NATIONALBOARDOFACCREDITATION

SELF ASSESSMENT REPORT

(SAR)

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

(COMPUTER SCIECNE & ENGINEERING)

IES COLLEGE OF TECHNOLOGY, BHOPAL (0177)

Kalkheda, Ratibad Main Road,

Bhopal-462044, Madhya Pradesh, India

2020-2021

SAR Contents

Serial Code	Item	Marks	2020-2021
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	Total Marks	**1000**	**912**

IES COLLEGE OF TECHNOLOGY (0177)

COMPUTER SCIENCE & 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:

☐University	☐Autonomous
☐DeemedUniversity	☑Affiliated
☐GovernmentAided	

5 Ownership Status:

☐Central Government	☐Trust ☐
☐State Government	☐Society
☐Government Aided	☐Section25Company
☑Self financing	☐Any Other (Please Specify)

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

Name of Institutions	Year of Establishment	Programs of Study	Location
IES PUBLIC SCHOOL, BHOPAL	2014	HIGHERSECONDARYSCHOOL(CBSE)	BHOPAL
IESINSTITUTEOFPHARMACY,BHOPAL	2017	PHARMACY	BHOPAL
IES UNIVERSITY,BHOPAL	2019	EDUCATION,NURSING,PARAMEDICAL,ENGG.ETCETC	BHOPAL

7 Detailsofalltheprogramsbeingofferedbytheinstitutionunderconsideration:

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
Computer Science & Engineering	UG	2007	2007	60	Yes	180	**Applying First time**	--	--	Yes	4
Computer Science Engineering	PG	2011	2011	18	No	18	**Eligible but not applied**	--	--	No	2

8 **Programs to be considered for Accreditation vide this application:**

S No	Level	Discipline	Program
1	UnderGraduate	Engineering&Technology	ComputerScience&Engineering
2	UnderGraduate	Engineering&Technology	Electrical&ElectronicsEngineering
3	UnderGraduate	Engineering&Technology	Electronics&CommunicationEngineering
4	UnderGraduate	Engineering&Technology	MechanicalEngineering

9 **Total number of employees in the institution**

   A. Regular*Employees(FacultyandStaff):

Items	2020-21		2019-20		2018-19		2017-18	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
FacultyinEngineering(Male)	96	96	83	83	80	80	85	85
FacultyinEngineering(Female)	16	16	20	20	22	22	22	22
FacultyinMaths,Science&Humanities(Male)	22	22	22	22	21	21	17	17
FacultyinMaths,Science&Humanities(Female)	23	23	21	21	19	19	20	20
Non-teachingstaff(Male)	44	44	45	45	46	46	46	46
Non-teachingstaff(Female)	05	05	05	05	05	05	05	05

B. Contractual*Employees(FacultyandStaff):

Items	2020-21		2019-20		2018-19		2017-18	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
FacultyinEngineering(Male)	04	04	08	08	04	04	03	03
FacultyinEngineering(Female)	0	0	0	0	0	0	0	0
FacultyinMaths,Science&Humanities(Male)	0	0	0	0	0	0	0	0
FacultyinMaths,Science&Humanities(FeMale)	0	0	0	0	0	0	0	0
Non-teachingstaff(Male)	0	0	0	0	0	0	0	0
Non-teachingstaff(FeMale)	0	0	0	0	0	0	0	0

10 Totalnumber of EngineeringStudents:

EngineeringandTechnology-UG	☑ Shift1	☐ Shift2
EngineeringandTechnology-PG	☑ Shift1	☐ Shift2
Engineeringand Technology- Polytechnic	☐ Shift1	☐ Shift2
MBA	☑ Shift1	☐ Shift2
MCA	☐ Shift1	☐ Shift2

Engineeringand Technology- UGShift-1

Items	2020-21	2019-20	2018-19	2017-18
Totalno.ofBoys	481	630	615	624
Totalno.ofGirls	23	23	44	36
Total	504	**653**	**659**	**660**

Engineeringand Technology- PGShift-1

Items	2020-21	2019-20	2018-19	2017-18
Totalno.ofBoys	43	29	40	38
Totalno.ofGirls	9	8	11	5
Total	**52**	**37**	**51**	**43**

Engineering and Technology- Polytechnic Shift-2

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**
Total	**138**	**206**	**239**	**300**

Engineeringand 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
Total	**180**	**180**	**60**	**60**

11 Vision oftheInstitution:

Todevelopasareputedtechnicalinstitutionbyimpartingqualityeducationcoupledwithhumanvaluesforensuringtheoverallpersonality developmentofengineeringstudents

MissionoftheInstitution:

M1. Toprovidethebestfacilities, environment,andinfrastructurefortheachievement ofobjectives.

M2. Toensuretheavailabilityofintellectualassetsintermsofqualifiedfacultycommittedtothecauseofdevelopingcompet entengineersandmanagers.

M3. Toputindedicatedeffortsforinculcatinghumanvaluesinthestudentscoupledwithoverallpersonalitydevelopment.

M4. Toprovidevalue-addedcoursesandprojectsthroughIndustry-Instituteinteractionsforeffectivelearningandbettercareeropportunities

M5. TotieupwithIndustriesandInstitutionsfordevelopinginnovativeand   entrepreneurial killsofstudents.

