	2.0	1.93	<b>Observation</b> The students are not able to apply reasoning contextual knowledge to assess safety, legal and cultural issues in real life.
<b>Actions</b>			
<ol style="list-style-type: none"> <li>1. Awareness about environmental change was provided by video lecture.</li> <li>2. To understand the safety concerns and social aspects, Motivate students to visited like Tribal Museum, Science Centre and many useful places to expand their practical Knowledge.</li> </ol>			
<b>PO7:</b> Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.			
<b>PO7</b>	2.2	1.84	<b>Observation</b> Awareness of global and environmental issues was observed among the student that needs to be improved
<b>Action</b>			

## [SELF ASSESSMENT REPORT]

<p>1. Students were encouraged to participate in programs on global and environmental issues (Tree Plantation Program).</p> <p>2. Video Lecture on environmental awareness and pollution - cause, effect and control were conducted for better understanding of the subject.</p> <p>3. Students were motivated to take a part in various social events such as, “Swaccha Bharat Abhiyan” of the subject.</p>			
<p><b>PO8:</b> Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			
<b>PO8</b>	1.5	-	<p><b>Observation</b></p> <p>1. Need more Professional Ethics &amp; Moral values.</p> <p>2. Personality of students needs to be upgraded</p>
<p><b>Action</b></p> <p>1. Alumni and Campus selected students of final year interaction sessions with fresher, induction programs, T&amp;P classes, activity on human values.</p> <p>2. Motivational talks, personality development sessions and activities were arranged to overcome short comings Amongst the students.</p> <p>3. “Thought of the day” is imparted in practice to improve the ethics &amp; moral values.</p>			
<p><b>PO9:</b> Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>			
<b>PO9</b>	1.6	2.76	<p><b>Observation</b></p> <p>1. Some students are not able to work as individual while some do not work in team.</p> <p>2. Self –centeredness amongst Students.</p>
<p><b>Actions</b></p> <p>Inter-Collegiate and Inter-Branch competitions as well as collaborations in technical / Non-technical event were conducted to develop team spirit, responsibility, leadership and ownership qualities..</p>			
<p><b>PO10:</b> Communication: Communicate effectively on complex engineering activities</p>			
<b>PO10</b>	2.1	2.90	<p><b>Observation</b></p> <p>1. Fluency in communication is lacking.</p> <p>2. The communication, presentation and report writing skills are to be further improved by the students.</p>
<p><b>Actions</b></p> <p>1. More writing exercise was provided for practice to improve presentation and report writing skills</p> <p>1. Vocabulary building task were provided.</p>			
<p><b>PO11:</b> Project management and finance: Demonstrate knowledge and understanding of the engineering</p>			

## [SELF ASSESSMENT REPORT]

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and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

<b>PO11</b>	1.5	0.72	<b>Observation</b> 1. Lack of team spirit, leadership qualities 2. Lacking awareness in financial management. 3. Difficulty in deriving conclusions through observations
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### **Actions**

1. Student were motivated to participate in Tech Fest
2. Self-discipline and management skills were made aware of through motivational lectures, corporate training sessions.

**PO12:** Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life- long learning in the broadest context of technological change.

<b>PO12</b>	1.8	2.14	<b>Observation</b> 1. Awareness concerned to independent learning is lacking. 2. The foundation course of the first year program are the basic resource for their curriculum
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### **Actions**

1. Exposure to newer engineering methods and innovations were imparted through special Expert Lectures from different institutes of repute and through NPTEL.
2. More examples on current issues were practiced by students
3. Practical training at the departments through over the curriculum approach of teaching was adapted.

## [SELF ASSESSMENT REPORT]

### PSOs Attainment Levels and Actions for Improvement (2019-2020)

PSOs	Target Level	Attainment Level	Observations
<b>PSO1: To strength the students' knowledge base with theory and practice in mechanical engineering and prepare then to analyse real life mechanical engineering problems with innovative solutions.</b>			
PSO1	1.9	2.43	<b>Observations</b> Students were lacking in solving real life mechanical engineering problems.
Actions : 1. Students participated in expert talks/seminars on design engineering problems			
<b>PSO2: To impart in depth education and training in mechanical engineering to ensure that the students acquire core competency to become ready for the industry, academic and research organizations.</b>			
PSO2	1.7	3.00	<b>Observations</b> Lack of in depth practical knowledge was observed in some core areas.
Actions : Students were motivated to participate in expert lectures			
<b>PSO3: To provide an excellent environment for the students to inculcate lifelong learning skills along with due integrity and ethics for the benefit of the society.</b>			
PSO3	1.8	2.19	<b>Observations</b> 1. Lack of inter personal skill was observed. 2. Lack of updated technical knowledge
Actions : 1. Various workshop / seminar / training were organized.			

## [SELF ASSESSMENT REPORT]

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<b>CRITERION 9</b>	<b>Student Support Systems</b>	<b>50</b>
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### 9.1. Mentoring system to help at individual level (5)

#### A. Details of the mentoring system that has been developed for the students for various purposes and also state the efficacy of such system

The role of the mentoring system is to nurture and provide support for the students during the transition period in academic, professional as well as personal growth, thus enabling them to deal with the challenges in their life more effectively.

- To bring forth hidden potential of students, thereby improving their overall performance and skills.
- To overcome weaknesses of students.
- To solve various personal and professional issues and problems related to students.
- To provide a platform for students to express their issues freely.
- To form strong relationships/ bonding with student of diverse cultures and backgrounds.

Our department has adopted a mentoring system which takes care of the various issues related to students and enhances their academic performance, develops their personality and helps them to tackle problems in professional and personal life to become a good human being and capable professional. In our mentoring system, HOD keeps a close watch on individual student along with mentors. Department adopts Mentor Teaching Learning system to support weak/slow learner and bright students equally. Mentoring by faculty supports and encourages students to manage their own learning in order that they may maximize their potential, develop skills, improve performance and become the person they want to be. Each mentor is allotted with 20-30 students. To start identifying Slow and Bright learner in this process, the following inputs is needed

- Overall result in preceding examination
- Internal Assessment (Class test/Assignment/Tutorials/Internal Viva/Presentation)
- Class observation by subject teacher

Weak/slow learner students are given counselling for their career guidance. Bright students are encouraged to take up new challenges time to time. The parents are also informed about the progress report like result,

## [SELF ASSESSMENT REPORT]

attendance and performance of the students. The students needing improvement are groomed not only for improving academic performance, but also given opportunity to showcase their skills through events, competitions etc and this helps to improve academic performance also. Mentors meet with the mentees in the weekly meeting and prepare report.



**IES COLLEGE OF TECHNOLOGY BHOPAL**

**DEPARTMENT OF \_\_\_\_\_**

**Academic Year : Semester:**

### STUDENT COUNCELLING RECORD

**Class:**

**Batch:**

**Name of Mentor:**

Sr.No	Roll No.	Name of the Mentee	Date	Time	Issue	Suggestion	Remark



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**IES COLLEGE OF TECHNOLOGY BHOPAL**

DEPARTMENT OF \_\_\_\_\_

**Academic Year :**

**Semester :**

### IMPROVEMENT STATUS OF MENTEES

<b>Class:</b>	<b>Batch:</b>	<b>Name of Mentor:</b>		
<b>Roll No.</b>	<b>Name of the Student</b>	<b>Active Participation in Mentor Program (Yes/No)</b>	<b>Areas of Improvements Seen in Student</b>	<b>Remark</b>

**Figure 9.1 Mentor Formats**

#### **Mentor's Role and Responsibilities:**

1. Mentors serve as positive role model, encourage and motivate students to achieve their target/goal.
2. Motivate and guide students in all academic, co-curricular and in extra-curricular activities.
3. Mentors maintain a mentees record.
4. Collect information regarding weak students from the subject teachers on the basis of their previous results, various other skills, having less attentiveness, etc.
5. The record of counseling and mentoring is maintained in file, which is updated on regular basis.
6. Mentors submit a report to HOD and after approval by the Principal seek/ remedial actions taken for improvement
7. Monitoring student's readiness for personal interview, group discussion, technical and non-technical support (including resume making, dressing sense, skills etc.)
8. Encouraging and motivating the students for attending all the classes, expert lectures and other technical sessions for better performance in examination, contests and placement.

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### **Assistance for weak/slow learner students:**

- Mentors (from time to time) follow their progress and counsel them to attend the classes sincerely.
- Subject handling Faculty members conduct extra or revision classes.
- Faculty members inculcate theoretical concepts through model specimen/charts/ video lectures/ online lectures.
- Remedial classes are also conducted for tough subjects/ tough contents.
- Students are encouraged to participate in other activities like essay writing, English role play model making, anchoring in seminars, functions and in special assembly which is scheduled on every Monday, quiz, poster presentation, inter college competitions, cultural events etc.
- Confidence is boosted by motivating them to participate in sports, NCC, NSS and other activities.
- Slow learners are supported in difficult areas of learning; like encouraging students to sharpen their listening, writing skills and improving communication skills.

### **Encouraging bright students**

- Students are identified and appreciated with certificates.
- Students securing First and Second rank in end semester examination are awarded with certificate of merit.
- Student securing 100% attendances are also awarded by certificate.
- Students are motivated for attending workshops, seminars, and technical contests like Go- kart, Solar Kart Accenture, Hackathon etc.
- Students are encouraged to undergo National level Internships
- Students are encouraged to take charge and supervise competitions and activities like essay writing, English role play, model making, assembly anchoring, quiz, poster presentation, inter and intra college competitions, fashion shows, special assembly etc.

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**Table 9.1: List of Mentors along with the number of students**

S.No	Name of the mentor	No. of student
<b>II year (2020-2021)</b>		
1	Mr. Padmakar Pachorkar	20
2	Mr.Ramesh Bokde	20
3	Mr. Deepan Banoriya	20
4	Mr. Jagdish prasad	20
5	Mr. Nagendra Bharti	22
6	Mr.Pramod Kumar Sharma	21
<b>III year (2020-2021)</b>		
1	Mr. Abhishek Arya	21
2	Mr. Rajan Kumar	21
3	Mr. Chhatar Singh Mewada	21
4	Mr.Rakesh Yadav	21
5	Mr.Yogendra Thakur	21
6	Mr. Surendra Bharti	18
<b>IV year (2020-2021)</b>		
1	Mr.Gaurav Kumar	21
2	Mr.Tushar Bhavsar	21
3	Mr.Prahlad Singh parihar	21
4	Mr. Mahesh Kumar Prajapati	21
5	Mr.Satyanarayan Yadav	21
6	Mr Satendra Kumar Sahu	21

S.No	Name of the mentor	No. of student
<b>II year (2019-2020)</b>		
1	Mr. Ramesh Bokde	21
2	Mr. Naresh Dashore	21
3	Mr. Somendra Vishwakarma	21
4	Mr. Surendra Bharti	21

## [SELF ASSESSMENT REPORT]

5	Mr. O.P.S Rathore	21
6	Mr. Nagendra Bharti	18
<b>III year (2019-20)</b>		
1	Mr. Satyanaryan Yadav	21
2	Mr. Pramod Kumar Sharma	21
3	Dr. Vijay Chouhan	21
4	Ms. Mahesh Kumar Yadav	21
5	Mr. Yogendra Thakur	21
6	Mr. Deepan Banoriya	21

S.No	Name of the mentor	No. of student
<b>II year (2018-2019)</b>		
1	Mr. Yogendra Prasad Shrivastava	21
2	Mr. Naresh Dashore	21
3	Mr. Somendra Vishwakarma	21
4	Mr. Surendra Bharti	21
5	Mr. O.P.S Rathore	21
6	Mr. Tushar Phonekar	21
<b>III year (2018-19)</b>		
1	Mr. Satyanaryan Yadav	22
2	Mr. Mahesh Kumar Prajapati	22
3	Dr. Vijay Chouhan	22
4	Ms. Mahesh Kumar Yadav	22
5	Mr. Yogendra Thakur	22
6	Mr. Deepan Banoriya	21
S.No	Name of the mentor	No. of student

## [SELF ASSESSMENT REPORT]

II year (2017-2018)		
1	Mr. Yogendra Prasad Shrivastava	22
2	Mr. Naresh Dashore	22
3	Mr. Somendra Vishwakarma	22
4	Mr. Surendra Bharti	22
5	Mr. O.P.S Rathore	22
6	Mr. Tushar Phonekar	21
III year (2017-18)		
1	Mr. Satyanaryan Yadav	20
2	Mr. Mahesh Kumar Prajapati	20
3	Dr. Vijay Chouhan	20
4	Ms. Mahesh Kumar Yadav	20
5	Mr. Yogendra Thakur	20
6	Mr. Prahlad Singh Parihar	23

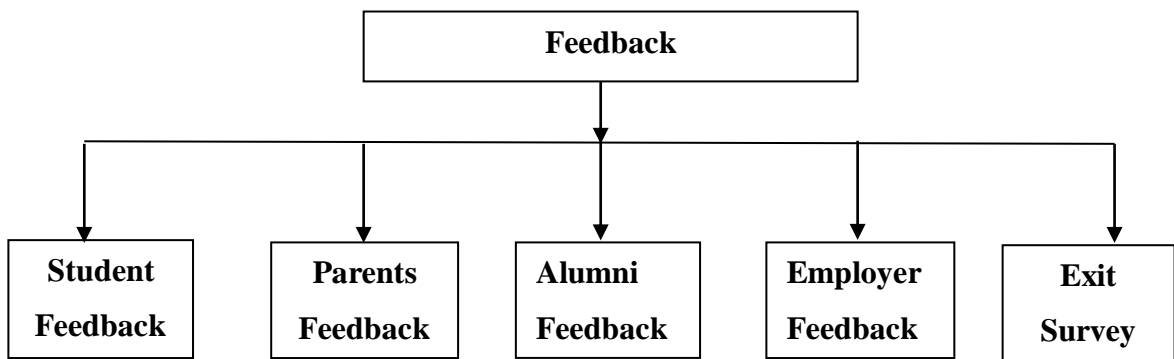
### Impact of Mentor Teaching-Learning system

1. Reduced absenteeism.
2. Improvement in overall performance.
3. Improvement in personality.
4. Increased participation in co curricular activities.
5. Improvement in behaviour and attitudes
6. Improved interpersonal relationship with elders and peers.
7. Becoming conscious and worthy citizen.
8. Improvement in performance of weak students.
9. Improvement in campus selection ratio.
10. Receiving awards and recognition.

**9.2 Feedback analysis, rewards and Corrective Measures taken, if any (10)**

**A. Methodology being followed for analysis of feedback and its effectiveness**

The Department continually seeks to review and improve the quality of its teaching and learning by reviewing the feedback about the courses, programs, teaching-learning processes and facilities from students, parents, alumni, employers and passing out students.



**Fig. 9.1 Feedback system**

**Feedback system is well-established in the learning system with a reason to:**

- Enhance the students learning skills
- Monitor and review the quality and standards
- Ensure the effectiveness of teaching learning method adopted
- Know good practices and its implementation

**The entire process is executed in following three stages**

- Feedback collection
- Feedback analysis
- Reward /corrective measures

**• Feedback Collection Process**

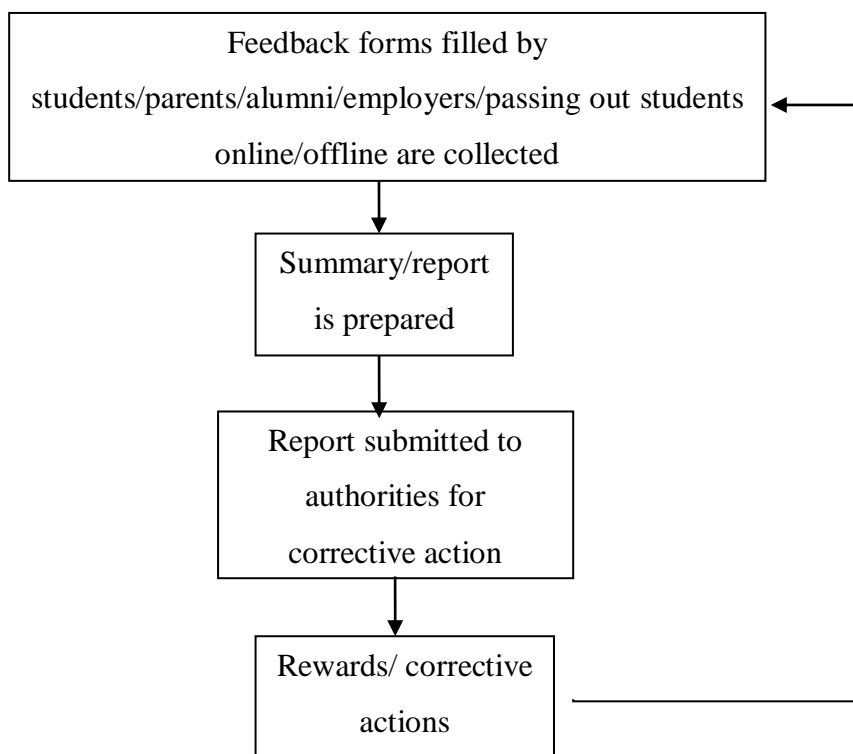
Feedback is collected offline/online mode from the student’s twice in a semester, from the parents, alumni, employers and passing out students once in a year. Feedbacks are taken from the parents in hard copy provided by the Mentor to them through mentees which is further filled by the parents and submitted to the Mentors through students. Feedback from Alumni and employers are collected by TNP cell either during their visits to college or through emails. Exit surveys are

## [SELF ASSESSMENT REPORT]

collected by the Mentors from final year students during final semesters. These feedback collected are then evaluated and assessed for corrective actions on the basis of certain parameters discussed later in this section.