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

HeadoftheInstitution	
Name	Dr. GyanendraKumarPandey
Designation	Principal
MobileNo.	9285009752
EmailID	iesbpl@gmail.com

NBACoordinator, IfDesignated

Name	Dr.PallaveeBhatnagar
Designation	HOD, Department Electrical andElectronicsEngg.
MobileNo.	9229251477
EmailID	nba.coordinator@iesbpl.ac.in

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| CRITERION 1 | Vision, Mission and Program Educational Objectives | 60 |

VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES

1.1 State the Vision and Mission of the Department and Institute

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.

Vision of the Department

To create technocrats in the field of Computer Science & Engineering through an effective teaching-learning process to make them competent in software skills and professional ethics.

Mission of the Department:

M-1: To provide appropriate facilities and environment for the effective teaching-learning process.

M-2: To ensure the availability of intellectual assets in terms of qualified faculty committed to developing competent students.

M-3: To put in dedicated efforts for inculcating software skills in the students through programming, workshop, expert lectures and Industry-Institute interactions.

M-4: To enhance employability by providing extracurricular and co-curricular activities to inculcating professionalism and ethical values.

M-5: To motivate the students competent for higher studies and Entrepreneurship.

B. Consistency of the Department statements with the Institute statements

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

	Vision of the department: To create technocrats in the field of Computer Science & Engineering through an effective teaching-learning process to make them competent in software skills and professional ethics	**Justification**
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	**Consistency**: **High**	Quality education/ Effective teaching process
		Professional ethics/ professional ethics
		Overall development/ competent
		Quality education/ technocrats in the field of Computer Science & Engineering

Table 1.2: Justification of mapping of Institute Mission with Department Mission

Mission of the Institute / Mission n of the Department	To provide appropriate facilities and environment for effective teaching learning process.	To ensure availability of intellectual assets in terms of qualified faculty committed for developing competent students.	To put in dedicated efforts for inculcating software skills in the students through programming, workshop, expert lectures and Industry-Institute interactions.	To enhance employability by providing extra-curricular and co-curricular activities to inculcating professionalism and ethical values.	To motivate the students competent for higher studies and Entrepreneurship
To provide best facilities, environment, and infrastructure for achievement of objectives.	High (Provide strong correlation with academic excellence with effective teaching learning process)	Medium (provide qualified faculty and infrastructure)	High (Work for the development of Software Industries)	Medium (Provide best facility and value added course)	Low (achievement of objectives / competent for higher studies and Entrepreneurship skills)
To ensure availability of intellectual assets in terms of qualified faculty committed for the cause of developing competent engineers and managers.	Medium (provide intellectual assets / facilities)	High (Inculcating a scientific temper and to train a person in practical science and technology to make him better suited to the increasingly technologically.)	High (Work for the solutions in real life to technical problems with societal, environmental and ethical responsibility.)	Medium (provide intellectual assets / facilities inculcating professionalism and ethical values)	Medium ((provide intellectual assets / facilities)

To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.	Medium (Work for the development of Software Industries through programming skills and Industry-Institute interactions	High (Contribute to the research and development for Government and private sector	High (Contribute to the real life solutions to technical problems with societal, environmental and ethical responsibility	High (develop competent engineering/develop human values available assets/activities)	Medium (achievement of objectives / competent for higher studies and Entrepreneurship skills)
To provide value-added courses and projects through Industry-Institute interactions for effective learning and better career opportunities.	Medium (Provide value added course)	High (qualified faculty committed for developing competent students)	High (Institute interactions for effective learning and better career opportunities.)	Low (enhance employability for effective learning and better career)	Medium (provide value-added courses and projects through Industry)
To tie up with Industries and Institutions for developing innovative and entrepreneurial skills of students	Medium (provide appropriate facilities and environment)	Medium (Provide best facility and value added course)	High (Contribute to the real life solutions to technical problems with societal, environmental and ethical responsibility	Low (enhance employability for developing innovative and entrepreneurial skills of students)	High (Motivate students for Entrepreneurship and higher studies

1.2 State the Program Educational Objectives (PEOs)

Listing of the Program Educational Objectives of the Program.

PEO-1: Develop Graduates in computer engineering who can become software professionals to satisfy the needs of the IT Companies, research academia and society at large.

PEO-2: Develop Graduates as computing professionals who can conduct research and/or lead, designing, developing or maintaining projects in various areas of Computer science and engineering.

PEO-3: Develop Graduates who will engage in lifelong learning and professional development to adapt to a rapidly changing work environment with a sense of ethical responsibility.

1.3 Indicate where the Vision, Mission and PEOs are published and disseminated among stakeholders

The Mission and Vision and PEOs have been published by using strengths, weaknesses, opportunities and threats (SWOT) analysis 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 Advisory Board (DAB) 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 located at strategic places of the Institute.
- Handbook of the Institute.
- Display boards.
- Seminar hall.
- Class Room & Labs
- Course file of the Faculty
- HOD Office

- Staff rooms
- Department Library
- Lab Manuals
- Placement Office

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)	Yes	Yes
News Letters published by the Institution: QUEST	Yes	Yes
Admission brochure of the Institution	Yes	Yes
Handbook of the Institution	Yes	Yes

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

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

1.4 State the process for defining the Vision and Mission of the Department, and PEOs of the program

    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.

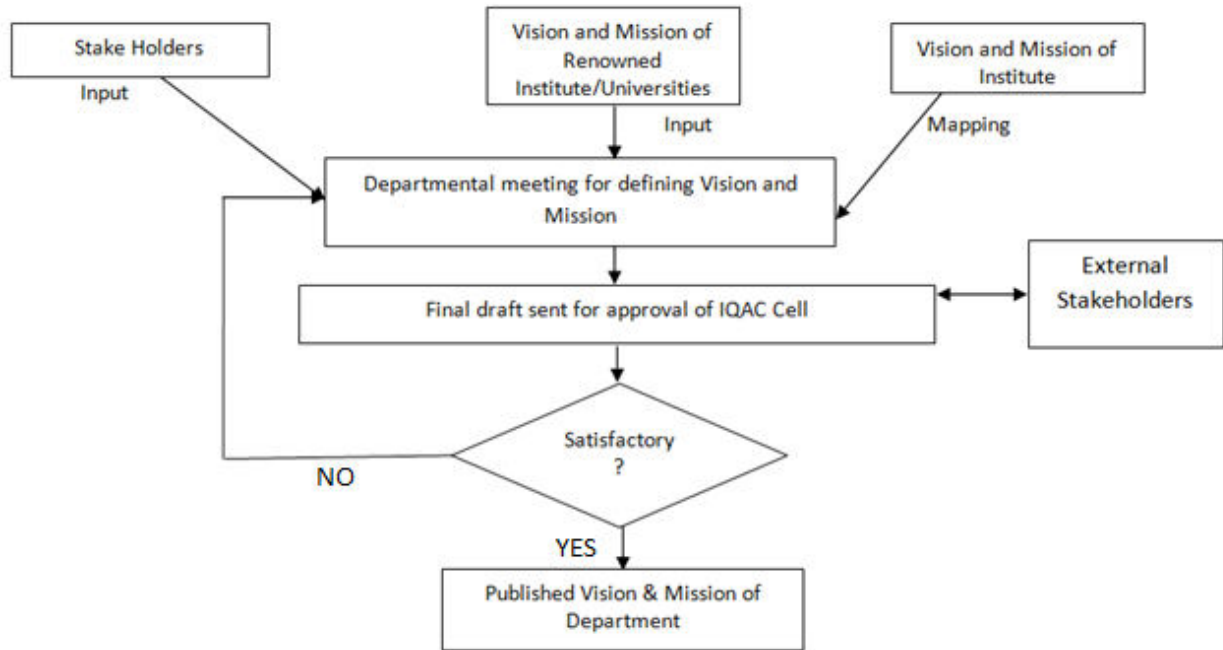**Step 6:** IQAC endorsed the final vision and mission statements.

Fig 1.1: Establishing Vision and Mission

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 discussed.

Step-5: The proposed PEOs were reviewed and recommended at the institution level to IQAC committee.

Step-6: After approval by the IQAC, the PEOs were finalized & given wide publicity.
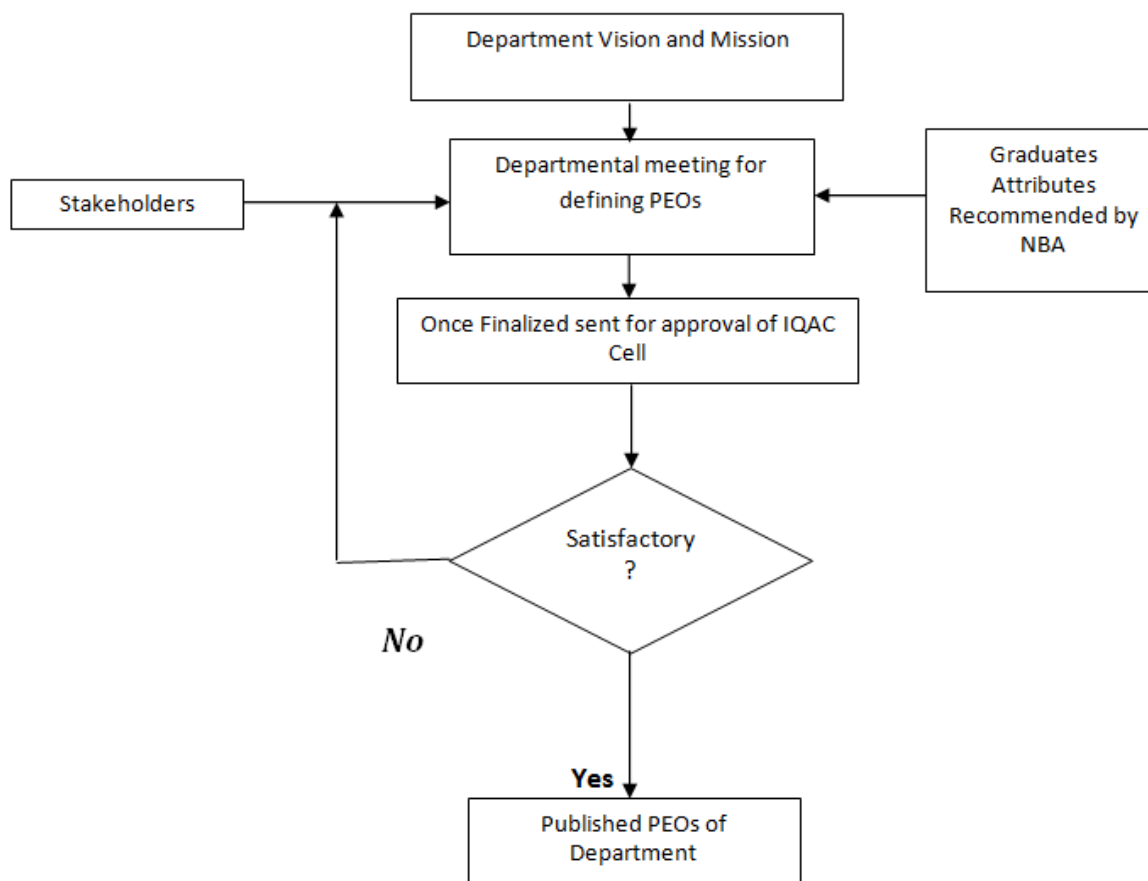
Fig.1.2. Flow chart of defining PEOs