### **Feedback on Teaching-Learning by Students:**

Feedback is taken from students on the effectiveness of teaching and subject learning twice during the semester. Initially, feedback is taken from representative students and selected students those having attendance more than 90 % from each class by HOD/senior faculty member (appointed by Principal) after 15 to 20 days of commencement of classes. If students are facing difficulty in any subject, the concerned faculty member is informed of the same. Necessary guidance and support is given by HOD and another senior subject faculty member. This consists of asking the faculty member to give a mock class in presence of HOD and another senior subject faculty, giving guidelines for improvement, reviewing the lecture notes and offering necessary support in the subject. At the end of the semester the feedback is taken again in offline/online mode from students in that subject for necessary action



**Fig 9.2 Feedback process**

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Sample of student feedback form:



IES COLLEGE OF TECHNOLOGY, BHOPAL

DEPARTMENT OF -----

## Student Feedback Form

Class/Semester----- Session: -----

S No	Question	Subject Code				
1	Course Objective near clear	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
2	Does the teacher have sound knowledge of the subject that he/she teaches?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
3	How simulates the lecture	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Speed delivery	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
5	Does the teacher have a well - prepared lesson plan for every class?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Does the teacher communicate well in the classroom? skill	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
7	Does the teacher develop the creativity of the students?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Temperament of encouraging student in the class while asking question	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
9	Presentation	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
10	Voice Modulation	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
11.	Accessibility of the teacher in and out of the class	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
12	Interest/ Motivation generates by the teacher	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Note: For given response, please cut yes or no which is not applicable.

Signature of the Student



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## Feedback from Alumni:

1. Alumni fill feedback forms whenever they visit the department or the institute.
2. Alumni feedback collected during Alumni meet which held annually in the month of December/January of every year.
3. Feedback received through e-mail or hard copy.
4. Sample of Alumni feedback form is shown below:



## IES COLLEGE OF TECHNOLOGY, BHOPAL

### Alumni feedback form

Dear Alumni,

We are glad that you have successfully graduated from IES College of Technology, Bhopal. You will be pleased to know that the Institute of which you are Alumni has grown to be one of the leading Institutes. We would like to place on record that your co-operation and support as Alumni of this Institute has contributed in deciding Institute Vision & Mission.

We shall be very much appreciate and be thankful if you can spare some of your valuable time to fill up this feedback form and give us suggestions for further improvement of teaching learning process of the Institute.

Name of the Student:

Branch of student:

Contact No:

Address:

Current Employer:

Designation:

Q1. Which type of profession you are following after graduation?

- a) Job
- b) Self Employed
- c) Research
- d) Higher Studies (Mention Higher Studies.....)

Q2. Suggest few technologies to be included as a part of academic curriculum to reduce the gap between institute and industry?

.....

Q3. Are you working/ worked on solution of any real life problem, which is facilitating others in society?

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- a) No
- b) If yes,

Q4. Have you been involved in publishing?

- a) White paper
- b) Research paper in National/ International Journal
- c) Book
- d) Technical Magazines
- e) Patent

Q5. Opinion about Institute's Vision & Mission:

.....

.....

Q 6. Are you associated with any social activity/ association?

- a) No
- b) If yes,

Q 7. Have you undertaken multidisciplinary projects in your professional career?

- a) No
- b) If yes,

Q 8. Mention how you got placement?

- a) On Campus
- b) Off Campus

Q 9. Have you been awarded/ received letter of appreciation at your work place?

- a) No
- b) If yes,

Q10. Which type of responsibilities you have held after graduation?

- a) Managerial
- b) Team Leader
- c) Team Member
- d) Scientists
- e) Others, if any .....

Q 11. Have you Qualified GATE/GRE/NET/GMAT/... etc during your academic tenure at ICOT? If yes, mention details

.....

.....

Q12: Feedback on Facilities

Q13. Suggestions (if any):

## [SELF ASSESSMENT REPORT]

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.....

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Signature of the Student

### Feedback from Parents:

1. Parent feedback form is given before vacation and collected at the time of registration.
2. Feedback is collected in hard- copy provided by the Mentors to the mentees to get it filled by the parents and submit it back to Mentor.
3. Sample of feedback from parents is shown below:



## IES COLLEGE OF TECHNOLOGY, BHOPAL

### Parent feedback form

Name of the Parent:

Name of the Students:

Branch /Semester of student:

Contact No:

Year of Admission:

Year of Graduation:

Address:

You are here by informed to give your healthy comment for the following

S.No.	Parameters	Excellent (4)	Very Good (3)	Good (2)	Satisfactory (1)
1.	How do you rate the quality of academic resource (such as teaching faculty, course material etc)				
2.	Any other suggestions for improving the Institute as a Institute of excellence.				
3.	Did your son/daughter got encouragement for participation in various co-curricular activities				
4.	Do you recommend IES as a Institute of your choice for admission to you siblings, friends, relatives etc.				
5.	Overall infrastructure of the Institute				

## [SELF ASSESSMENT REPORT]

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6.	How do you feel about infrastructural facilities such as library, laboratories, workshop, canteen, and other campus facilities				
7.	How do you rate the overall personality development of your son/daughter during their 4 years of stay in the institute				
8.	Your reaction about placement activities conducted.				
9.	Encouragement towards extracurricular activities (sports etc)				
10	Opinion about Institute's Vision & Mission				

**Signature of the Parent**

### **From Industry/Employers:**

1. During on campus placements drive from the Industry.
2. From industry where IES alumni is/are working.
3. From IES alumnus who have turned entrepreneurs.
4. From industry during academic alliance meets.
5. From industry and academic expert during seminar, workshop organized by institute.
6. Sample of feedback from employer is shown below:



**IES COLLEGE OF TECHNOLOGY, BHOPAL (0177)**

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### **Employer feedback form**

Dear Employer,

Many graduates of our Institute are working in various esteemed organizations. We are thankful to you for providing them employment with your prestigious Company/Organization. We shall very much appreciate and be grateful to you if you can spare some of your valuable time to fill up

## [SELF ASSESSMENT REPORT]

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this feedback form. It will help us to decide college Vision & Mission and give you better employees in future.

**Tick mark the number that best describes your level of satisfaction at each question: 1 - far from satisfied, 2 - not satisfied, 3 - satisfied, 4 - happy, 5 - very happy.**

Name of the Industry:

Email:

Address of the Organization:

Contact No:

Name of the evaluating person with Designation:

<b>How satisfied are you with the employee working in your organization / Industry, graduated from IES College of Technology</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1. <b>Technical knowledge/skill</b>					
2. <b>Developing practical solutions to work place problems</b>					
3. <b>Creative in response to workplace challenges</b>					
4. <b>Innovativeness, creativity</b>					
5. <b>Ability to contribute to the goal of the organization</b>					
6. <b>Involvement in social activities</b>					
7. <b>Ability to contribute in sustainable solutions</b>					
8. <b>Ability to manage professional skills</b>					
9. <b>Working as part of a team</b>					
10. <b>General communication skills</b>					
11. <b>Their planning and organization skills</b>					
12. <b>Self-motivated and taking on appropriate level of responsibility</b>					

**On a scale of 1 to 10 how do you rate your overall satisfaction with the outcome based teaching learning process of the student graduated from IES College of Technology, Bhopal.**

1	2	3	4	5	6	7	8	9	10

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How could our programs be improved? What specific comments do you have regarding the curriculum?

Any other comment(s):

Would you like to recruit more IES College students?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Would you refer us to other organization(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Q13. Opinion about Institute's Vision & Mission:

.....  
.....  
.....

Q 14. Suggestions (if any):

.....  
.....  
.....

**Date**

**Signature of the Employer**

### **Feedback in the form of Exit Survey:**

Feedback from the passing out students is filled in the final semester by Mentors in the form of Exit Survey. The report is submitted to the Head of the Department for necessary action.

# [SELF ASSESSMENT REPORT]



## IES COLLEGE OF TECHNOLOGY, BHOPAL Course End Feedback Form/ Course end survey

Branch:

Session:

Batch:

Enrolment Number:

Name of Student:

S. N.	Question	Need Improvement <=6	Level 1 (Satisfactory) <=7	Level 2 (Good) <= 8	Level 3 (Excellent) <=10
1.	Have all units of the syllabus suggested by university been covered properly?				
2.	Have you conducted all laboratory experiments up to your satisfaction?				
3.	Have the curriculum gaps if any were covered by the teacher properly?				
4.	Have all of your queries been answered by the teacher.				
5.	Have you been able to grasp the fundamentals of the course taught? (PO1)				
6.	To what level you think this course has enhanced your analytical abilities? (PO2)				
7.	To what extent this course has enriched your ability to design integrated solutions of complex engineering problems considering safety, societal, and environmental issues etc? (PO3)				
8.	To what extent this course has enriched your ability to conduct investigations, draw conclusion and present them for complex problems? (PO4)				
9.	How this course delivery has enriched your ability to use modern tools and practices for complex engineering activities? (PO5)				
10.	How this course delivery has enriched your ability to apply basic engineering reasoning to analyze societal issues like health, safety, legal and cultural and suggest a solution? (PO6)				
11.	How this course delivery has enriched your ability to analyze impact of suggested engineering solutions in societal and environmental contexts for sustainable				

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	development? ( PO7)				
12.	How this course delivery has enriched your sensibility to apply professional ethics and norms.(PO8)				
13.	After this course delivery have you learned to work as a leader or member in a team? ( PO 9)				
14.	To what extent this course has enriched your ability to communicate about, comprehend and write effective reports? (PO10)				
15.	To what extent this course has enriched your ability to manage engineering projects in multidisciplinary environments as a leader or member in a team? (PO11)				
16.	To what extent this course motivates you towards life-long learning to cope up with technological changes? (PO12)				

### Feedback Analysis Process:

Report of the feedback related to course, program and teaching- learning and facilities is prepared according to different metrics. The feedback is shared with the authorities like student feedback, parents, alumni and exit survey report is shared by the Mentors with the HODs while the employer's feedback report is shared to the principal. Apart from these, informal feedbacks are also taken directly by the heads and Principal from time to time during the ongoing semester. A special emphasis is paid on transparency and impact of the feedback system.

Various parameters that are used for collecting the feedback data is as given below.

- Coverage of syllabus
- Lectures are interesting and informative
- Promptness in Evaluation of Tests, Assignments and Quizzes
- Punctuality of the faculty
- Recap of last lecture, assignments, quizzes, projects, discussion, case studies etc.
- Faculty takes initiative to answer the questions/queries asked by students
- Teacher encourages students to think independently
- Teacher gives real time examples and uses videos, visual labs or other ICT tools
- Teacher is approachable to students for Academic/ personal advice
- Teacher is enthusiastic about teaching



## [SELF ASSESSMENT REPORT]

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- Teacher provides course and lecture outline at the semester beginning
- Teacher suggests web-links related to the topics taught
- Teacher takes revision classes to ensure learning
- The course materials are helpful in learning the course
- Other facilities

### **B. Record of Rewards/Corrective Measures**

The concerned faculty or team makes the report of the feedback. The feedback report is shared with the department Head. Department Head share report with the individual faculty member, Principal, IQAC and Chairperson as per requirement.

Based on the reports the faculty members are informed about their performance. The faculty members who perform well are appreciated and awarded along with the monetary benefit of increment/ certificates of appreciations in recognition of their commendable efforts for:

- Quality lecture notes, instructional material etc.
- Innovations in teaching and learning methods
- Mentoring work done by faculty
- Work done in academics, research and patenting
- Result of the faculty
- Other contribution in the department or other co-curricular activities

**Necessary corrective actions are taken for the faculty members who perform not well as per the department/ college standards, as given below:**

- As per feedback, Head of the department advise the faculty about handling and monitoring the class
- Improvement required in teaching and learning method of some faculties, HOD counsels the concerned faculties.
- Improvement required in facilities as feedback given by students, parents, aluminize and employers. Appropriate corrective actions taken according to feedback.
- Improvement required in academic performance of the weak/slow learner students. Corrective actions were taken for the improvement of academic performance of students.
- Encouraging faculty members to attend more Faculty Development Programs, Conference, Seminars etc.
- In extreme cases, where the faculty member is unable to improve up to the minimum desired standard, action is taken accordingly.

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- The feedback is considered part of Annual Performance Appraisal of the faculty member.
- Faculty members will be rewarded by motivating them in weekly meetings or issuing Certificate of Appreciation for each course.

### 9.3 Feedback on Facilities (5)

Institute takes feedback on facilities from the students, parents, alumni and passing out students in the feedback forms. Apart from these department use departmental complaint registers also to be filled by the students, faculties etc. for the feedback. These facilities include library, training & placement, transportation, hostel, laboratories, medical facility and other general facilities etc. on Excellent, Good, Average basis. The evaluation process on facility feedback shall also be automated, then the corrective actions are taken by institute for the improvement.

1. Facility feedback taken through feedback form in online/offline mode from all the stake holders such as the employers, alumni, parents and students which the Program Objectives have been achieved.
2. Feedback on facility taken through departmental complaint registers by the students, faculties, parents and aluminiise.

**Table: 9.2 List of facilities at departmental/institute level for support of the students**

S.No	Facility	Remarks
1.	Mentors facility	Mentor has been allotted to a group of students.
2.	Support provided to students from SC/ST, OBC and economically weaker sections	Help to acquire scholarship from central and/ or state government of India.
3.	Students with physical disabilities	Provide facility of the wheel chair, college van, ramp and hand bar in toilet etc.
4.	Students to participate in various competitions at National/International level	Relaxation in the attendance given those students which are participating in the different competitions.
5.	Medical assistance to students	<ul style="list-style-type: none"><li>• Facility of Medical room, Nurse Facility, doctor visits as per need.</li><li>• Availability of Ambulance in the campus and Tie-up with hospital (Sharda Hospital, Kotra, Bhopal)</li></ul>
6.	Organizing additional classes for professional improvement of students	<ul style="list-style-type: none"><li>• The additional classes are regularly conducted by Training &amp; Placement Cell for the campus Placement.</li><li>• Study material providing towards students, whenever is required.</li></ul>

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7.	Support for “slow learners”	<ul style="list-style-type: none"> <li>• Remedial classes for slow learners.</li> <li>• Mentoring facility is providing.</li> </ul>
8.	Support for “Bright learners”	<ul style="list-style-type: none"> <li>• To organised expert lectures.</li> <li>• To provide study material.</li> <li>• To organised trainings, seminars and industrial visits.</li> </ul>
9.	Skill development (spoken English, computer literacy, etc.,)	<ul style="list-style-type: none"> <li>• Spoken English classes offered to the students for improvement in the communication skill.</li> <li>• For improvement of technical skill, offering the various online courses such as NPTEL, SWAYAM, IIT Bombay remote centre and value-added courses such as Soldi Works, ANSYS, CATIA, NX etc.</li> </ul>
10	Exposure of students to other institution for higher learning and internship	<ul style="list-style-type: none"> <li>• Industrial training provided to the sixth semester students.</li> <li>• Interaction with the corporate world by interaction with guest lecturers from reputed institutions and industries.</li> <li>• Different training programs organised in the various reputed institutions.</li> </ul>
11	Anti-Ragging Committee	<p>The committee is constituted to handle to ensure a ragging free environment in and outside the campus and address ragging related issues if any. It performs following roles and responsibilities:</p> <ul style="list-style-type: none"> <li>• To create the awareness about Anti Ragging act and punishments among the students and the appropriate law in force.</li> <li>• To create the awareness about Ragging constitutes (AICTE/UGC Regulation as per the directive of the Supreme Court Ragging CLAUSE 3).</li> <li>• To prohibit, prevent and eliminate the source of ragging including any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student.</li> <li>• To prohibit undisciplined activities by any student or students this causes or is likely to cause hardship or psychological harm or to raise fear in any fresher.</li> </ul>
12	Library Facility	Central and Departmental libraries provides on line and offline access to a large number of full text journals, books, databases from various publishers and e-journals.
13	Transportation Facility	The Institute self reliance in providing transport facility to the students. IES Provides bus transportation for major

## [SELF ASSESSMENT REPORT]

		locations of town and campus. We have made arrangements for College buses for students as well as staff. This makes them free from mental tension of driving or taking public transport system, to come to the college and go back, so that they can fully concentrate on their studies.
14	Mess and Canteen Facility	Canteen is a place where everyone i.e. students, teachers and other staff members can relax in a comfortable atmosphere. The college canteen is much more than merely an eating place. There is an attractive well equipped canteen on the South-eastern corner of the campus. The canteen provides healthy, tasty eatables fruit juices, hot and cold beverages to the students and faculties at subsidised rates.
15	Hostel Facility	The institute believes that hostels help to develop group dynamics amongst student and widen their socio-cultural horizon as well. Keeping this in mind, we have made provision for excellent hostel facilities for students. The institution provides excellent play fields, gymnasium and cultural hall for extracurricular activities for the development of the student's personality. <ol style="list-style-type: none"> <li>1. In-House Pantry/Dining Halls.</li> <li>2. Supervised with residential warden.</li> <li>3. Recreational and Entertainment facilities.</li> <li>4. Medical Aid.</li> <li>5. Round the clock security.</li> </ol>
16	Green Campus	To aid institute in terms of sustainability, to give clean and Green Campus, various activities are conducted with an inclusive strategy to contribute towards betterment of society by aligning itself with National initiatives like Swachh Bharat, Solar Plant, and Plantation of trees, Waste management, water conservation, resource efficiency, and Green belt development.
17	Wi-Fi Campus	Apart from computer laboratory with internet facility, the Wi-Fi for providing continuous and uninterrupted internet connectivity to students and faculty members is available in the campus.
18	Open Auditorium and Conference Room	<ol style="list-style-type: none"> <li>1. Institute provides Auditorium hall of 400 seating capacity &amp; an open air theatre for the departmental activities.</li> <li>2. The conference/Seminar hall is available for organising expert lectures &amp; other programmes.</li> <li>3. A well furnished fully Air-conditioned meeting room with equipped available for conducting of mock test, GD, industrial instruction and other T&amp;P activities for</li> </ol>