1.5 Establish consistency of PEOs with Mission of the Department

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	M5
PEO1	3	3	3	1	2
PEO2	2	2	3	-	2
PEO3	2	2	1	3	2

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

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	M5
PEO1	3	3	3	1	2
	Provide strong correlation with PEO1 as academic excellence is the objective with effective teaching learning process through the use of modern teaching aids, remedial & extra classes, extra lab hours, tutorial sessions, organization of engineering activities to develop professionals.	Strongly support to achieve PEO1, as the objective is to develop the ability among students to understand the concepts of computer engineering which can be accomplished if graduates are facilitates understanding of new technology through best faculties and infrastructure.	Projects inculcate group work and team management skills with cross- cultural etiquettes, promoting knowledge transfer that leads to conceptualization. Diversification of CSE graduates are achieved through projects and leads to a sustainable competitive edge in R&D thus meeting societal needs.	Correlates with PEO1 through the participation of students in the management of various university activities like cultural, sports and other tech fests. The versatility and advanced skills of CSE graduates are becoming increasingly valuable by crafting smarter solutions for safer, more efficient and resilient information based systems, especially in the areas of Computer Networks, Distributed Systems, Software Engineering, Artificial Intelligence, Cyber	Graduates apply their knowledge and technical competence in the fundamental engineering and the applications of broad field of computer science and engineering such as networking and information security. Students are benefited by acquiring opted placement opportunities in IT industries or empowering knowledge to do higher education or an entrepreneur.

				Security etc as per the need of industries.	
PEO2	2	2	3	-	2
	Producing graduates with ability of problem solving, analyzing complex things and applying mathematical and engineering principles by providing best teaching and learning environment through innovative teaching and research oriented activities in the field of Computer Science and Engineering.	Producing graduates with ability of problem solving, analyzing complex things and applying mathematical, natural science and engineering principles by motivating to undergo advanced research through post graduations.	Producing graduates with ability of problem solving, analyzing complex things and Appling mathematical and engineering principles by imparting the Values of ethics and social responsibilities.	-	Graduates will have strong knowledge in mathematics, fundamental engineering and core computer engineering technologies to get benefits in their career in MNCs or to continue their higher Studies and research or to become an entrepreneur by providing strong foundation in their core engineering and research exposure
PEO3	2	2	1	3	2
	Graduates will have an ability of handling modern tools to design solutions for complex core problems in the field of computer Science and Engineering by	Awareness is created among the students about the alternatives and various trends in the technology during classroom teaching, which brings about inquisitives in the students.	Aims at providing a platform for the students to be aware of the trends in technology and provides a way for innovative thinking which will help in lifelong	Graduates will have strong knowledge in mathematics, fundamental engineering and core computer engineering technologies	Graduates will have an ability of handling modern tools to design solutions in their core area for the need of Public domain and Social empowerment

	providing best teaching and learning environment through practical and laboratory research in the field of Computer Science and Engineering	learning	to get benefits in their career in MNCs or to become an entrepreneur by motivating the students in the aspects of professional ethics and leadership quality to serve the society	techniques by preparing the students with strong knowledge, attitude, and ethics to contribute a responsible role in the society

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Criterion 2	Program Curriculum and Teaching Learning Processes	120

2.1. Program Curriculum (20)

2.1.1. State the process used to identify extent of compliance of the University curriculum for attaining the Program Outcomes and Program Specific Outcomes as mentioned in Annexure I. Also mention the identified curricular gaps if any (10)

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 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 include 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 the fundamental knowledge on all engineering disciplines.

Professional Core Courses:

The stream include subjects/courses like data structures with C, Computer System Organization, object oriented programming Analysis & Design of algorithm, Theory of Computation, Analog & Digital Communication, Computer Organization, Software Engineering, Operating Systems, Database Management Systems, Computer Networks, Object-Oriented Modelling & Design, Computer Graphics & Multimedia, Data Base Management System, Advanced Computer Architecture, Principles of Programming Languages, Machine Learning etc. Project work and technical seminar are included in final year to provide opportunity for students to develop 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 Embedded Systems, Human Computer Interaction, Digital Image Processing, Data Science & Big data, Modern Information Retrieval, Multimedia Systems etc. The Electives provide an avenue for specialization in an area of the student's choice

As per the R.G.P.V Bhopal regulations, the first year Bachelor of Engineering (BE) course is on Grading System (GS) (Academic year 2017-18) system and II, III and IV years' Bachelor of 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 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 subjects and feedback from various stakeholders like students, alumni, industry, and academia by departmental academic advisory committee. Thereafter contents are identified and taught along with university syllabus in order to fill the gap to update knowledge and thus prepare students with knowledge, skills and abilities expected in 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.