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		students.
19	NPTEL Local Chapter and IIT Bombay remote centre (RC ID 1200)	<p>1. The NPTEL local chapter is available to help the engineering and core science courses. Additional web and video courses are created in all major branches of engineering/physical sciences at the undergraduate and postgraduate levels and management courses at the postgraduate level.</p> <p>2. IIT Bombay remote centre offer workshops which are delivered by IIT faculty members. Video streamed workshops are well complimented by practical open discussion hands-on-sessions (both Tutorials and Labs) for students and faculties.</p>
20	Women's Grievance Cell	<p>It helps women to gain control over their own lives and gives the ability to make strategic choices of life. This cell is constituted to create a harmonious environment and enable women to discharge their responsibilities at workplace with dignity. The functioning of following cell is given below:</p> <ol style="list-style-type: none"> <li>1. Create social awareness about gender discrimination.</li> <li>2. Motivate and improve confidence level amongst women staff members</li> <li>3. Organize workshops and seminars for women development.</li> <li>4. To promote personality development, leadership quality and role of women in the society.</li> </ol>
21	Research and development cell	Institute has promoted meaningful research and development activities; it is acting as the nodal centre for all research related activities.
22	Entrepreneurship cell (EC)	The responsibility of EC is to encourage, inspire and nurture young students by supporting them to work with new ideas and innovation while they are in formative years. This cell is also highlight innovative projects carried out by institution's faculty and students.
23	Housekeeping & maintenance	Housekeeping managers and staffs are there for housekeeping and maintenance
24	Drinking water facilities & their maintenance	Proper drinking facilities are provided in the department

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**Fig. 3 Library facilities and inauguration of Solar power plant**

### A. Feedback collection, analysis and corrective actions

**Table 9.3: Feedback collection, analysis and corrective actions**

S.No.	Detail of facility	Feedback parameters	Evaluation Process	Correction Action Taken
1	Hostel	<ol style="list-style-type: none"> <li>1. Entry in the register</li> <li>2. Discussion with warden</li> <li>3. Written application</li> </ol>	Evaluation by students. 1- Unsatisfactory 2- satisfactory 3- Excellent	<ol style="list-style-type: none"> <li>1. Entry/Exit Timing are fixed but on demand as per permission is provided.</li> <li>2. Maintenance Entry in register and corrective action will take.</li> <li>3. Medical facility is provided.</li> </ol>
2	Lab Maintenance	<ol style="list-style-type: none"> <li>1. Lab records</li> <li>2. safety guidelines and instructions</li> <li>3. sign the manual /rough record</li> <li>4. Cleaning and repairing of equipments</li> </ol>	Evaluation by faculty and students. 1- Unsatisfactory 2- satisfactory 3- Excellent	<ol style="list-style-type: none"> <li>1. Visited by the team of Sciencetech Technologies for maintenance.</li> <li>2. It is checked before being put back to use.</li> <li>3. Proper cleaning of equipments has been done two times in a week.</li> </ol>

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3	Transportation	<ol style="list-style-type: none"> <li>1. Written application</li> <li>2. Meeting with Bus In charge.</li> <li>3. Committee for monitoring discipline and ragging in buses</li> </ol>	<p>Evaluation by faculty and students.</p> <ol style="list-style-type: none"> <li>1-Unsatisfactory</li> <li>2- satisfactory</li> <li>3- Excellent</li> </ol>	<ol style="list-style-type: none"> <li>1. Recorded with bus in charge and appropriate action is Taken.</li> <li>2. Collect the report from committee and corrective actions is taken.</li> </ol>
4	Library	<ol style="list-style-type: none"> <li>1. Time Management</li> <li>2. Manage Entry register</li> <li>3. Departmental feedback</li> </ol>	<p>Evaluation by departmental faculty and students.</p> <ol style="list-style-type: none"> <li>1-Unsatisfactory</li> <li>2- satisfactory</li> <li>3- Excellent</li> </ol>	<ol style="list-style-type: none"> <li>1. Appropriate action taken by Library in-charge.</li> <li>2. Schedule of library is incorporated with departmental time table.</li> </ol>
5	Sports	<ol style="list-style-type: none"> <li>1. Assigned co-ordinators</li> <li>2. Requirements of kits</li> <li>3. Sports in charge</li> </ol>	<p>Evaluation by students and management.</p> <ol style="list-style-type: none"> <li>1-Unsatisfactory</li> <li>2- satisfactory</li> <li>3- Excellent</li> </ol>	<ol style="list-style-type: none"> <li>1. Sports in charge takes appropriation decision</li> <li>2. Repairing and replacements of kits</li> </ol>
6	Medical assistance	<ol style="list-style-type: none"> <li>1. Maintain files</li> <li>2. Appoint CAO</li> <li>3. Tie-up with hospital</li> </ol>	<p>Evaluation by management.</p> <ol style="list-style-type: none"> <li>1-Unsatisfactory</li> <li>2- Satisfactory</li> <li>3- Excellent</li> </ol>	<ol style="list-style-type: none"> <li>1. Medical OPD First aid Box</li> <li>2. CAO is responsible</li> </ol>

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7	Mess and Canteen	1. Quality of food 2. Discipline 3. Cleaning and maintenance	Evaluation by students and faculty. 1- Unsatisfactory 2- Satisfactory 3- Excellent	1. Food quality checked by faculty and management 2. Monitoring of students 3. Feedback on maintenance and cleaning
8	Security Service	1. Meetings 2. Monitoring and controlling	Evaluation by management. 1- Unsatisfactory 2- Satisfactory 3- Excellent	Correct identified security deficiencies and action taken.

### 9.4 Self Learning(5)

Self-learning is encouraged in the department by implementing self-learning facilities and environments for students. Students are encouraged for self-learning by personal counselling and mentoring.

#### A. Scope for Self Learning

**The following methods are used for self learning:**

- Web based learning (teaching-learning course online NPTEL, SWAYAM, Webinars etc.)
- Central Library, Departmental library and Digital Library
- Learning through projects, internships, summer trainings etc.
- Assignments
- Professional bodies
- Club activities (cultural, sports, tech-fest etc. clubs)
- Virtual labs
- e-books and journals
- Open access software's
- Special assembly

**Table 9.4: Following are the various modes of self-learning and facilities created in the department.**

S.No	Self Learning Sources	Tools / Support
1	e-Books & digital books	Central and departmental Library, Internet



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2	Books, magazines, journals, newspaper clippings	Central and departmental Library
3	Online Courses	NPTEL/ SWAYAM etc./uploaded lectures material  1. Swayam- <a href="https://swayam.gov.in/">https://swayam.gov.in/</a> 2. NPTEL- List of Websites which offers online certification courses. <a href="https://onlinecourses.nptel.ac.in/">https://onlinecourses.nptel.ac.in/</a>
4	Lectures, instructional materials by faculties	Online through links on websites, Google classrooms
5	Activities through professional bodies	Students are encouraged to become members of professional bodies like ISTE, IEEE, CSI etc. for the career enhancement and self learning.
6	Club Activities	Various students club activities are organized to enhance team work and inter-personal skills like sports, cultural, literary, tech-fest etc.
7	Assignments	It enables students to go through the topics in a more elaborate manner in order to explore the academic topic and enhances higher order thinking.
8	Internship, summer trainings, webinar and projects	Internships, summer trainings Project Based Learning offered to the students to enhance the real-time knowledge and exposure of the students.

### 1. Internship, summer trainings, webinar and projects

Webinars are designed as a flexible framework within which talent, innovation and growth would be nurtured rather than constrained by a rigid one-size-fits-all solution. Opportunities are provided to keep promising engineering interns on track academically, such as “curriculum adjustment” which increases their general employability upon graduation. To ensure a successful internship experience, a small team supports its multiple aspects. This provides checks, balances, and a rich complex of relevant experiences to benefit the intern.

### 2. NPTEL materials

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National Programme on Technology Enhanced Learning (NPTEL) is created to provide quality education at campus to anyone interested in learning from the IITs. Students are encouraged to register for various NPTEL courses and clear exams. In the month of every January and July, courses are offered online, free of cost for the students and faculties.

3. **Virtual Labs** are intended to augment the learning of subjects and labs through performing experiments virtually. Virtual labs are included in various courses in the department for better understanding of topics.

4. **Open source software** is software in which the source code used to create the program is freely available for the students to view, edit, and redistribute. They are easily accessible in labs for the students.

**Table 9.5: Students completed NPTEL Certification**

S.No	Students Name	Course Name
01	UTKARSH SHRIVASTAVA	Inspection and quality control in manufacturing

### **B. Institutional level facilities for improvement of learning skills of the students**

1. **Newspaper of regional languages:** The newspaper clippings are provided to the students for improving communication skill and general awareness.

2. **'Book bank' in library:** Apart from central library department has its own library. Institute provide Book Bank facility for the students, which is very helpful in fulfilling student requirements for prescribed books on semester basis. Book Bank functions as one section of the library.

#### **Distribution of books and magazines:**

- Book bank facilities are available for students
- E-book facility is also available in the departmental digital library.
- Technical magazines are also available in the library.

3. **E-notes for all subjects:** e-notes are provided regularly by faculties to supplement teaching-learning process.

4. **Access to Journals:** Students can also access the online free journals and get beneficial for publication of research papers and projects. They can access the IEEE digital library in the departmental computer Lab.

### **9.5 Carrier Guidance, Training and Placement (10)**

Institute has Placement & Training Cell for career counseling and higher learning in Engineering & Technology fields. It has been set up for conducting value added training programs and enhances employability of students. The cell has been set up in the institute to give training and guidance to students on career related matters and assist them in exploring new opportunities. The student's abilities are evaluated individually and are advised the way forward accordingly. The cell organises training sessions that prepares the students to compete with the challenges in the industry. Career counselling programs are undertaken periodically by the placement cell to guide the students. Interactive sessions by the eminent persons with rich industry experience in respective fields are conducted regularly.

#### **A. Availability of career guidance facilities**

1. Prepare the students for placement and organize pre-placement training for them as well as guide for higher education.
2. Organize seminar for students to provide information about Career/Education related opportunities (current trends of industries, emerging areas, scholarship for higher studies India or abroad).
3. Help in building the self confidence of students and develop aptitude solving ability.
4. Help to the students in career selection.
5. Conduct motivational address time to time for students and faculty those who are involved with students for the purpose of guiding.
6. Online tests of students and on the basis of their results guide them for corrective measure.
7. The necessary infrastructure provided is given below:

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**Table 9.6: Infrastructure facilities**

S.No	Facilities
1	Training and placement cell office
2	Auditorium
3	Seminar hall
4	Rooms for Group discussions
5	Interview rooms
6	Computer labs for online tests

**Table 9.7: Events for Career Guidance of students:**

S. no	Date	Name of Activity	Event detail/speaker	No. of students	Mapping
1.	27/03/2021	Homogeneous Charge Compression Ignition (HCCI) Combustion Engines.	Mr. Praveen Kumar Singh ME Department, Barkatullah University, Bhopal	40	PO1, PO6, PO7, PO12
2	23/01/2021	Effective ways of writing Research Articles Live National Webinar	Dr. Mukta Martolia Assistant Professor School of Media, Film & Entertainment Sharda University	45	PO8, PO10,PO12,PSO1,PSO2
3	03/07 2020	Scenario of Education Sector in Post Covid Era - Challenges and Opportunities	Mr. Ashish Gakrey (Founder, HR Shapers)	60	PO8,PO10,PO11,PO12,PSO1,PSO2,PSO3
4	08/072020	“Emerging Trends in Automotive Industry - Digital Age”	Dr. Omkar Rai, DG STPI new Delhi	50	PO8,PO7, PO6, PSO1,PSO2,PSO3
5	08/11/ 2020	Organization Readiness to Reskills and Upskills Campus Talent	Shri Pranab Jyoti Chetia, Director, HR, Asia Pacific Region, Volvo Group Trucks Operations, Service Market Logistics	40	PO8, PO11,PO12,PSO1,PSO2,PSO3
6	07/11/2020	Preparation For Service Selection Board Interview And Tips	Mr. Ashish Gakrey, Founder, HR Shapers	50	PO8, PO7, PO6,
7	11/02/2019	Monday Special Assembly	Youth Parliament	52	PO7, PO11
8	18/02/2019	Monday Special Assembly	Incredible India	46	PO12

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9	25/02/2019	Monday Special Assembly	Surgical Strike	43	PO6, PO11
10	12/03/2018	Special Assembly	About mobile addiction, Student-speak	45	PO7, PO12
11	04/05/2019	Motivational Program	Mr. Rajeev Agrawal	65	PO7, PO12
12	16/02/2019	Expert Lecture on Start-ups	Prof. Thillai Ranjan, IIT Madras	78	PO7, PO12
13	21/04/2018 to 22/04/2018	Bhopal Smart City Hackathon	NA	34	PO1, PO5, PO7
14	27/02/2018	BMA Student Chapter	Shree Pradeep Karambelkar, MD, Vision Advisory Services Pvt. Ltd, Bhopal	40	PO6, PO7, PO12

### **B. Counselling for the higher studies**

The training and placement cell also does counselling of the students for the professional goals, selection of career and higher education. It also provides study material for preparation of GATE, GMAT, CAT, GRE etc if required. The cell motivates and guides the students for the higher studies as per their area of interest, and also arranges the in house training classes on aptitude, general knowledge, technical subjects and others. The cell organises interactions to various Gate/ GRE/ GMAT etc. ranked holders through Expert lectures for the students. It also organise coaching classes in the institute for various competitive exams like GATE, CAT etc.

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**C. Pre-placement Training:** Training and placement cell organises in-house training classes, conduct various contest and interactive sessions on pre-placement training from outside trainers. The cell conducts the training classes on communication skill, aptitude and reasoning, technical subjects, programming languages and others. It include following activities:

**Table 9.8: Activity list of T&P Cell**

Activity list of T&P Cell 2020-2021							
S.no	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
01	08/07/2020	Emerging Trends in Automotive Industry - Digital Age	Ms. Preeti Sakhre	HR Professional, Pune	2020	1 Day	PO1, PO2, PO7, PO8, PO12
02	03/07/2020	Scenario of Education Sector in Post Covid Era - Challenges and Opportunities	Shri Krishna Agnihotri,	Senior HR Manager, TCS, UK	2020	1 Day	PO6, PO7

Activity list of T&P Cell 2019-2020							
S.no	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
04	21-01 to 22-01-2020	Industry 4.0 future skills	Mr. Rajeev Kumar, Member secretary, AICTE India	TEQIP-3 RGPV	2020	2 Day	PO2, PO6, PO11, PO12
06	15-01- 2020	KPIT SPARKLE-2020	NA	KPIT SPARKLE	2020	NA	PO1, PO2, PO7, PO12

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Activity list of T&P Cell 2018-2019							
S.N	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
1	28-04-2018	TCS-Enginx	NA	TCS	2018	1 Day	PO2, PO3, PO12
2	12-01-2018	Capgemini Tech-Challenge: Coding contest and Technical aptitude	NA	Capgemini	2018	1 Day	PO7, PO9
3	15-12-2018	Atos IT Challenge	NA	Atos IT	2018	1 Day	PO1, PO2, PO9
4	26-03-2018	Google crowd-source campaign	NA	Google	2018	1 Day	PO1, PO2, PO11
5	27-01 to 28-01-2018	E-Summit: Azenith of Innovation	NA	NSTEDB, DST India	2018	2 Days	PO2, PO7, PO11
6	23-02 to 26-02-2018	TRYST: Ethical Hacking	NA	IIT Delhi	2018	4 Days	PO1, PO2, PO12

Activity list of T&P Cell 2017-2018							
S.N	Date	Name of Activity	Resource Person	Designation	Company/Designation	Remarks	Mapping
1	03-10 to 04-10-2017	Capgemini Tech-Challenge	-	Manager, Capgemini	Capgemini	2 Days	PO1, PO7, PO9
2	03-10 to 06-10-2017	Accenture Innovation Challenge	-	Manager, Accenture	Accenture	4 Days	PO1, PO2, PO7

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3	23-01 to 18-02-2018	College to Corporate Program	Dr. Deepak B. Phatak	Professor, IIT Bombay	IIT Bombay	27 Days	PO3, PO5, PO7
4	12-01-2018	Capgemini Tech-Challenge	-	Manager, Capgemini	Capgemini	1 Day	PO2, PO6, PO12
5	30-08-2017	KPIT Sparkle	-	NA	KPIT Technologies	1 Day	PO2, PO7, PO12
6	2017	TESTimony Contest	-	TCS Company	TCS Company	1 Day	PO1, PO2, PO7, PO12

**Table 9.9 Achievements:**

National Level Competition						
COMPANY NAME	CONTEST NAME	VENUE	PARTICIPANTS DETAILS	BRANCH/BATCH	PROJECT NAME	RESULT
Koshi Motors & Fabrication Pvt. Ltd	International F-9 Go-Karting Championship 2018	Bhopal	PANKAJ KUMAR SAH	ME-2018	GO-KART	certificate
			AZAHRUDDIN KHAN			
			MRITYUNJAY KUMAR			
			NAGESH KUMAR PANDEY			
Imperial Society of Innovative Engineers	Electric Solar Vehicle Championship -2017	Shri Vishnu Engineering College for Women, Bhimavaram (AP)	BADAL KUMAR	ME-2015	Solar Kart	certificate
			ARMAN ALI			

### D. Placement Process and support

The training and placement cell is established, it is responsible for campus placement (including off campus). This cell provides various training of students which can improve technical, aptitude, communication, and personality development skills. It also provides the infra-structural



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facility to conduct group discussion, mock test, online/offline tests, and interviews besides catering to other logistics.

1. The institute interacts with beneficiaries through Career guidance cell, Academic council and Industry- Institute Partnership Cell.
2. The Training and Placement Cell maintains professional relations with the representatives of industry.
3. It assists development of graduates with balanced set of communication, technical and interpersonal skills with positive attitude towards life.
4. HR managers of various companies are invited to the college campus to interact with the students.
5. Institute also has various student Clubs which are a group of students with a similar interest/talents for a technical innovation, social, literary, or other common purpose. Students have the opportunity to choose join these groups for: pursuit of individual interests, career networking opportunities, leadership skills development and social networking.
6. The cells invites companies for campus interviews and provides them necessary facilities for conducting written test, Group discussion, Technical and HR interview etc. as well as arrange industrial visit and training for final year and pre-final year students.

### **9.6 Entrepreneurship Cell**

This cell is launched with a view to encourage students to consider self employment as a career option, provide training in Entrepreneurship through modular courses and increase the relevance of Management particularly in the non-corporate and under managed sectors.

#### **A. Entrepreneurship initiatives**

Institute has a cell which improves entrepreneurship development skills in the students by doing activities as seminar, workshops and awareness camps.

The entrepreneurship cell has following roles & responsibilities:

- To nurture the student ideas and to develop innovative products.
- To support the student projects with funding.
- To establish & maintain incubation centre.
- To create entrepreneurs echo system for students.
- To maintain data relevant to entrepreneurship program.

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The ED cell include the training modules are developed to describe employer requirements, behaviour and environment of different industries. This module covers the following skills:

1. Leadership Skills
2. Business Development skills
3. Marketing skills
4. Managerial skills
5. Communication /Soft skills
6. Team- building skills.

**Table 9.10: Events organized under Entrepreneurship Development Cell**

S. No.	Day/Date	Programme	Sponsored by	Mapping
1	(1 Day) 23/01/2021	Orientation session For Students and Faculty members by Innovation Ambassador	Ankit Chourasia Workshop/Studio Assistant School	PO6,PO7,PO8,PO11,PO12
2	(1 Day) 08/01/2021	Entrepreneurship Activity: fund Supports Available for Incubates	Shri Kishor Kumar Tolani Financial	PO6,PO7,PO8,PO11,PO12
3	(1 Day) 31/12/2020	Green Communication	Dr. Abhishek Bhatt COEP Pune	PO1,PO2,PO6,PO7,PO12
4	3 Days (02-03 to 04-03-2020)	EAC Program on Innovative Business Model	NSTEDB	PO1, PO6, PO12
5	3 Days (29-01 to 31-01-2020)	EAC Program	DST-NIMAT	PO6, PO7, PO12
6	1 Day (17-12-2019)	AIDS Awareness program	NA	PO1, PO11
7	2 Weeks (18-11 to 30-11-2019)	FDP on Entrepreneurship Program	NSTEDB	PO1, PO6, PO8, PO12
8	3 Days (11-03 to 13-03-2019)	Entrepreneurship Awareness Camp	NSTEDB, DST GOI	PO6, PO7, PO9, PO11
9	1 Day (16-02-2019)	Session on Entrepreneurship and startups By Thillai Rajan, IIT Madras	Self	PO1, PO8, PO12
10	3 Days (27-09 to 29-09-2018)	EAC Program	NSTEDB	PO6, PO12
11	3 Days (13-03 to 15-03-2018)	EAC Program	NSTEDB	PO7, PO11
12	3 Days (26-01 to 28-01-2018)	E-summit IIT Bombay	e-Cell IIT Bombay	PO8, PO 12

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13	3 Days (11-01 to 13-01-2018)	EAC Program	NSTEDB	PO1, PO6, PO8, PO12
14	1 Day ( 20-06-2017)	National convention on Entrepreneurship	Bhopal smart city corporation	PO1, PO5, PO7, PO9



**Fig.5 Entrepreneurship Awareness camp**

### **9.7 Co-Curricular and Extra-Curricular Activities**

Institute has always been playing a leading role in co-curricular and extra-curricular activities in multiple directions, such as social services including rural development and up-liftment, extension of literacy and issues related to national and international importance, games and sports, blood donations, promotion of cultural activities, arts and science, welfare and promotional activities related to different classes of society.

#### **A. Availability of sports and cultural facilities**

Extracurricular activities form a vital part of experience in institute, creating unique opportunities for students. They get plenty of platforms for representing the college and to develop sporting skills. As an integral part of the curriculum there is a balanced Scheme of Physical Education which teaches skills, develops overall fitness and complements the games programme. College aims to help students to understand benefits and enjoy regular Yoga, Kho-kho, and exercise to get confidence in team and individual sport. The playing fields for basketball, football, cricket or athletics are used according to the season.



**Fig. 6 Sports Facilities at IES campus**

### **Sports Facility:**

To ensure Physical fitness of students sports facilities have been created within the campus which comprises of indoor and outdoor games as detailed below in tabular form, as an integral part of the curriculum there is a balanced Scheme of Physical Education that teaches skills, develops overall fitness and complements the games programme. College aims to help students to understand the benefits and enjoyment of regular exercise and feel confident in team and individual sport.

**Every year the RGPV University nominates our Institute as a nodal centre for various games like.**

- Cricket
- Basket Ball
- Volley Ball

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**Fig. 7 Inauguration of sports events by Sh. Shiv raj Singh (CM of Madhya Pradesh)**

**Indoor sports:** Students can choose from Table tennis, Carom, chess, Badminton, etc. among indoor activities to engage themselves to remain physically and mentally fit.

**Table 9.11: Sports Facilities**

S. No.	Category	Game	Dimension
01	Outdoor	Cricket	As per Standard Games Norm
02		Volley Ball	
03		Basket Ball	
04		Kho-Kho	
05		Kabaddi	
06		Foot Ball	
07		Athletics	
08		Hand-Ball	
09		Hockey	
10	Indoor	Table tennis	
11		Badminton	
12		Chess	
13		Carom	
14		Judo	
15		Gymnasium	

**Table 9.12: Detail of Sport Events by Students**

S.No.	Name of Students	Tournament	Level Played	Year	Result/Participation
1.	Sourabh Shandilya	Cricket	Nodal	2019-20	Participated

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S.No.	Name of Students	Tournament	Level Played	Year	Result/Participation
2.	Vikas Anand	Volleyball	West Zone	2018-19	Participated

### Cultural:

College has been organising large number of cultural activities throughout the year to provide a platform to the college students to exhibit their talents.



Fig. 8 Cultural activities at IES campus

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**Table 9.13 Detail of Technical Events by Students**

S.No.	Name of Students	Event	Date	Organized by	Event outcomes
1.	Deepak Chauhan	Ansys Static and Thermal Analysis	05/07/2020	Ki Technology	Certificates
2.	Neshar Khan	Solid works from Industrial Perspective	15/03/2021-20/03/2021	RGPV Bhopal	Certificates
3.	Manjeet kumar dubey	Emergency Planning and Response	23/06/2020	NEXA Process Safety Engineer	Certificates

### **B. NCC, NSS and other clubs**

NCC/NSS Committee basically focus on extra-curricular activities and holistic personality development of students & also include rural outreach programs.

#### **Roles & Responsibilities:**

- Develop a sense of social and civic responsibility amongst students.
- Utilize student's knowledge in finding practical solution to individual and community problems.
- Train students to acquire leadership qualities and democratic attitude.
- Develop community service attitude for handling emergencies and natural disasters.
- Develop character, comradeship, discipline, secular outlook, the spirit of adventure and ideals of selfless service amongst young citizens.

Following activities are organized with deep and active participation of the students.

1. National Cadet Corps Scheme (NCC)
2. National Service Scheme (NSS)
3. Corporate Social Responsibility (CSR)
4. Blood Donation
5. Village adoption for over all awareness development.
6. Tobacco free campus awareness program

Institute conducts Orientation Programmes through Program Officers and committee every year

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and through it new students register as volunteers and present message to others. NSS Coordinator and District level officer like the Collector and Commissioner are invited to grace the occasion. They provide information related to CSR activities and motivate them.

**Table 9.14: The various Co-Curricular activities**

S. No.	Particular of Event	Detail of Event
01	NCC	Training in NCC instils qualities like nationalism, patriotism, discipline, team spirit, esprit-de-corps, leadership and self confidence and promotes overall personality development. Some Industries give preference to NCC Certificate holders for various jobs.
02	NSS	Students are motivated through personality development and encouraged to participate in activities for social and community service. In our institute NSS implements the issues in society such as tree-plantation, eradication of child labour and other issues in rural areas
03	Blood donation	The college is regularly organizing bloods donation camp under the patronage of RED CROSS in the campus in which large number of students donates blood voluntarily & play their part in lending helping hand to people in the region.
04	Village adoption for over- all awareness development.	A village, BERKHEDI, near the college has been adopted by the Institute; Support for the growth of villagers is being given by providing various facilities.
05	Tobacco free campus awareness program	Regular Programmes are organized on issues of National and International importance such as National Security, Cancer eradication, effect of smoking and relief from smoking and relief from chewing tobacco etc by explaining to students its harmful effect. Drug addiction eradication programmes also organised.

**Table 9.15: The various NCC activities include during assessment year**

Detail of NCC activities (ME Department)					
Sn.	Activity	Details	Date	Person	No. of Students participated
1	Army Attachement Camp Gwalior	Attachement of NCC Cadets with regular Army Unit	4 Sept to 20 Sept 2017	Gwalior military Station	1
2	NCC 'B' Certificate Examination 2017-18	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	20,21 Feb 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2



## [SELF ASSESSMENT REPORT]

3	NCC 'C' Certificate Examination 2017-18	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	27,28 Feb 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	4
4	International yoga day	10 Cadets of IES College Participated in Yoga Day program of Chief minister at Lal Parade ground	21-Jun-18	Akhilesh Dwivedi (NCC Caretaker), R S Dhumketi (PI Staff)	2
5	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	10 - 19 June 2018	under 2 MP Air Squadren	0
6	Enrollment of NCC 2018 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	14-Aug-18	Akhilesh Dwivedi (NCC Caretaker), Sub S D Pandey, JCO, Sub R P Chavan NCO	5
7	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15 Sept -02 Oct 2018	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	7
8	NCC 'B' Certificate Examination 2018-19	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	23-24 Feb 2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2
9	NCC 'C' Certificate Examination 2018-19	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	19-20 Feb 2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2
10	Enrollment of NCC 2019 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	12-Aug-19	Akshay Varkale (NCC Incharge) & PI Staff	3
11	No Plastic Awareness Campaign	Under Unnat Bharat Abhiyaan the NCC & NSS Volunteers team of IES College of Technology organized No Plastic Awareness Campaign at adopted village Berkhedi Vzyaft	16-Sep-19	Akhilesh Dwivedi (NCC Caretaker), Prof. R C Maheshwari	4
12	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14 - 23 Jan 2020	2 MP AIR SQN NCC Bhopal	1

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13	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15 Sept -02 Oct 2019	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	5
14	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14 - 23 June 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer )	1
15	Firing Practice	Firing by .22 Rifle at firing range Sukhi Sevaniya Bhopal	13-14 Dec 2019	Akhilesh Dwivedi (Associate NCC Officer) & NCC Unit - 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer )	4
16	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	20 Dec to 29 Dec 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer )	3
17	Army Attachement Camp	Attachement of NCC Cadets with regular Army (68 Engineers regiments, Bairagarh)	14-29 jan 2020	68 Engineers Regiment Bhopal	1
18	NCC 'B' Certificate Examination 2019-20	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	18 - 19 Feb 2020	Under Supervision of Col. N P semalti (Commanding Officer) 1 MP CTR	4
19	NCC 'C' Certificate Examination 2019-20	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	25 - 26 Feb 2020	Under Supervision of Col. N P Semalti (Commanding Officer) 1 MP CTR	2
20	Enrollment of NCC 2020 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	13-Aug-20	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer )	4

## [SELF ASSESSMENT REPORT]

21	Online Inaugration Ceremony of National Constitution Day	Organized by Ministry of Defence & Youth and sports ministry at Directorate NCC (MP&CG) Chief Guest : Rajnath Singh (Defence Minister) & Guest of Honour : Kiran Rijju (Youth & Sports Minister)	18-Nov-20	Akhilesh Dwivedi (Associate NCC Officer) & ADG NCC Directorate Bhopal (MP&CG)	1
22	Online Webinar on National Constitution Day	Online Webinar on National Constitution Day, Expert ; Justice Alok Verma (Judge High Court	26-Nov-20	Akhilesh Dwivedi (Associate NCC Officer) & Senior Faculty Member of IES College of Technology	5
23	NCC 'C' Certificate Examination 2020-2021	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	9 April 2021	Akhilesh Dwivedi (Associate NCC Officer) & Senior Faculty Member of IES College of Technology	4
24	Nominal Roll CATC XIII Camp	1MPCTR, MANIT, Bhopal	08 Feb 2021 to 12 Feb 2021	Akhilesh Dwivedi (Associate NCC Officer) & Senior Faculty Member of IES College of Technology	2

**Blood Donation Camp:** IES College of Technology, Bhopal has been participating regularly in blood donation camps conducted by our group of Institutes.

Various Blood Donation activities include:

**Table 9.16: Detail of Blood donation camp**

S.No.	Date	Activity	Contribution	Mapping
1	06-02-2020	Blood Donation Camp by Gandhi Medical College Bhopal	6 students are participated from ME Branch	PO6, PO7
2	01-10-2018	National Blood Donation Day Camp	36 Students of IES College of Technology Participated and donated blood	PO6, PO7, PO12
3	16-01-2015	Blood Donation	Students participated in blood donation organized by Dainik Bhaskar Group	PO6, PO9
4	28-02-2015	Donor Motivation & Recruitment for Voluntary Blood Donation	Our Faculty motivated students for Blood donation program	PO7, PO12



Fig. 10 Blood donation camp at IES campus

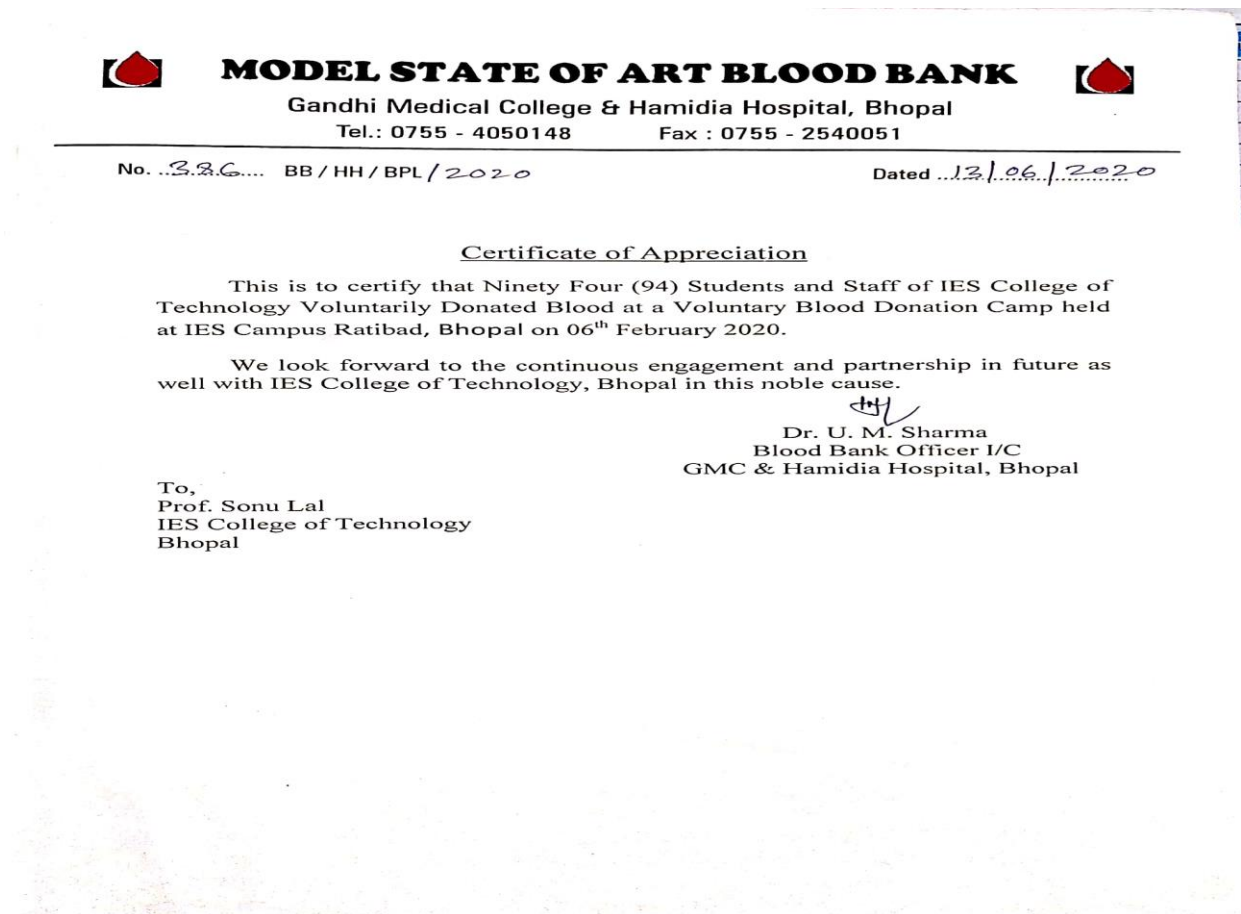


Fig. 11 Certificate of Appreciation for blood donation camp

## [SELF ASSESSMENT REPORT]

### C. Annual student activities

**Table 9.17 Various sport activities in table below**

S.no	Activity	Date	Year	Mapping
1	Judo Nodal level Tournament	23-06-2019	2019	PO6, PO9
2	West Zone inter University Cricket Tournament	15-05-2019	2019	PO9, PO12
3	Basketball State level Tournament Male/Female	24-11-2018	2018	PO6, PO9, PO12
4	Basketball Nodal level Male/Female Tournament	11-02-2018	2018	PO9, PO12
5	Cricket State level Tournament	03-01-2018	2018	PO6, PO9
6	Nodal level Football Tournament	14-09-2017	2017	PO6, PO12
7	Cricket Nodal level Tournament	04-08-2017	2017	PO6, PO12
8	Nodal Level Yoga	05-03-2017	2017	PO9, PO12
9	Sports Day (Three leg Race, Frog Race, Skipping Race, Push-ups, Relay Race)	01-11-2017	2017	PO7, PO9, PO12

**Table 9.18 : The following cultural activities also include annually**

S. No.	Particular of Event	Detail of Event
01	IES Inter School Singing and Dancing Competition	Inter school singing and dancing competition were organized to promote young boys and girls since last 3 years
02	AGAZ	Dedicated for fresher's Students
03	UTKARSH	Annual function
04	UDAAN	Farewell to final year students
05	SPIC MACAY (Society for the Promotion of Indian Classical Music And Culture Amongst Youth)	Student chapter in association with MANIT has been organizing minimum 4/5 functions each year with a contribution of National/ Padmashri level artists.
06	INFOREA	Inter college Technical festival organized by students independently.
07	Diwali Carnival	Celebration of Diwali prior to the holidays.
08	Rangoli	Institute organizes rangoli event to environmental awareness and carry out poverty eradication generate programme in the civil society through youth awareness all levels of the society.