The Program Educational Objectives (PEOs)

- **PEO-1:** Develop Graduates in computer engineering who can become software professionals to satisfy the needs of the IT Companies, research academia and society at large.
- **PEO-2:** Develop Graduates as computing professionals who can conduct research and/or lead, designing, developing or maintaining projects in various areas of Computer science and engineering.
- **PEO-3:** Develop Graduates who will engage in lifelong learning and professional development to adapt to a rapidly changing work environment with a sense of ethical responsibility.

Program Specified Outcomes (PSOs)

Graduates will be able to

PSO 1: Solve, design and develop web based software application using open source technology.

PSO 2: Solve the problems in relevance to security issues by applying the concept of network and cyber security.

PSO 3: Provide solutions of hardware and software related problems to maintain the operations of a computer system

Program Outcomes (POs)

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, 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 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.

Following process is adopted to identify 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 given by Recruiters in Campus Placements and by prospective Employers.
- ➢ Inputs given by Principal/Management in Departmental academic advisory meetings.
- ➢ Feedback 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 Department Advisory Committee meetings.
- ➢ Feedback given by faculty members handling the courses.
- ➢ Feedback given by alumni.

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

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                           ┌─────────────────────────┐
                           │     RGPV Curriculum     │
                           └─────────────────────────┘
                                       │
                                       ▼
┌──────────────────────┐    ┌─────────────────────────────┐    ┌──────────────────────┐
│  Compare with other  │    │  Departmental Meeting to    │    │   Feedback from      │
│ University Curriculum │───▶│  identify Curricula gap     │◀───│   Stakeholders       │
└──────────────────────┘    │  with active participation  │    └──────────────────────┘
                            │  of all departmental        │
                            │  faculties                  │
                            └─────────────────────────────┘
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                                       ▼
                           ┌─────────────────────────────┐
                           │ Draft copy of identify      │
                           │ Curricula gap forwarded to  │
                           │ IQAC Cell for Approval      │
                           └─────────────────────────────┘
                                       │
                                       ▼
                           ┌─────────────────────────────┐
                           │ Copy forwarded to university│
                           │ for including               │
                           │ in Syllabus                 │
                           └─────────────────────────────┘
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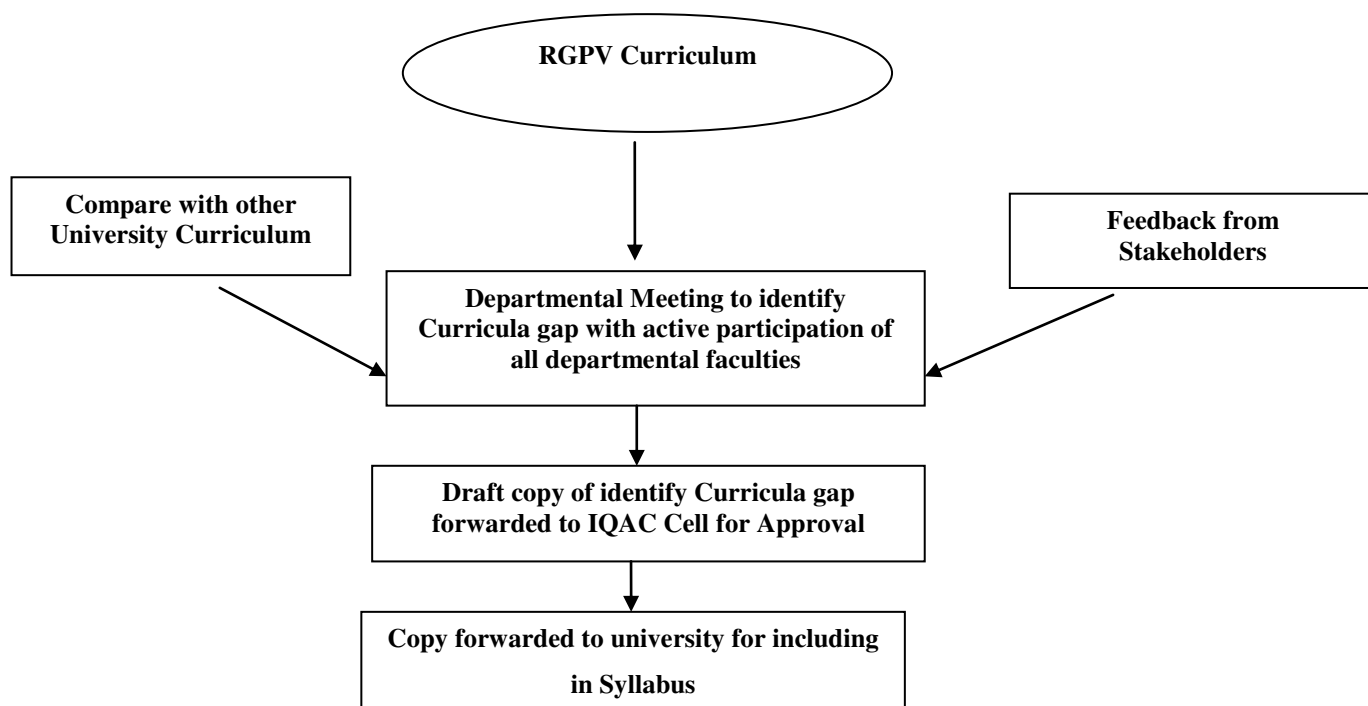
Figure 2.1 Curriculum gap identify process

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

Table: 2.1: B.E. (CBCS) (1 , 2 , 3 and 4 SEM)			
Program Curriculum Grouping based on Course Component	**Number of subjects**	**PO**	**PSO**
Basic Sciences	9	1,2,6,7,8,9,10,11, 12	1,3
Basic Engineering Courses	8	1,2,6,7,9,12	1,2,3
Professional Core Courses	12	1,2,3,4,5,7,8,9,12	1,2.3
Management Courses	1	1,2,6,8,9,11,12	1
All/Total	**30**	**1,2,5,6,7,8,9,10,11, 12**	**1,2,3**

Table: 2.2: B.E. (CBGS) (5 , 6 , 7 and 8 SEM)

Program Curriculum Grouping based on Course Component	Number of subjects	PO	PSO
Professional Core Courses	22	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
Management Courses	2	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
Elective Courses	6	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
All/Total	**30**	1,2,3,4,5,6,7,8,9,10,11,12	**1,2,3**

Table: 2.3. BE (Grading) (1st , 2nd 3rd , 4th , 5th , 6th , 7th and 8thSemester)			
Program Curriculum Grouping based on Course Component	Number of subjects	POs	PSO
Basic Sciences & Humanities	7	1,2,5,6,7,8,9,10,11,12	1,2
Basic Engineering Courses	6	1,2,3,4,5,6,7,8,9,10,11,12	1,2
Professional Core Courses	27	1,2,3,4,5,6,7,8,11,12	1,2,3
Management Courses	1	1,2,5,6,,8,10,11,12	1,2,3
Elective Courses	2	1,2,3,5,6,7,8,9,10,12	1,2,3
Project, Seminar & Lab Practices	15	2,3,7,9,10,11,12	1,2,3
All/Total	56	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3

Department of Computer Science Engineering																	
Evaluation Sheet (Analysis of Course components)																	
Batch: 2016-2020 Batch [B.E. CBCS (Choice Based Credit System)] [1st, 2nd), B.E. CBGS (Choice Based Grading System 3 to 8th SEM]																	
SEM	S. No.	Subject Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
I	1	MA110	1.80	1.80	1.80	1.80	-	1.80	1.80	-	-	-	1.80	1.80	1.80	1.80	1.80
	2	EC111	3.00	3.00	3.00	-	3.00	3.00	-	-	3.00	-	-	3.00	3.00	3.00	3.00
	3	ME111	2.65	2.68	-	-	3.00	2.40	2.40	-	-	-	-	2.67	3.00	3.00	3.00
	4	PH110	2.67	2.66	-	-	-	2.30	2.27	2.40	3.00	-	-	2.66	2.67	-	-
	5	HU110	2.86	2.92	-	-	2.80	3.00	-	3.00	3.00	2.94	-	2.89	2.93	-	2.90
	6	ML110	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	7	CS111	3.00	3.00	-	-	3.00	-	-	-	3.00	-	-	3.00	3.00	-	3.00
	8	HU110	2.86	2.92	-	-	2.80	3.00	-	3.00	3.00	2.94	-	2.89	-	-	2.90