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09	Mehendi	It is organized to offer a chance for participants to gain substantial experience, showcase skills, dissect and appraise outcomes and unearth personal aptitude. It also encourages students to adopt innovative techniques and develop their ideas and creative skills.
10	Painting	The aim of the drawing competition is to engage students in a creative exercise to identify their hopes and dreams for the future. It allows complete self expression and supports their creativity and innovative expression through art.

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<b>CRITERION 10</b>	<b>Governance, Institutional Support and Financial Resources</b>	<b>120</b>
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### **10. GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES**

#### **10.1. Organization, Governance and Transparency**

##### **10.1.1. State the Vision and Mission of the Institute**

###### **Vision of the Institute**

“To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students”.

###### **Mission of the Institute:**

- M-1:** To provide the best facilities, environment, and infrastructure for the achievement of objectives.
- M-2:** To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and managers.
- M-3:** To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.
- M-4:** To provide value-added courses and projects through Industry-Institute interactions for effective learning and better career opportunities.
- M-5:** To tie-up with Industries and Institutions for developing innovative and entrepreneurial skills of students.

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### **10.1.2. Governing body, administrative setup, functions of various bodies, service rules, procedures, recruitment and promotional policies**

#### **Governing Body**

The members of Governing Body for the session 2020-21

S. No.	Name	Designation	Designation in the Governing body
1	Er.B.S.Yadav	Chairman, Infotech Education Society, Bhopal	Chairman
2	Dr. Sunita Singh	Secretary, Infotech Education Society, Bhopal	Member
3	Mr. Devansh Singh	Treasurer, Infotech Education Society, Bhopal	Member
4	Dr R K Singhai	AICTE Representative	Member
5	Dr. Y K Agrawal	DTE Representative	Member
6	Dr.S S Kushwaha	RGPV Representative	Member
7	Prof. Kalika Yadav	Educationist	Member
8	Mr. R C Maheshwari	Assistant Professor, IES College of Technology, Bhopal	Member
9	Dr. D K Gupta	Professor, IES College of Technology, Bhopal	Member
10	Mr. Manoj Modi	Industrialist, Founder and Managing Director, Nexcity Solutions Pvt. Ltd, Bhopal.	Member
11	Dr. G K Pandey	Principal, IES College of Technology, Bhopal	Member Secretary

#### **Functions of the Governing Body:**

- The Governing Body has been constituted as per AICTE norms and is the supreme administrative body of the institution.
- To participate and approve the vision and strategic mission statements of the Institute.



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- To formulate the policies of the institution with regard to academics and other activities.
- To discuss and approve the annual budgetary allocations of Institute.
- To review the progress of academic and other related activities of the Institute.
- To approve the important decisions and amendments as required by the Institute.
- To review the implementation of the policies of the Institution.

### **Frequency of meet: Biannually**

Minutes of the last meeting is annexed as below

<b>S. No.</b>	<b>Academic Year</b>	<b>No. of meetings conducted</b>
1	2020-21	2
2	2019-20	3
3	2018-19	2
4	2017-18	3

# [SELF ASSESSMENT REPORT]

## MINUTES OF THE MEETING OF GOVERNING BODY OF IES COLLEGE OF TECHNOLOGY HELD ONLINE ON 21/09/2020 AT 4.00 PM

Dr. G K Pandey, Member Secretary-Governing Body, extended a warm welcome to all the members present online.

The following members attended the online meeting of Governing Body:

Sr. no.	Name	Designation	Designation in the Governing Body
1	Er.B.S.Yadav	Chairman, Infotech Education Society, Bhopal	Chairman
2	Dr. Sunita Singh	Secretary, Infotech Education Society, Bhopal	Member
3	Mr. Devansh Singh	Treasurer, Infotech Education Society, Bhopal	Member
4	Dr R. K. Singhai	AICTE Representative	Member
5	Dr. Y.K. Agrawal	DTE Representative	Member
6	Prof S. S. Kushwaha	RGPV Representative	Member
7	Prof. Kalika Yadav	Educationist	Member
8	Mr. R.C.Maheshwari	Asst. Prof. IES College of Technology, Bhopal	Member
9	Dr. D.K. Gupta	Prof. IES College of Technology, Bhopal	Member
10	Mr. Manoj Modi	Industrialist, Founder and Managing Director, Nexcity Solutions Pvt. Ltd, Bhopal.	Member
11	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	Member Secretary

Member Secretary, Governing Body further took up following agenda items for discussion and deliberation:



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**Agenda Item 1: To confirm the minutes of the previous meeting held on 14/03/2020**

**Resolution:** Governing Body confirmed the minutes of the previous meeting and approved the action taken on the minutes of the last meeting held on 14/03/2020.

**Agenda Item 2: Regarding submission of pre-qualifier for Engineering and Technology discipline**

**Resolution:** Dr G. K. Pandey, Principal, presented the filled-up proforma of pre-qualifier for Engineering and Technology disciplines of Mechanical Engineering, Computer Science and Engineering, Electrical and Electronics Engineering, and Electronics and Communication Engineering before the Governing Body members for their information and further direction. All members of the committee unanimously decided to submit the pre-qualifier for these programs.

**Agenda Item 3: To present the result of B. Tech 8<sup>th</sup> semester**

**Resolution:** Dr G.K. Pandey, Principal presented the results of B.Tech. 8<sup>th</sup> semester, which was 100 % for all branches. Committee members congratulated the principal, teaching and non-teaching staff for their contribution in excellent results by our students in RGPV examinations, and further motivated to perform even better in next exams.

*Attached as per Annexure-I*

**Agenda 4: To present the academic and other important activities and events of the college from 01-01-2020 till date**

**Resolution:** Dr. G. K. Pandey, Principal, presented various academic and other important activities and events of the college from 01-01-2020 to 20-08-2020.

Students' achievements in Job oriented Training Programs organized by different departments were also highlighted. Committee members acknowledged that conducting various academic, co-curricular, and placement activities in such testing circumstances demanded extraordinary focus and determination. Expressing their satisfaction over the response of College authorities in the current situation, the members appreciated the Principal, HODs & faculty for their efforts.

**Agenda 5: To present the information regarding the grant of Extension of Approval by AICTE for the year 2020-2021**



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**Resolution:** Dr. G.K. Pandey, Principal, shared with committee members that Extension of Approval of AICTE has been obtained without any issues for all the existing courses for the year 2020-2021. All members congratulated Dr. Pandey for the above achievement.

**Agenda 6: Approval of teaching staff recommended by Selection Committee**

**Resolution:** Dr G K Pandey presented the information regarding recommendation of Selection Committee for staff appointments and the Governing Body approved the same.

*Attached as per Annexure-II*

**Agenda 7: To present the plan of action for campus working w.e.f. August/ September 2020**

**Resolution:** Dr G K Pandey presented the following plan of action for conduct of class work w.e.f. August/ September 2020 in view of COVID-19.

- All employees and visitors must follow the Home Ministry SOPs and directions regarding Covid.
- Wearing mask in the campus to be made mandatory.
- Maintaining social distance
- Every student and employee entering the premises to be subjected to thermal screening and sanitization at the main entrance.
- All important spaces to be sanitized by sodium hypo-chloride.
- Observing *COVID Appropriate Behaviour* in the Campus premises.

**Agenda 8: Online classes for all years in the current semester of 2020-2021:**

**Resolution:** Dr. G.K. Pandey apprised the members that for running online classes as per Government guidelines, requisite facilities were available in the campus such as high speed broadband internet facility with 100 MBPS speed, Microsoft Teams and related support infrastructure for online learning. Expressing satisfaction over the available resources, all members unanimously agreed to the conduction of online classes in view of COVID-19 pandemic.

The Chairman thanked all the members for their active participation and wished all good health.

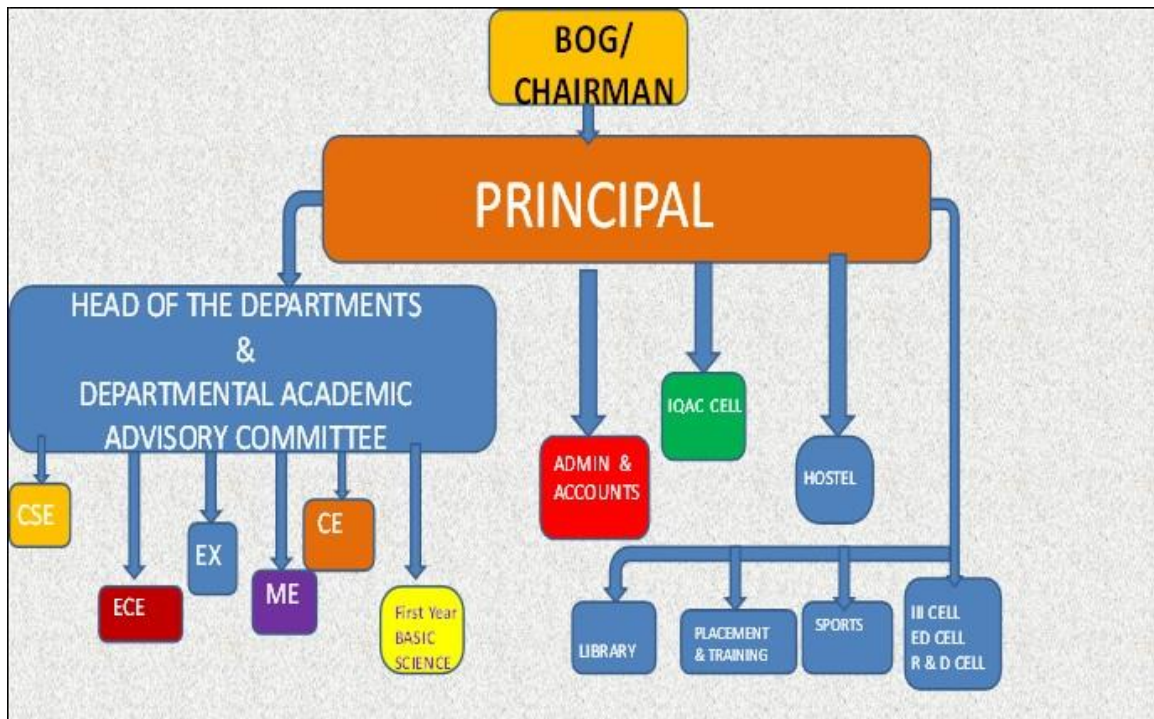
**Member Secretary**

**IES College of Technology, Bhopal**

Member Secretary  
Governing Body  
IES College of Technology, Bhopal

# [SELF ASSESSMENT REPORT]

## Administrative Set up



## Roles and Responsibilities:

Position	Functions
Chairman, Governing Body	<ul style="list-style-type: none"> <li>Chairman is the Chief Mentor of the Institution, and heads the Governing Body (GB).</li> <li>He is the final authority to approve all policy matters on expansions, collaborations, financial outlays, budgetary allocations and admin related decision.</li> <li>He approves the recruitment of senior management staff.</li> </ul>
Principal	The Principal is the head of the Institution and responsible for: <ul style="list-style-type: none"> <li>Planning of the establishment of various departments and</li> </ul>

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	<p>the various administrative units of the college.</p> <ul style="list-style-type: none"><li>• Coordination of various activities connected with admissions, teaching, conduct of examinations, collection of fees, publishing course files and manuals.</li><li>• Identification and recruitment of suitable persons to man the various departments and administrative units.</li><li>• Development of various laboratories, Computer centre and library of an educational Institution.</li><li>• Maintaining cordial relationship with the university authorities, Directorate of technical education, AICTE and such other policy making bodies who matter.</li><li>• Preparation of the minutes of meetings<ul style="list-style-type: none"><li>○ Preparation of the budget for approval of management</li><li>○ Regularly apprising the management about the various activities.</li></ul></li><li>• Planning of functions like Annual Day, Fresher's Day</li><li>• Steering organization of seminars, symposia, short-term training programme and Faculty Developments Programmes.</li></ul>
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Head of Departments	<p>The Head of departments is responsible for:</p> <ul style="list-style-type: none"> <li>• Administration of the department in respect of regularity, punctuality, distribution of teaching work and laboratory work among the staff.</li> <li>• The HOD should be well informed about the activities and programs of other professional colleges and institutions. HOD should keep good contacts with the faculty of IITs, other Universities and colleges in the country and to the extent possible, Universities abroad.</li> <li>• Preparation of class-wise timetables.</li> <li>• Maintain laboratory-wise stock registers</li> <li>• Organizing special lectures by experts, technical staff, seminars &amp; conferences and refresher courses.</li> <li>• Encourage the faculty and staff to improve their academic qualifications without effecting normal curriculum.</li> <li>• Encourage students to develop communication skills, report writing, debating and group discussions etc.</li> <li>• Maintaining cordial relations with local industries and also develop contacts in general with industry.</li> <li>• Extend all possible help to students of the department for training/project work/professional employment.             <ul style="list-style-type: none"> <li>• Efforts are to be put in to enhance the computing skills of the students of the department.</li> </ul> </li> </ul>
Account & Admin	<ul style="list-style-type: none"> <li>• Recording and reporting the cash flows.</li> <li>• Accounts receivable &amp;Accounts payable</li> <li>• Payroll &amp; Financial controls</li> </ul>
Industry Institute Interaction Cell	<ul style="list-style-type: none"> <li>• To create a platform for industry institute interaction.</li> </ul>

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	<ul style="list-style-type: none"><li>• To establish inter-relationship between Institute &amp; Industry through know-how and MOU's.</li><li>• To facilitate student/faculty internships at industries.</li><li>• To organize industrial visits for the students.</li><li>• To organize technical talks for the students from the industry experts.</li></ul>
Entrepreneurship Development Cell	<ul style="list-style-type: none"><li>• To nurture the student ideas and to develop innovative products.</li><li>• To support the student projects with funding.</li><li>• To establish &amp; maintain incubation centre.</li><li>• To create entrepreneurs echo system for students.</li><li>• To maintain data relevant to entrepreneurship programmes.</li><li>• To encourage &amp; establish start-up companies.</li></ul>

### **INTERNAL QUALITY ASSURANCE CELL**

The Internal Quality Assurance Cell (IQAC) ensures the effective implementation of quality initiatives through continuous reviews and periodic meetings. The IQAC works towards attaining excellence in all academic and administrative endeavors of the institution. The IQAC is meant for planning, guiding and monitoring Quality Assurance (QA) and Quality Enhancement (QE) activities of the college.

#### **The members of Internal Quality Assurance Cell for the session 2020-21**

S.No.	Name	Designation	Designation in IQAC
1	Dr. G. K. Pandey	Principal, IES College of Technology Bhopal	Chairman
2	Dr. Sunita Singh	Secretary Promoting Society (Management Representative)	Member



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3	Dr. Meera Bansal	Principal, IES College of Education (Local Society Representative)	Member
4	Ms. Monika Singh	Society Representative	Member
5	Mr. Surendra Raghuvanshi	Administrative officer	Member
6	Dr. Rajesh Nema	Professor & Head, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
7	Dr. Nikhat Raza	Associate Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
8	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology Bhopal	Member
9	Prof. R C Maheshwari	Assistant Professor & Head, Department of Civil Engineering, IES College of Technology Bhopal	Member
10	Mr. Neeraj Agrawal	Associate Professor & Head, Department of Mechanical Engineering, IES College of Technology Bhopal	Member
11	Dr. Rashmi Shrivastava	Associate Professor & First Year I/C	Member

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		Department of Basic Science, IES College of Technology Bhopal	
12	Mr. Niket Chandrawanshi (Senior Cloud Automation Engineer-FIS Global)	Entrepreneur, IBS Bhopal	Member
13	Mr. Roshan Chourasia (CSE)	Student Representative	Member
14	Mr. C P Sharma CEO-Daulatram Industries	Industry Representative	Member
15	Mr. Veerapajee Shivanna	(Head-Campus Hiring Hexaware Technologies) Industrial Representative	Member
16	Mr. Siddharth Prakash	(Principal Research Program Manager at Microsoft Research) Industrial Representative	Member
17	Mr. Subhag Singh Rajput F/O Ms. Lalnee Rajput (Students CSE)	Parents Representative	Member

### Functions and Responsibilities:

- Development and implementation of quality benchmarks parameters for various academic research and administrative activities of the institution.
- To take decision about the academic plan, implementation of academic strategies, quality improvement decision, etc.