Sem	No	Course															
II	9	MA111	1.00	1.07	-	-	-	-	-	-	-	-	-	0.93	1.07	-	0.93
	10	ME112	2.20	2.07	-	-	-	1.80	2.00	1.20	-	-	-	2.16	-	-	2.10
	11	CS112	2.03	2.00	0.40		3.00	-	-	-	3.00	-	-	2.00	2.03	-	2.10
	12	CS113	2.02	2.01	-	-	2.00	-	-	-	-	-	1.04	3.00	2.03	-	1.97
	13	CY110	2.03	1.96	-	-	-	1.07	1.07	-	-	-	-	2.06	-	-	1.97
	14	ME 113	3.00	3.00	3.00	-	3.00	-	-	-	3.00	-	-	3.00	-	-	3.00
	15	HU112	3.00	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.00
	16	CS110	3.00	3.00	3.00	-	3.00	-	-	-	3.00	-	-	3.00	-	-	3.00
III	17	CS3001 MIII	0.90	0.60	-	-	-	-	-	-	-	-	-	0.90	-	-	0.90
	18	CS3002(EDC)	2.02	1.76	2.60	-	2.30	-	3.00	1.60	2.10	-	-	2.06	2.01	2.10	2.10
	19	CS3003(DC&D)	2.31	2.43	2.50	0.00	2.46	0.00	0.00	0.00	2.61	0.00	0.00	2.46	2.55	2.61	2.65
	20	CS3004(DS-II)	1.86	1.63	1.68	0.90	1.82	3.00	-	-	3.00	3.00	3.00	1.85	1.87	1.95	1.87
	21	CS300(DS)	2.30	1.15	2.30	-	2.30	2.30	-	-	2.30	2.30	2.30	2.30	2.30	2.30	2.30
	22	CS3006 (CP)	2.66	2.70	-	-	2.68	-	-	-	2.69	2.68	-	2.50	-	2.60	2.70
	23	CS3007 (RO)	3.00	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	-	3.00	3.00	3.00	3.00
	24	CS3008(NCC)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
IV	25	CS3001 (MIII)	2.30	2.30	-	-	2.30	-	-	-	-	-	-	2.30	2.30		2.30
	26	CS4002 (CSO)	3.00	2.50	3.00	-	3.00	-	-	-	3.00	-	-	3.00	3.00	3.00	3.00
	27	CS4003(ADC)	1.95	1.35	1.95	1.50	1.50	-	-	-	0.00	-	-	0.45	1.95	1.50	0.45
	28	CS4004(ADA)	1.95	1.52	1.95	0.90	1.95	-	3.00	3.00	0.90	-	-	1.95	1.95	1.95	1.95
	29	CS4005	3.00	3.00	3.00	3.00	-	-	-	-	-	-	-	-	3.00	3.00	3.00
	30	CS4006(CP-II)	3.00	2.14	-	-	3.00	-	-	3.00	3.00	-	-	-	3.00	-	3.00
	31	CS4007(PT)	3.00	3.00	-	-	3.00	-	-	3.00	3.00	-	-	-	3.00	-	3.00
	32	CS4008(PF)	3.00	3.00	-	-	-	3.00	3.00	3.00	-	3.00	-	3.00	-	3.00	3.00
V	33	CS5001(DC)	1.54	1.53	-	-	1.60	1.60	-	1.60	1.60	1.60	-	1.60	1.53	1.60	1.48
	34	CS5002(O S)	1.98	1.97	-	-	2.10	-	-	-	1.80	-	-	2.00	1.98	1.90	2.10
	35	CS5003(DBMS)	2.02	2.01	0.00	0.00	2.10	0.00	0.00	0.00	1.70	0.00	1.50	2.10	2.06	2.03	2.10
	36	CS5004(CGM)	1.59	1.60	-	-	1.75	-	-	-	-	-	-	1.75	1.61	1.68	1.66
	37	CS5005(EII)	1.60	1.60	1.60	-	1.60	-	-	-	1.60	-	-	1.60	1.60	1.60	1.60
	38	CS5006(CPV)	2.20	2.29	2.60	-	2.47	-	3.00	-	2.07	-	-	2.52	2.20	2.20	2.28
	39	CS5007(MSD)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	40	CS5008(IT)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
VI	41	CS6001(ACA)	0.72	0.79	0.90	-	-	-	-	-	-	-	-	0.90	0.72	0.90	0.90
	42	CS6002(PPL)	2.45	2.43	2.42	3.00	2.65	-	-	-	2.58	-	2.60	2.25	2.32	2.32	2.42
	43	CS6003(SEPM)	1.57	1.70	1.48	-	1.80	1.62	-	2.40	3.00	0.60	1.53	1.60	1.57	1.74	1.61
	44	CS6004(CN)	2.18	2.19	2.10	-	2.14	2.10	-	-	2.60	3.00	-	2.18	2.18	2.20	2.22
	45	CS6005(EII)	0.78	0.84	-	-	0.66	-	-	-	-	-	-	0.90	0.80	0.80	0.30
	46	CS6006(MP)	2.67	2.57	2.20	3.00	2.36	2.60	2.80	2.60	2.40	2.43	1.80	2.53	2.56	2.80	2.60
	47	CS6007(CED)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	48	CS6008(S/IL)	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
VII	49	CS7001(DS)	2.41	2.38	2.58	0.00	2.58	1.00	-	-	1.80	0.00	0.00	2.42	2.35	2.58	2.25
	50	CS7002(CD)	1.68	1.71	1.75	0.90	1.55	-	-	-	0.45	1.02	1.50	1.55	1.62	1.50	1.65
	51	CS7003(WE)	1.64	1.72	1.55	1.33	1.57	0.00	0.00	0.00	0.30	0.00	1.23	0.35	1.63	1.67	1.68
	52	CS7004(EIII)	2.23	2.24	-	-	2.10	-	-	-	2.30	-	-	2.30	2.23	2.30	2.30
	53	CS7005(EIV)	1.37	1.27	-	-	1.00	-	-	-	-	-	-	1.10	1.30	1.39	1.23
	54	CS7006(P-I)	2.80	2.86	3.00	3.00	3.00	3.00	3.00	3.00	2.90	2.91	3.00	2.90	2.82	2.93	3.00

Sem	No.	Course														
	55	CS7007(IT)	2.26	2.15	2.20	1.80	2.12	2.47	2.30	2.12	2.27	2.50	2.28	2.31	2.08	2.12	2.20
VIII	56	CS8001(SE)	3.00	3.00	3.00	-	3.00	-	-	3.00	-	-	-	3.00	3.38	3.00	3.00
	57	CS8002(CC)	3.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	3.00	0.00	0.00	3.00	3.00	3.00	3.00
	58	CS8003(EV)	3.00	3.00	-	-	3.00	-	-	-	3.00	-	-	3.00	3.00	3.00	3.00
	59	CS8004(EVI)	3.00	3.00	-	-	3.00	-	-	-	3.00	-	-	3.00	3.00	3.00	3.00
	60	CS8005 (P-II)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-	3.00	3.00	3.00	3.00
	61	CS8006(L-EV)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	62	CS8007(GD)	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