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- Provide guidance and advice to the college in maintaining a high academic standard.
- Review of feedback response from students, parents and other stakeholders on quality-related institutional processes.
- Dissemination of information on various quality parameters to all stakeholders
- Approval of inter and intra-institutional workshops, seminars on quality related themes and promotion of quality circles.
- Documentation of the various programs /activities leading to quality improvement
- Annually conduct of Academic and Administrative Audit and its follow-up.

### **Departmental Academic Advisory Committee**

The Departmental Academic Advisory Committee has been framed with the objective of remaining up to date with the latest requirements of the industry and incorporating necessary components in the curriculum as much as possible.

### **The members of Departmental Academic Advisory Committee for the session 2020-21**

<b>S.No.</b>	<b>Name</b>	<b>Designation</b>	<b>Role in Departmental Academic Advisory Committee</b>
1	Mr. Neeraj Agarwal	Assistant Professor & Head, Department of Mechanical Engineering, IES College of Technology, Bhopal	Chairman
2	Mr. Ramesh Bokade	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
3	Mr. Padmakar Pachorkar	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
4	Mr. Ravindra Mohan	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
5	Mr. Jagdish	Assistant Professor, Department of	Member

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	Prasad	Mechanical Engineering, IES College of Technology, Bhopal	
6	Prof. Mukesh Pandey	Professor, Rajiv Gandhi Proudhogiki Vishwavidyalaya Bhopal	External Academic Advisor

### **Roles and responsibilities:**

- Aligning of CO's to the mission statements and defining program specific outcomes.
- Suggest improvement in academic plans for attainment of POs & PSOs.
- To identify and suggest thrust areas to conduct various activities (final year projects, training courses and additional experiments to meet PSOs.
- Encourage for industry-institute interactions to bridge up curriculum/industry gap and suggest quality improvement initiatives to enhance employability.
- To propose necessary action plan for skill development of students, required for entrepreneurship development and quality improvement.

### **Institute Innovation Cell**

Institutions Innovation Cell (IIC) at institute is a unique model based on Hub-Spoke and coherence approach to align with the innovation and entrepreneurship promotion and support programs to ensures round the year activities in campus for effective engagement, learning and practicing innovation and entrepreneurship among student and faculty community. IIC is approved by AICTE & granted 4 Star rating during 2019-20.

### **The members of Institute Innovation Cell for the session 2020-21**

<b>S.No.</b>	<b>Name</b>	<b>Designation</b>	<b>Designation in IIC Cell</b>
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	President
2	Mr. Sonu Lal	Assistant Professor, Department of Electronics &	Vice-president

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		Communication Engineering, IES College of Technology, Bhopal	
3	Mr. Anubhav Sharma	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Convener
4	Ms. Khushbu Kriplani	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Innovation activity Coordinator
5	Mr. Jagdish Prasad	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Startup activity Coordinator
6	Mr. Anshul Sarawagi	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Internship Coordinator
7	Mr. Deepak Mishra	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	IPR Activity Coordinator
8	Mr. Surendra Raghuvanshi	Administrative Officer	Social Media Coordinator
9.	Mr. Anubhav Sharma	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	ARII Coordinator
10.	Mr. Nitin Chourasia	Assistant Professor,	NIRF Coordinator

## [SELF ASSESSMENT REPORT]

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		Department of Management, IES College of Technology, Bhopal	
11.	Mr. Vijay Dhote	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
12.	Mr. Deepan Banoriya	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
13.	Mr. Rakesh Yadav	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
14.	Mr. Ashish Raghuwanshi	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
15.	Mr. Anwar Ahmed	Student Coordinator	IPR Coordinator
16.	Mr. Anshul Suman	Student Coordinator	Social Media Coordinator
17.	Ms. Shweta Singh	Student Coordinator	Start-up Coordinator
18.	Mr. Aditya Shankar	Student Coordinator	Innovation Coordinator

### **Roles and responsibilities:**

- To ensure the activities circulated by AICTE IIC Council and MIC and identify the activity at institution level related to innovation, incubation and entrepreneurship.

### **Research & Development Committee**

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## [SELF ASSESSMENT REPORT]

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The Quality Mandate of institution policy to emphasize importance of promoting quality research by the faculty and creating new knowledge. Number of research articles published in reputed journals is one of globally accepted indicators considered for various academic purpose .High quality publications in reputed journal help in achieving ranks and overall improvements of quality of education. It reviews DAAC recommendation in respect of research and project activities.

### **The members of Research & Development Committee for the session 2020-21**

<b>S.No.</b>	<b>Name</b>	<b>Designation</b>	<b>Designation in Research &amp; Development Committee</b>
1	Dr. G. K. Pandey	Principal, IES College of Technology Bhopal	Chairman
2	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology Bhopal	Convener
3	Dr. Rajesh Nema	Professor & Head, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
4	Dr. Nikhat Raza	Associate Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
5	Mr. Neeraj Agrawal	Associate Professor & Head, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
6	Mr. R.C. Maheshwari	Assistant Professor & Head, Department of Civil Engineering, IES College of Technology Bhopal	Member
7	Dr. Anil Kumar Yadav	Associate Professor, Department of Computer Science & Engineering,	Member

## [SELF ASSESSMENT REPORT]

	IES College of Technology Bhopal	
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### **Roles & Responsibilities:**

- To review research project proposals for grants / sponsorship.
- To support and encourage the faculties for research publication and consultancy.
- To approve facilities for research through collaboration / inter-disciplinary modes.
- To monitor student projects evaluation and review.

### **Training & Placement Committee**

Training & Placement Committee provides career guidance about avenue open after graduation (Higher education, placements or entrepreneurship). It provides opportunity of recruitment to students and maintains good relations with recruiters & organizing Pre placement trainings.

### **The members of Training & Placement Committee for the session 2019-20**

<b>S.No.</b>	<b>Name</b>	<b>Designation</b>	<b>Designation in Training &amp; Placement Committee</b>
1	Er. Kishore Purswani	Sr. Assistant Professor & Director (Training & Placement), IES College of Technology, Bhopal	Chairman
2	Ms. Khushbu Kriplani	Assistant Professor & Training & Placement Officer , Department of Computer Science & Engineering, IES College of Technology Bhopal	Convener
3	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology, Bhopal	Member
4	Mr. Anshul Sarawagi	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
5	Mr. Deepak Mishra	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
6	Mr. Deepan	Assistant Professor, Department of	Member



## [SELF ASSESSMENT REPORT]

	Banoriya	Mechanical Engineering, IES College of Technology, Bhopal	
7	Mr. Pulkit Kumar	Student coordinator, IES College of Technology, Bhopal	Member
8	Mr. Shivam Kumar	Student coordinator, IES College of Technology, Bhopal	Member
9	Mr. Dev Maheshwari	Student coordinator, IES College of Technology, Bhopal	Member

### **Roles & Responsibilities:**

- To organize & ensure imparting proper training skills to the students by the trainers.
- To organize placements drives.
- To organize skill development programs for students through internal & external experts.
- To maintain data of students placement & entrepreneurship.
- To organize periodical meets of alumni association.
- To publish placement data in institute website time to time.
- To arrange for carrier guidance.
- To enhance employability of students by empowering them with technical competencies, Domain Skills, leadership, techno-managerial qualities and communicative abilities to ensure they are industry ready.

### **Entrepreneurship Development Cell**

This cell is launched with a view to encourage students to consider self-employment as a career option, provide training in Entrepreneurship through modular courses and increase the relevance of Management particularly in the non-corporate and under managed sectors.

### **The members of Entrepreneurship Development Cell for the session 2019-20**

<b>S.No.</b>	<b>Name</b>	<b>Designation</b>	<b>Designation in Entrepreneurship Development Cell</b>
1	Er. Kishor Purswani	Sr. Assistant Professor, Department of Mechanical Engineering, IES College of Technology Bhopal	Chairman
2	Mr. Anubhav	Assistant Professor, Department of	Convener

## [SELF ASSESSMENT REPORT]

	Sharma	Computer Science & Engineering, IES College of Technology, Bhopal	
3	Mr Divyansh Singh	CEO, Innovative Business Solution, Bhopal	Member (Industry Expert)
5	Mr Shantanu Boss	CEO, ARG Technocrats, Noida, New Delhi	Member (Alumni )
6	Mr. Padmakar Pachorkar	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
7	Mr. Dhanesh Khalotia	Assistant Professor, Department of Civil Engineering, IES College of Technology Bhopal	Member

### **Roles & Responsibilities:**

- To nurture the student ideas and to develop innovative products.
- To support the student projects with funding.
- To establish & maintain incubation centre.
- To create entrepreneurs echo system for students.
- To maintain data relevant to entrepreneurship program.

### **NCC/NSS Committee**

NCC/NSS Committee basically focus on extra-curricular activities at institute level. It aims at holistic personality development of students & also includes rural outreach programs.

### **The members of NCC/NSS Committee for the session 2020-21**

S.No.	Name	Designation	Designation in NCC/NSS Committee
1	Dr. G.K.Pandey	Principal, IES College of Technology, Bhopal	Chairman
2	Mr. Akhilesh Dwivedi	Assistant Professor & Associate NCC Officer, Department of Electrical & Electronics Engineering, IES College of Technology, Bhopal	Convener
3	Dr. Pramod Patel	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
4	Mr. Akshay Varkale	Assistant Professor, Department of	Member

## [SELF ASSESSMENT REPORT]

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		Computer Science & Engineering, IES College of Technology, Bhopal	
5	Mr. Deepan Banoriya	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
6	Mr. Amit Pandey	Student Representative, IES College of Technology, Bhopal	Member
7	Mr. Abhishek Kumar	Student Representative, IES College of Technology, Bhopal	Member

### **Roles & Responsibilities:**

- To develop a sense of social and civic responsibility amongst students.
- To utilize student's knowledge in finding practical solution to individual and community problems.
- To Train students to acquire leadership qualities and democratic attitude.
- To develop community service attitude for handling emergencies and natural disasters.
- To develop character, comradeship, discipline, secular outlook, the spirit of adventure and ideals of selfless service amongst young citizens.

### **Service rules, Procedures, Recruitment and Promotional Policies Recruitment Procedure**

Based on statutory requirement as per All India Council for Technical Education Pay Scales, Service Conditions and Qualifications for the Teachers and other Academic Staff in Technical Institutions (Diploma) Regulations, 2010 and subsequent amendments/ new Regulations issued by AICTE from time to time, mentioned below, a document is prepared for publication with a view to recruit best possible talent available.

#### **PARAGRAPH-I:**

For Faculty members:- Faculty members are recruited on the basis of qualification prescribed by AICTE for various cadres as for G.R. No. F-37-3/legal 2010 dt. 22/01/10.

## [SELF ASSESSMENT REPORT]

S.N.	Cadres	Qualification & Experience	Remark
1	Principal	As per AICTE Norms in force from time to time.	<p>Qualifications as presented in paragraph I and as applicable for the post of Principal. Post PhD publications and guiding PhD students is highly desirable.</p> <p>Minimum of 10 years teaching and/or research and/or industrial experience of which at least 3 years should be at the level of Professor.</p> <p>Or</p> <p>Minimum of 13 years experience in teaching and/ or Research and/or Industry. In case of research experience, good academic record and books/research paper publications/IPR/patents record shall be required as deemed fit by the expert members in Selection committee. If the experience in industry is considered, the same shall be at managerial level equivalent to Professor with active participation record in devising/designing, developing, planning, executing, analyzing, quality control, innovating, training, technical books/research paper publications/IPR/patents, etc. as deemed fit by the expert members in Selection committee. Flair for Management and Leadership is essential.</p>
2	Professor	do	<p>Qualifications as prescribed in paragraph I and as applicable for the post of Professor. Post PhD publications and guiding PhD students is highly desirable.</p> <p>Minimum of 10 years teaching and/or research and/or industrial experience of which at least 5 years should be at the level of Associate Professor.</p>

## [SELF ASSESSMENT REPORT]

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			Or Minimum of 13 years experience in teaching and/ or Research and/or Industry. In case of research experience , good academic record and books /research paper publications /IPR / patents record shall be required as deemed fit by the expert members in Selection committee. If the experience in industry is considered, the same shall be at managerial level equivalent to Associate Professor with active participation record in devising/ designing, planning, executing, analyzing, quality control, innovating, training, technical books/research paper publications/IPR/patents, etc. as deemed fit by the expert members in Selection committee.
3	Associate Professor	do	Qualification as prescribed in paragraph I and as applicable for the post of Associate Professor and PhD or equivalent in appropriate discipline. Post Ph.D publications and guiding PhD students is highly desirable  Minimum of 5 years experience in teaching and/or research and/or industry of which at least 2 years post PhD is desirable.
4	Assistant Professor	do	BE/BTech and ME/M.T.ech in relevant subject with First Class or equivalent either in BE/B.Tech or ME/M.Tech.

### **Service Rule**

#### Service Rules

IES College of Technology has a firm belief that the contribution of its intellectual assets i.e. faculty members is the back bone of Organization's progress and prosperity.

The service rules have been designed keeping in view not only the organization objectives but also for ensuring empowerment of its employees in tandem with facility, authority and responsibility.

## **[SELF ASSESSMENT REPORT]**

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1. Pay scale will be as per AICTE norms and allowances shall be, as decided by the Society/College management from time to time.
2. Employee will have the freedom to work within Organization rules and regulations.
3. An employee will be on probation for a period of 1 year, which may be extended by the appointment authority if required. The regularization of the probation would depend upon the suitability of work performance during the period of probation. The decision of the appointing authority about the suitability of the confirmation/probation shall be final and binding.
4. Continuous unauthorized absence from the duty will be treated as an act of indiscipline and will lead to the termination of the services from the date of absence.
5. An Employee will not be allowed for teaching in any tuition/coaching class or running educational institute/coaching centre.
6. An employee intending to resign will have to give a notice of minimum 45 days in advance & will have to discharge his duties this period at work place compulsory failing which he /she will have to deposit salary equivalent to one month.
7. Exemplary behaviour is desirable.
8. Keeping the fast rate of knowledge explosion, faculty is supposed to keep their knowledge up to the Mark.
9. Faculty is given adequate opportunity for professional growth.
10. Knowledge Up gradation: IES College of Technology strongly believes that learning is a lifelong process. Hence ICOT encourages Faculty members to present papers in National / International Conferences / Seminars and get their research papers published in prestigious technical magazines. Facilities extended for accomplishment of this objective are enumerated below:

## **[SELF ASSESSMENT REPORT]**

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S.No.	Particular	Facility
1	National Seminars/Workshop/FDP	1) 100 % Registration fee. 2) 3rd AC fare for Asst. Professors & by 2nd AC for Associate Professors & above. 3) Special Leave
2	International Seminars	R & D Committee decides as per the merit of the case
3	Seminars at Bhopal	Special Leave
4	Publication fee for SCI/Scopus/WoS Journals	1) All in house guidance & help for preparation  2) 50 % of amount payable for publication

11. Membership of Professional Bodies: Faculty is encouraged to get themselves enrolled in professional Bodies. Subsidy to the extent possible is considered by R & D Cell on the recommendations of Principal.

- Higher Studies: Application of faculty members desirous of seeking higher studies are considered for Study Leave on case to case basis.
- Assessment and Increment: Annual increment is considered after completion of one year from the date of joining and shall be effective from the month of April, August, December- which ever month comes first after completion of one year. Increment is subject to satisfactory performance.

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Note: Over and above this if a paper is also presented in any prestigious event enumerated above then R & D Cell shall consider special cash award also on case to case basis based on the recommendation of Principal.

- **Leave Entitlement**

Leave entitlement is as below for Faculty & staff.

S.No.	Type of Leave	Entitlement	Remark
1	Casual leave	08 CL / year	Faculty
		08 CL / year	Other Staffs
2	Short leave	06 / year	Faculty/ Staffs
3	Medical leave	05 / year	Faculty/ Staffs
4	Semester Break leave	05 / semester break	For faculty after completion of one year
5	Study Leave	After Completion of Minimum 02 years	Case to case basis
6	Maternity Leave	90 days	Only for female
7	Marriage leave	07 days	Faculty/ Staffs
	Tragedy in blood relation	13 days	

An employee should apply for the leave in advance and get it sanctioned from the authority. In Case of any emergency faculty can inform the authorized person through message/call.

Authority for sanction of Leave: (CL/EL/SL/ML):

S.N.	Levels	Sanctioning Authority
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## [SELF ASSESSMENT REPORT]

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1	Principal	Secretary, Infotech Education Society
2	HODs	Principal
3	Faculty/Lab I/C	HOD

### Responsibilities of Employees

#### Responsibilities of the Principal:

The Principal shall be the head of the Institution and shall be responsible for:

- i. Planning of the establishment of various departments and the various administrative units of the college.
- ii. Coordination of various activities connected with admissions, teaching, conduct of examinations, and collection of fees, publishing course files, and manuals.
- iii. Identification and recruitment of suitable persons to man the various departments and administrative units.
- iv. Development of various laboratories, Computer centre, library and all other facilities required.
- v. Maintaining cordial relationship with the university authorities, Directorate of technical education, AICTE and such other policy making bodies.
- vi.
  - a. Preparation of the minutes of meetings
  - b. Preparation of the budget for approval of management
  - c. Regularly apprising the management about the various activities.
- vii. Planning of functions of Sports, Cultural & Technical events. Steering organization of seminars, symposia, short-term training programme and Faculty developments Programmes.

#### Responsibilities of Heads of Departments(HOD's):

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## [SELF ASSESSMENT REPORT]

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- i. Administration of the department in respect of regularity, punctuality, distribution of teaching work and laboratory work among the staff and ensure completion of syllabus in time as per academic calendar.
- ii. Maintain the relevant topic-wise files and ensure “place for everything and everything in its place”.
- iii. The HOD should be well informed about the activities and programs of other professional colleges and institutions. HOD should maintain good professional contacts with the faculty of IITs, NITs and other reputed Universities and colleges in the country.
- iv. Preparation of class-wise timetables.
- v. Ensure compilation of student’s attendance and sessional marks and maintain the relevant files and records for future reference.
- vi. Coordinate the work in connection with the preparation of course files, laboratory manuals and such other documents and updation from time to time. Development of various laboratories and arrangements for regular maintenance, updation of the laboratories by procuring the equipment required to perform experiments listed in the syllabus.
- vii. Maintain laboratory-wise stock registers one for capital equipments and the other for components & spares.
- viii. Procure spares and components and stock them and maintain inventory laboratory-wise.
- ix. Coordinate the activities of technical associates, ISTE, IETE, IEEE and such other professional associations.
- x. Organize special lectures by experts, technical staff, seminars & conferences and refresher courses.
- xi. Encourage the faculty and staff to improve their academic qualifications without effecting normal curriculum.
- xii. Encourage students to develop communication skills, report writing, debating and group discussions etc.
- xiii. Maintaining cordial relations with local industries and also develop contacts in general with industry and R & D organizations in the country.

## [SELF ASSESSMENT REPORT]

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xiv. Extend all possible help to students of the department for training/project work/professional employment.

xv. Enhance the computing skills of the students of the department and organize refresher courses to make up deficiencies.

### **Responsibilities of Teaching Staff:**

#### **Academic Responsibilities:**

i. Classroom Instruction & Laboratory Instruction of high quality in line with the syllabus prescribed by RGPV and relevant advanced topics beyond syllabus.

ii. To develop curriculum, learning resource materials and laboratories.

iii. To actively participate in co-curricular and extra-curricular activities of the college and those organized by other institutions.

iv. Guidance and counseling to promote personal, ethical, moral and overall character of students.

v. To keep abreast of new knowledge and skills and dissemination of such knowledge through publication of papers, books and seminars etc.

vi. Self development through up-gradation of qualification and participation in professional activities.

#### **Administration:**

i. To participate actively in academic and administrative management of the institution and also in policy making.

ii. Planning, monitoring, evaluation and promotional activities at department and institutional level.

iii. To prepare project proposals for funding in vital areas of R & D.

iv. Laboratory development and modernization.

## [SELF ASSESSMENT REPORT]

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- v. To monitor and evaluate academic and research activities.
- vi. To participate in policy planning at the Regional/National level for development of technical education.
- vii. To help mobilization of resources for the institution.
- viii. To plan and implement staff developmental activities.
- ix. To maintain accountancy and to conduct performance appraisal.
- x. To provide non-formal modes of education for benefit of community.
- xi. Any other relevant work assigned by the head of the Institution.

### **Research & Consultancy:**

- i. To actively involve in Research and Development activities, Research guidance and industries sponsored research.
- ii. To provide consultancy and testing services by providing extension services and participating in community services.
- iii. To promote the spirit of entrepreneurship with an aim of creation of jobs.

### **Ethical Standards for Teachers :**

- i. Shall live and lead by example in every sphere of conduct particularly to inculcate a noble culture in students.
- ii. Respect parents, teachers and elders.
- iii. Express the love of brotherhood to fellow students.
- iv. Accept and extend due respect to every religion.
- v. Respect and love the nation.
- vi. Have a sense of belongingness to the institution.

## [SELF ASSESSMENT REPORT]

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- vii. Total dedication to the teaching profession.
- viii. An urge to excel in professional expertise.

### **A Teacher- Do's & Don't**

- i. Shall wear respectable attire, befitting the society's expectations and shall keep up immaculate personal hygiene at all times.
- ii. Shall always listen to students with concern, whether it be in respect of doubts or it be relating to any personal help.
- iii. Shall always motivate the students, giving them a feeling of comfort and encouraging them.
- iv. Shall attend to parents as a true representative of the institution, clarify their doubts with concern and help understanding the system in a better manner. Assist them in solving the problem and guiding them properly on how and who to approach for further help.
- v. Shall always give the parents authentic and correct information.
- vi. Shall always accept the entire fellow teachers, honor their sentiments and respect their value system.
- vii. Shall always endeavor to assist fellow teachers, either in their teaching practice or in any form of adjustment required for discharging their responsibilities.
- viii. Shall never chew, smoke or consume alcoholic drinks.
- ix. Shall never gossip or discuss unauthentic information with peers or other members of public which might provoke a sensation of ill feeling of any sort.

### **10.1.3. Decentralization in working and grievance redressal mechanism**

**List of faculty members who are administrators/decision makers for various assigned responsibilities:**

## [SELF ASSESSMENT REPORT]

S. No.	Name	Designation	Administrative powers delegated
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	<ul style="list-style-type: none"> <li>• Academic operations.</li> <li>• Resource requirements.</li> <li>• Responsible for meeting Statutory and Regulatory requirements of the Government, AICTE and university(RGPV)</li> </ul>
2	Dr. Nikhat Raza	Associate Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	<ul style="list-style-type: none"> <li>• Assigning duties and monitor faculty performance.</li> <li>• Decide on departmental needs, propose yearly budget and arrange for compliance.</li> <li>• Planning academic activities and training programs.</li> <li>• Monitoring R&amp;D and project activities of the department.</li> </ul>
3	Mr. Neeraj Agrawal	Associate Professor & Head, Department of Mechanical Engineering, IES College of Technology Bhopal	
4	Mr. R.C. Maheshwari	Assistant Professor & Head, Department of Civil Engineering, IES College of Technology Bhopal	
5	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology Bhopal	
6	Dr. Rajesh Nema	Professor & Head, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	

## [SELF ASSESSMENT REPORT]

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7	Er. Kishor Purswani	Director, Training & Placement, IES College of Technology, Bhopal	<ul style="list-style-type: none"><li>Organizing Training and Placement activities for students.</li></ul>
8	Dr. G.K. Pandey	Chairman – Industry Institute Interaction cell, IES College of Technology, Bhopal	<ul style="list-style-type: none"><li>Explore and identify common avenues of interaction with industry as per the requirements</li></ul>
9	Dr. G. K. Pandey	Head –Entrepreneurship Development cell, IES College of Technology, Bhopal	<ul style="list-style-type: none"><li>To nurture the student ideas and to develop innovative products.</li></ul>
10	Ms. Preeti Pandey	Student welfare officer, IES College of Technology, Bhopal	<ul style="list-style-type: none"><li>To address student welfare issues.</li></ul>

**Women Grievance Cell headed by Ms. Preeti Pandey shall meet Bi-annually and depending on the date of receipt of any petition/complaint from anybody and take necessary action as deem fit and initiate necessary action for solving problem.**

### **Women Grievance Cell**

Women Empowerment is one of the multidimensional social processes addressing human rights and development, which helps women to gain control over their own lives and gives the ability to make strategic choices of life. This cell is constituted to create a harmonious environment and enable women to discharge their responsibilities at workplace with dignity.

## [SELF ASSESSMENT REPORT]

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### The members of Women Grievance Cell for the session 2020-21

S.No.	Name	Designation	Designation in Women Grievance Cell
1	Dr. Preeti Pandey	Assistant Professor, Department of Basic Science, IES College of Technology, Bhopal	Chairman
2	Dr. Sonali Saha	Associate Professor, Department of Basic Science, IES College of Technology, Bhopal	Convener
3	Dr. Vineeta Jain	Professor, Department of Basic Science, IES College of Technology, Bhopal	Member
4	Mrs. Shweta Singh	Associate Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
5	Dr. D.K. Gupta	Professor, Department of Basic Science, IES College of Technology, Bhopal	Member
6	Mr. R. C. Maheshwari	Assistant Professor & Head, Department of Civil Department, IES College of Technology, Bhopal	Member
7	Ms. Lalnee Rajpoot	Student (B.tech-4th Yr)	Member
8	Ms. Jahida Khanam	Student (B.tech-3rd Yr)	Member
9	Ms. Megha Pal	Student (B.tech-3rd Yr)	Member

### Roles & Responsibilities:

- Create social awareness about gender discrimination.
  - Motivate and improve confidence level amongst women staff members
  - Organize workshops and seminars for women development.
  - To promote personality development, leadership quality and role of women in the society.
  - To reach and educate women in rural areas about social and legal rights.
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## [SELF ASSESSMENT REPORT]

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- To handle all grievances related to gender discrimination or women harassment.

### **Internal Complaint Committee Prevention Sexual Harassment of Women at Workplace**

The ICC committee under the provision of Section 4 of Sexual Harassment of Women at Workplace Prevention, Prohibition and Redressal Act, 2013.

S.No	Name	Designation	Position in Internal Complaint committee
1	Dr. Rashmi Shrivastav	Associate Professor, IES College of Technology, Bhopal	Presiding Officer
2	Ms. Preeti Pandey	Assistant Professor, IES College of Technology, Bhopal	Internal Member
3	Ms. Khushbu Kriplani	Assistant Professor, IES College of Technology, Bhopal	Internal Member
4	Mr. Brijesh Soni	Sr. Accountant, IES College of Technology, Bhopal	Internal Member
5	Mr. Pramod Dhakad	Admin coordinator, IES College of Technology, Bhopal	Internal Member
6	Ms. Shweta Singh	Student Representative, IES College of Technology, Bhopal	Student Member
7	Ms. Divya Vishwakarma	Student Representative, IES College of Technology, Bhopal	Student Member
8	Mr. Rajweer Raghuvanshi	Student Representative	Internal Member
9	Mr. Dipesh Singh Parmar	Secretary, Shri Ram Janki Rudra Shiksha Samiti, Bilkishganj, District, Sehore	Outside member

# [SELF ASSESSMENT REPORT]

## IES College of Technology, Bhopal

Minutes of the Meeting of 'Internal Complaint Committee for Prevention of Sexual harassment of Women at Workplace' held on 28/08/2020 in the Board Room of IES College of Technology at 3:00 pm

Meeting of 'Internal Complaints Committee for Prevention of Sexual harassment of Women at Workplace' of IES College of Technology was held on 28/08/2020 in the Board Room at 3:00 pm.

Members Present:

1. Dr. Rashmi Shrivastav, Presiding Officer
2. Ms. Khushbu Kriplani, Member
3. Mr. Brijesh Soni, Member
4. Mr. Pramod Dhakad, Member
5. Ms. Preeti Pandey, Member Secretary
6. Mr. Dipesh Singh Parmar, NGO External Member
7. Ms. Shweta Singh, Student Member-Connected Online
8. Ms. Divya Vishwakarma, Student Member-Connected Online
9. Mr. Rajweer Raghuwanshi, Student Member-Connected Online

Dr. Rashmi Shrivastava, Presiding Officer, welcomed the members present and requested Member Secretary Ms. Preeti Pandey to give her opening remarks and start discussions about the agenda items.



## [SELF ASSESSMENT REPORT]

Agenda 1: Confirmation of the minutes of meeting of Internal Complaint Committee held on 30/08/2019

**Resolution:** Minutes of the Meeting of 'Internal Complaint Committee for Prevention of Sexual harassment of Women at Workplace' held on August 30, 2019 were read and unanimously passed by the committee.

Agenda 2: Presentation by Ms. Khushbu Kriplani on sexual harassment and their consequences.

**Discussion:** Ms. Khushbu Kriplani presented various issues regarding sexual harassment of women at workplace. Following were the highlights of the presentation:

1. Details of Indian Law on sexual harassment
2. Objectives of the committee
3. Duties of the employer
4. Details of constitution of Internal Complaints Committee
5. Responsibilities of Internal Complaint Committee
6. Definition of sexual harassment and its types
7. Response to sexual harassment
8. Awareness about 'How to prepare a report on sexual harassment'
9. Do's and Don'ts of sexual harassment at workplace
10. Redressal against sexual harassment at workplace

Committee members appreciated Ms. Khushbu for her efforts in gathering useful information about sexual harassment and practical means to prevent such incidents at workplace.

Agenda 3: To discuss any issue of sexual harassment at the work place.

**Resolution:** Ms. Preeti Pandey, Member Secretary, informed the committee that no incidence of sexual harassment was reported in the campus in last academic session. Dr. Rashmi Shrivastava expressed her satisfaction over the amicable and safe working conditions for women employees and students in IES Campus.



## [SELF ASSESSMENT REPORT]

### Agenda 4: Sensitization of non-teaching and other staff of the College

**Discussion:** Dr. Rashmi Shrivastava highlighted the need of sensitizing non-teaching and other staff of the College like housekeeping, gardening, and security services etc. about sexual harassment issues. After detailed discussion, committee members decided that a poster presentation or power point presentation in their mother tongue should be arranged to create awareness among such staff members. Members also opined that sensitization session for such employees should also create awareness about how to prevent sexual harassment/ how to file a complaint/ submit a report etc.

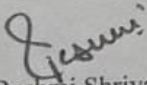
### Agenda 5. Discussion on the proceedings of program on "Power of Women"

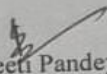
**Resolution:** Ms. Preeti Pandey informed that a two days' program on "Power of Women" was conducted on 4<sup>th</sup> & 5<sup>th</sup> March 2020 at IES Seminar Hall. The invitees for the programme were: Prof. Reeni Malik, Head Dept. of Pathology, Gandhi Medical College; Prof. S B Geeta Nahari, Academician and Psychologist; Dr. Amita Chand, President Bhopal Organ Donor Society; Ms. Richa Choubey, AIG Welfare, MP Police; and Ms. Mayanglambam Inaocha Devi, player from noted Canoeing International. Committee members desired that similar programs should be regularly conducted in campus to enhance confidence in our women employees and female students.

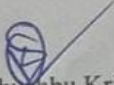
### Agenda 6: Any other matter with the permission of the chair.

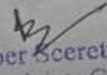
**Resolution:** Member Secretary Ms. Preeti Pandey further shared that discipline committee of the college had conducted surprise visits in the college bus, class rooms, and canteen time to time to keep vigil on any unwanted incident and ensure smooth functioning in campus.

All members expressed their satisfaction over the active functioning of the committee. The meeting ended with vote of thanks by Member Secretary to all the members.

  
Dr. Rashmi Shrivastav  
Presiding Officer

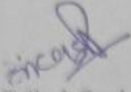
  
Ms. Preeti Pandey  
Member Secretary

  
Ms. Khushbu Kriplani  
Member

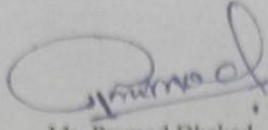
  
Member Secretary  
Internal Complaints Committee  
(Prevention Sexual Harassment of Women at Workplace)  
IES College of Technology, Bhopal



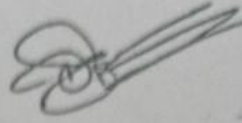
# [SELF ASSESSMENT REPORT]



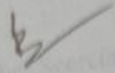
Mr. Brijesh Soni,  
Member



Mr. Pramod Dhakad  
Member



Mr. Dipesh Singh Parmar  
NGO External Member



Mandate Secretary  
Internal Complaints Cell  
(Present in the Internal Complaints Cell at the college)  
IES College of Technology



## [SELF ASSESSMENT REPORT]

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Grievance Redressal Committee headed by Ms. Preeti Pandey shall meet within a month and depending on the date of receipt of any petition/complaint from anybody and take necessary action as deem fit and initiate necessary action for solving problem.

### Grievance Redressal Committee

Grievance Redressal Committee has been constituted with an aim to address all the grievances of faculty members and students.

### **The members of Grievance Redressal Committee for the session 2020-21**

S.No.	Name	Designation	Designation in Grievance Redressal Committee
1	Dr. Preeti Pandey	Assistant Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Chairperson
2	Dr. D. K. Gupta	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Convenor
3	Ms. Poonam Khatarkar	Assistant Professor, Department of Electrical and Electronics Engineering, IES College of Technology, Bhopal	Member
4	Ms. Shweta Singh	Associate Professor, Department of Electronics & Communication, IES College of Technology, Bhopal	Member
5	Mr. Anshul Sarawagi	Assistant Professor, Department of Computer & Science Engineering, IES College of Technology, Bhopal	Member

### **Roles & Responsibilities:**

- To review, investigate and address complaints or grievances of faculty and students.
- To ensure proper redressal of all complaints and grievances.

## [SELF ASSESSMENT REPORT]

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**Anti-Ragging Committee headed by Dr. G. K. Pandey shall meet Bi-annually and depending on the date of receipt of any petition/complaint from anybody and take necessary action as deem fit and initiate necessary action for solving problem.**

### Anti-Ragging Committee

According to All India Council Technical Education (AICTE) notified regulation for prevention and prohibition of ragging in AICTE approved technical institutions vide No. 37-3/Legal/AICTE/2009 dated 01/07/2009, the Principal constituted the Anti-Ragging committee.

S. No.	Name	Designation	Designation in Anti-Ragging Committee
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	Chairman
2	Dr. Dharendra Kumar Gupta	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member Secretary
3	Mr. Deepak Mishra	Assistant Professor, Department of Electronics & Communication, IES College of Technology, Bhopal	Member
4	Mr. Ravindra Mohan	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
5	Ms. Aishwarya Mishra	Associate Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
6	Dr. Vineeta Jain	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member
7	Mr. Deepan Adhikari	Assistant Professor, Department of Management, IES College of Technology, Bhopal	Member
8	Mrs. Pooja Mehta	NGO Abeer Life skills	Member

## [SELF ASSESSMENT REPORT]

9	Mr. Rakesh Singh Gurjar	SHO Thana Ratibad, Bhopal	Member
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### Roles & Responsibilities:

- To create the awareness about Anti Ragging act and punishments among the students and the appropriate law in force.
- To create the awareness about Ragging constitutes (AICTE/UGC Regulation as per the directive of the Supreme Court Ragging CLAUSE 3).
- To prohibit, prevent and eliminate the source of ragging including any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student.
- To prohibit undisciplined activities by any student or students this causes or is likely to cause hardship or psychological harm or to raise fear in any fresher.

### Anti-ragging squad:

S. No.	Name	Designation	Designation in Anti-ragging squad
1	Dr. Dharendra Kumar Gupta	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member
2	Mr. Akhilesh Dwivedi	Assistant Professor, Department of Electrical & Electronics Engineering, IES College of Technology, Bhopal	Member
3	Mr. Vijay Dhote	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
4	Mrs. Preeti Pandey	Assistant Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member
5	Mr. Dhanesh Khalotia	Assistant Professor, Department of Civil Engineering, IES College of Technology, Bhopal	Member



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### **Roles & Responsibilities:**

- To conduct surprise checks in campus, classrooms, laboratories, canteen, hostel, play ground and buses etc.
- To ensure that no one indulges in ragging of junior students.
- To report any ragging related issues found during surprise checks to the anti-ragging committee.

### **10.1.4. Delegation of financial powers**

IES has a firm belief in participative style of management and this is achieved by decentralizing & delegating its functions with empowerment at various levels in all spheres.

#### Delegation of Powers:

The empowerment up to the last level in the organization not only helps in effective & efficient functioning of the organization, but also generates self confidence and sense of responsibilities in the individual.

#### Academics & Administration:

S.N.	Levels	Authority
1	Principal	Ensure implementation of MOM of Governing Body meetings & execute day to day academic activities.
2	HOD's	To follow Principal's Instructions & ensure progress on advisory board meeting objectives.
3	Faculty	Compliance of all work delegated by HOD/Principal in respect of day to day activities, daily lab performance etc.

#### Expenditure (Annually) &Recurring:

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Full but not exceeding budget limit as approved by executive Committee. It is the responsibility of principal to take sanction of secretary for the expenses.
2	Principal	3,00,000/ For expenses more than 3,00,000/ approval of the society will be required after approval of executive committee.
3	HOD's	25,000/-
4	Coordinators/ Committee Heads	25,000/-

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### Infrastructure development & maintenance (Recurring):

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Full but not exceeding budget limit as approved by executive Committee.

### Laboratory Instruments/Library / Computer Peripherals/ Infrastructure/ equipment:

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Full but not exceeding budget limit as approved by executive Committee.
2	Principal	3,00,000/ Decision of purchase committee and final purchase action to be informed to secretary by the Principal.
3	HOD's	25,000/

### Power for sanction of Leave: (CL/EL/SL/ML):

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Sanctioning authority of Leave for Principal
2	Principal	Full for HOD/ Faculty/ Staff(For more than 3 days leave)
3	HOD's	To sanction Leave upto 3 days for Faculty/ Lab I/C. Beyond this application & will be submitted to the Principal.

### Utilization of financial powers for each of the assessment years

Designation	Decision Amount	2020-21	2019-20	2018-2019
Principal	3,00,000/ Decision of purchase committee and final purchase action to be informed to secretary by the Principal.	To promote the growth of Academic activities. (like repairing of instruments, college level cultural, sports, technical events etc)	To promote the growth of Academic activities. (like repairing of instruments, college level cultural, sports, technical events etc)	To promote the growth of Academic activities. (like repairing of instruments, college level cultural, sports, technical events etc)
HODs	25,000/	To Spend for different	To Spend for different	To Spend for different

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		departmental activities (like stationary, industrial visits expenditures, cultural events, models, projects, sports, lab manuals, charts etc.)	departmental activities (like stationary, industrial visits expenditures, cultural events, models, projects, sports, lab manuals, charts etc.)	departmental activities (like stationary, industrial visits expenditures, cultural events, models, projects, sports, lab manuals, charts etc.)
Coordinators/ Committee  Heads	25,000/	To Spend for their committee activities (assembly activity gifts, T&P activities, scholarship tests gifts, Grievances etc.)	To Spend for their committee activities (assembly activity gifts, T&P activities, scholarship tests gifts, Grievances etc.)	To Spend for their committee activities (assembly activity gifts, T&P activities, scholarship tests gifts, Grievances etc.)

### **10.1.5. Transparency and availability of correct/unambiguous information in public domain**

Information about the institute, infrastructure and facilities are being hosted on the institute Website: <http://www.icot.co.in/> along with information of procedure related to admission, academic, & placement.

### **10.2. Budget Allocation, Utilization, and Public Accounting at Institute level (30)**

#### **10.2.1 Adequacy of Budget allocation (10)**

S.No.	Financial Year	Request Budget	Approved Budget	Adequate/Not Adequate
1	2020-21	89875000	89875000	Adequate
2	2019-20	89650000	89650000	Adequate
3	2018-19	106967700	106967700	Adequate
4	2017-18	101015600	101015600	Adequate

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### 10.2.2 Utilization of allocated funds(15)

S.No.	Financial Year	Approved Budget	Actual Expenditure	Percentage Utilization
1	2020-21	89875000	92154598	102.53%
2	2019-20	89650000	87260501	97.33%
3	2018-19	106967700	104935274	98.10%
4	2017-18	101015600	102025628	101.0%

### Summary of Current financial year's budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years

Financial Year	Total Income				Actual expenditure			Total no. of students
	Fee	Govt	Grant	Other sources	Recurring including salaries	Non Recurring	Special Projects/ Any other, specify	Expenditure per student
2020-21	91128491	0	0	2273160	83093663	9060935	0	31865
2019-20	90105084	0	0	2558440	79288776	7971725	0	29302
2018-19	119916312	0	0	0	86310289	18624985	0	37733
2017-18	112430933	0	0	0	85355871	16669757	0	39560

Item	Budgeted 2020-21	Actual Expenses 2020-21	Budgeted 2019-20	Actual Expenses 2019-20	Budgeted 2018-19	Actual Expenses 2018-19	Budgeted 2017-18	Actual Expenses 2017-18
Infrastructure Built up	7000000	6680950	5000000	4500000	16000000	15999000	15000000	14549361
Library	750000	757640	1200000	1150000	700000	675329	600000	575711
Laboratory equipment	2700000	1622345	2400000	2321725	2000000	1950656	1600000	1544685
Laboratory Consuma	850000	762600	1000000	950525	850000	825000	800000	729050

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Teaching and non teaching staff salary	41000000	40430630	38000000	37261930	28500000	28438628	26500000	26098142
Maintenance and spares	425000	359961	400000	313010	650000	600391	1050000	1025055
R & D	1150000	1023275	1000000	930250	800000	770250	600000	570260
Training & Travel	1000000	776945	2500000	2134619	3600000	3500191	3700000	3662105
Miscellaneous	1400000	1308333	2400000	2291762	7700000	7481494	2300000	1210302
Others	33600000	38431919	35750000	35406680	46167700	44694335	48865600	52060957
Total	89875000	92154599	89650000	87260501	106967700	104935274	101015600	102025628

### 10.2.3 Availability of the audited statements on the institutes website (5)

Audited statements for the financial years 2020-21, 2019-20, 2018-19 and 2017-18 are available on College website [www. http://www.icot.co.in/](http://www.icot.co.in/)

### 10.3 Program Specific Budget Allocation, Utilization (30)

#### 10.3.1 Adequacy of Budget allocation(10)

S.No.	Financial Year	Request Budget	Approved Budget	Adequate/Not Adequate
1	2020-21	14470000	14470000	Adequate
2	2019-20	16147000	16147000	Adequate
3	2018-19	18118000	18118000	Adequate
4	2017-18	18191000	18191000	Adequate

#### 10.3.2 Utilization of allocated funds(20)

S.No.	Financial Year	Approved Budget	Actual Expenditure	Percentage Utilization
1	2020-21	14470000	14744735	101.90%

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<b>2</b>	2019-20	16147000	15706891	97.27%
<b>3</b>	2018-19	18118000	17838997	98.46%
<b>4</b>	2017-18	18191000	18364613	100.95%

**Summary of Current financial years budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years**

Financial Year	Total Budget		Actual expenditure		Total no. of students	Expenditure per student
	Non Recurring	Recurring	Non Recurring	Recurring		
2020-21	1672000	12798000	1449750	13294985	407	36228
2019-20	1548000	14599000	1434911	14271980	440	35697
2018-19	3179000	14939000	3166247	14672750	442	40360
2017-18	3096000	15095000	3000556	15364057	408	45011

Item	Budgeted 2020-21	Actual Expenses 2020-21	Budgeted 2019-20	Actual Expenses 2019-20	Budgeted 2018-19	Actual Expenses 2018-19	Budgeted 2017-18	Actual Expenses 2017-18
Laboratory equipment	300000	259575	432000	417911	340000	331612	288000	278043
Software	100000	93920	150000	111735	175000	117142	100000	86000
Laboratory Consumables	136000	122016	180000	171095	145000	140250	144000	131229
Maintenance and spares	68000	57594	72000	56342	110000	102066	189000	184510
R & D	184000	163724	180000	167445	136000	130943	100000	102647
Training & Travel	160000	124311	450000	384231	612000	595032	670000	659179
Miscellaneous expense	13522000	13923595	14683000	14398133	16600000	16421952	16700000	16923005
<b>Total</b>	<b>14470000</b>	<b>14744735</b>	<b>16147000</b>	<b>15706891</b>	<b>18118000</b>	<b>17838997</b>	<b>18191000</b>	<b>18364613</b>

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### **10.4. Library and Internet**

#### **10.4.1. Quality of learning resources (hard/soft)**

Institutes has library which is well stocked with books, journals, e-book, e journals. Students are allowed to go to the library in library hour as mentioned in time table and thus encourage reading habit. Beside this library is also open after college hour to facilitate its optimum use. The following process is used to meet the criteria.

1. A wide range of reading materials, learning resources and information helps to support the Development of successful learners and confident individuals.
2. Promoting independent learning skills supports lifelong learning and encourages students to grow as responsible citizens.
3. Every year books, magazines, journals are added as per the needs of staff and students. for research. Introduction of e-journals for faculty and students.
4. Library hours are mentioned in the time table.
5. Wi-Fi enabled campus.

#### **Library details:**

Zero deficiency report was received by the Institution for all the assessment years.

#### Digital Library

Availability of Digital Library Contents: Yes	
Following digital contents are made available	
Content	Accessibility
NPTEL Video Lecture	Access Provided to NPTEL Video Lecture Content
National Digital Library of India (NDL) IIT Kharagpur	Membership to NDL Digital Library of India
Departmental Library	Available
Access to RGPV Library	Access provided to open source Journals & e-Books.

## [SELF ASSESSMENT REPORT]

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Institutional Repository	Access provided to open source e-Books, e-Journals , previous year question papers, faculty publications etc.
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Note: Library books issued at a time to faculty – 2 and for students – 5.

DELNET: By using DELNET software, students and faculty will get HOD and concerned subject faculty recommends the books to be purchased for the college before commencement of each semester.

### **Computer & internet facility:**

Institution has total 492 computer nodes with 100 Mbps BSNL Leased line facilities. The Central computer Lab is on ground floor in which all the facilities are maintained. This central computer lab has different labs according to the programs and need of students. The total nodes of this central computer lab are 492.

Another Computer lab is on First Floor which has with dual core 50 nodes. The Specification of nodes is:

60 Computers with 3.2 GHz Processor dual core

- HDD: 320GB
- RAM: 2 GB
- Monitor: 15’’TFT
- Keyboard: Multimedia
- Mouse: Optical

100 Computers with 2.4 GHz Processor dual core

- HDD: 160GB
- RAM: 2 GB
- Monitor:18.5’’TFT
- Keyboard: Multimedia
- Mouse: Optical



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70 Computers with 3.2 GHz Processor Dual Core

- HDD: 500 GB
- RAM: 4 GB
- Monitor: 18.5" TFT
- Keyboard: Multimedia
- Mouse: Optical

60 Computers with 3.2 GHz Processor Core I3

- HDD: 500 GB
- RAM: 4 GB
- Monitor: 18.5" TFT
- Keyboard: Multimedia
- Mouse: Optical

60 Computers with 2.8 GHz Processor Dual Core

- HDD: 250 GB
- RAM : 2 GB
- Monitor: 18.5" TFT
- Keyboard: Multimedia
- Mouse: Optical

100 Computers with 2.8 GHz Processor Dual Core

- HDD: 250 GB
- RAM : 2 GB
- Monitor: 18.5" TFT
- Keyboard: Multimedia
- Mouse: Optical

50 Computers 2.2 GHz Dual Core Processor

- HDD: 80GB
- RAM: 1 GB
- Monitor: 15" TFT
- Keyboard: Multimedia
- Mouse: Optical

Institution has servers for facilitating the service to different labs.

2 Servers with

## [SELF ASSESSMENT REPORT]

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- Prolient G7 HP
- HDD: 500GB
- RAM: 8 GB
- Monitor:17''TFT
- Keyboard: Multimedia
- Mouse: Optical
- LAN Port -2

1-Server -Intel Xeon 2.0 GHz (2700 SO)

- HDD: 250GB
- RAM: 4 GB
- Monitor:15''LCD
- Keyboard: Multimedia
- Mouse: Optical
- LAN Port -2

1-Server -Intel Xeon 2.0 GHz (1000 AH)

- HDD: 250GB
- RAM: 4 GB
- Monitor:15''LCD
- Keyboard: Multimedia
- Mouse: Optical
- LAN Port -2

### **Computer-student ratio:**

Institution has provided a facility of labs for practical knowledge development in computer science department as well as other departments. As per the schedule for the academics, we have ratio of 1:4 for UG students & 1:2 for PG students.

### Stand alone facility

- Institution has standalone facilities like FAX & Photocopy Machine for immediately facilitating the work.
- All the labs are Air conditioned.
- Center having UPS and DG (Diesel Generator) for Power backup

### LAN facility

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- LAN facility is available in college on class A & B with range of IP address.
- 172.16.0.1 onwards with 500 users
- 10.0.0.1 onwards with 500(Required if one link fails)\*Wi-Fi facility
- Institution has Wi-Fi facilities specific area of the campus.

### Licensed software

#### System Software:

- Microsoft Visual Studio 2016
- Windows Server (2008, 2012 R2 - Standard)
- Windows 10 (Professional)
- Windows 7
- Windows Vista (Business and Enterprise)
- Microsoft SQL Server (2008,2012)

### Application Software:

- Dev C/ C++
- Borland C/C++
- Oracle 11g
- Quick Heal Total Security
- Communicative English Language (KVAN Software)

### Open Source:

- Ubuntu 14.0.4
- JDK 7.4.1
- Eclipse
- Code-block
- Windows SDK
- Sun java wireless toolkit 2.5.2\_01 for cldc
- Mozilla fire fox
- Winrar
- Acrobat reader
- Python software

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Number of nodes/ computers with Internet facility

All 492 Computers have internet facility.

Institution has facilities for power backup comprising of UPS & power generator. All computers are attached with power backup system. All Labs have individual Air Conditioners. Moreover, some of the labs are certified & assigned to the work for:

- Centre of Excellence (COE) of IBM (India)
- Microsoft Innovation Centre (MIC) by Microsoft (India)
- IIT Bombay Remote Centre

### **Support to students for self-learning activities**

- College is conducting Subject Expert webinars.
- Special E- Board Lectures to the students.
- Teachers liberally take help of the ICT resources to enrich their prescribed curriculum.
- College is providing on line NPTEL video material.
- Faculty members are provided with computers with internet browsing facility for preparation of teaching/learning materials in their respective departments.
- Multimedia projectors, OHPs are available within the college for the use of faculty.
- College has seminar halls equipped with projectors and are available as and when requested by a particular teacher.
- For completion of assignment, students browse the information from internet and self learning facilities are also available at the library.
- Given online quizzes on internet and assessments.
- Lab like IBM (Centre of Excellence), MIC(Microsoft Innovation Centre), Remote centre(IIT Bombay & Kharagpur) have been established and on the basis of these various certifications programs and Seminars are organized on regular basis.

Internet service is available in the college for faculty and students. Institution has two internet lines for availing the facility:

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- BSNL Leased Line (100 Mbps)
- Jio (10 Mbps)

The campus is Wi-Fi enabled & internet is secured with firewall for all the connections. These connections are used alternatively & in case are link goes down, then another link is used to resume the facilities of Internet. For off campus students, the internet facility with password is provided. For any type of information / updates Group has its own website [www.icot.co.in](http://www.icot.co.in)

There are separate lab facilities available for all departments with Vodafone & BSNL line Internet connectivity. Also all department HODs, staff rooms, Examination Room and different cells have the facility of high speed internet connectivity.

Library is equipped with 12 nos. of PCs with high internet & Del-net facility systems and the area is fully Wi-Fi zone.

For the security purpose the firewall have been installed in all the PCs and some where main points the quick heal antivirus have also installed for the security purpose.

### **10.4.2. Internet**

- Name of the Internet provider: **BSNL & Jio**
- Available bandwidth: **100 Mbps & 10 Mbps**
- Wi-Fi availability: **Yes**
- Internet access in labs, classrooms, library and offices of all Departments: **Yes**
- Security arrangements: **Yes**

# [SELF ASSESSMENT REPORT]

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## Declaration

The head of the institution needs to make a declaration as per the format given below: I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines in force as on date and the institute shall fully abide by them. It is submitted that information provided in this Self-Assessment Report is factually correct. I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during pre-visit, visit, post visit and subsequent to grant of accreditation.

**Date:** 24/09/2021

**Signature & Name**



PRINCIPAL  
IES College of Technology  
BHOPAL

**Place:** Bhopal

**Dr. Gyanendra Kumar Pandey**

**Head of the Institution with seal**