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 Identified (2020-2021)

Gap No.	Gaps Identified	Relevance to	
		POs	PSOs
Gap1	Blockchain Technology	1,2,3,4,5	1,2,3
Gap2	Skill based Training	2,3,4,5,12	1,2,3
Gap3	Exposure to Equipment and software currently used in the industry	3,4,5	1,2,3
Gap 4	Quantitative & Verbal Aptitude classes	1,2,3, 5,12	1

(2019-2020)

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	Need to upgrade curriculum as per Industry requirement	1,2,3	1,2,3
Gap3	Exposure to Advanced Equipment and software currently used in the industry	3,4,5	1,2,3
Gap4	Skill based Training	2,3,4,5	2
Gap5	Inadequate communication skills	10	-
Gap6	Quantitative & Verbal Aptitude classes	1,2	1
Gap7	Campus Recruitment Training Classes by T&P Cell	1,2,10	2,3

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	Exposure to Advanced Equipment and software currently used in the industry	3,4,5	1,2,3
Gap3	Skill based Training	2,3,4,5	2
Gap4	Inadequate communication skills	10	-
Gap5	Quantitative & Verbal Aptitude classes	1,2	1
Gap6	Campus Recruitment Training Classes by T&P Cell	1,2,10	2,3
Gap7	Students lack in creating a linkage between social and professional aspects	6,7,8,9	2,3

Table: 2.4 Curricular Gaps Identified and communicated to University

Branch	S.N	Subject	Course Beyond Syllabus	Sem	Curriculum gap	Justification	POs/PSOs
CSE	1	Machine Learning	Hands on Machine learning	VI	Hands on advance software	As per industry requirement, student should be able to work on new platform.	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO12, All PSOs
	2	Artificial Intelligence	HANDS ON PROLOG	VII	Hands on PROLOG	As per industry requirement, student should be able to work on new platform.	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO12, All PSOs
	3	Fuzzy neural Network	Practical Implementation on MATLAB	V	Hands on MATLAB	As per industry requirement, student should be able to work on new platform.	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO12, All PSOs
	4	Natural Language Processing	Hands on Python	VII	Hands on advance tool	As per industry requirement, student should be able to work on new platform.	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO12, All PSOs
	5	Knowledge Based System	Hands on PROLOG	VIII	Incorporated with PROLOG	As per industry requirement, student should be able to work on new platform.	PO1, PO2, PO3, PO4, PO5, PO6, PO8, PO12, All PSOs

The activities, which are in place in the Department for overcoming the curricular gaps so as to attain POs and PSOs, are illustrated in Table: 2.5

Table: 2.5. Activities in the Department for bridging the curricular gaps

S. No.	Activities in place in the Department to overcome the Curricular gaps	1	2	3	4	5	6	7	8	Relevance to POs/ PSOs
1	Additional course "English lab"		√			√		√	√	PO10, PSO2
2	Quantitative & Verbal Aptitude classes for III year students		√				√	√		PO1, PO2,PO10,PSO3
3	Campus Recruitment Training Classes by T&P Cell		√			√	√	√	√	PO1, PO2, PO10, PSO3
4	Organizing Workshops/Guest Lectures/Symposia for students	√	√	√	√	√			√	All POs and PSOs
5	Student seminars on recent technologies	√	√	√	√	√			√	PO2 to PO7, PO10 to PO12, All PSOs
6	Student participation in Workshops/Symposia at other institutes	√	√	√	√	√			√	PO2 to PO7, PO10 to PO12, All PSOs
7	Industrial visits	√	√	√	√				√	All POs, All PSOs
8	Coverage of Topics beyond curriculum by faculty in each subject	√	√	√						PO2-PO7, PO10-PO12, All PSOs
9	Faculty seminars on topics from research journals	√	√	√	√	√			√	PO2-PO7, PO10, PO12, All PSOs
10	Student participation in technical contests	√	√	√	√					All POs, All PSOs
11	Student Club activities					√			√	PO6,PO7,PO8,PO9,PO10
12	Games and Sports events								√	PO6,PO7,PO8,PO9,PO10
13	Project work with recent technologies	√	√	√	√				√	PO2 to PO7
14	Faculty participation in FDPs/STTPs/Conferences	√	√	√	√				√	PO2 to PO7, PO10 to PO12, All PSOs
15	Faculty Research & Consultancy	√	√	√	√				√	PO1,PO2,PO3,PO4,PO6,PO7, ALL PSOs
16	Use of Internet by students for browsing journals, NPTEL courses, e-books and other Google resources	√	√	√	√				√	PO1,PO2,PO3,PO4 , ALL PSOs
17	Pedagogical initiatives by faculty	√	√	√	√				√	PO1,PO2,PO3,PO4, ALL PSOs
18	Career Guidance for PSU and GATE	√	√	√	√	√	√	√	√	PO1,PO2,PO3,PO5, PO7, PO10, PO12 ALL PSOs

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

A. Steps taken to get identified gaps included in the curriculum

The department has initiated the following measures to bridge the identified curricular gaps.

- **Guest lecturers:** More Experts from industry and academia are invited to deliver lectures on the latest trends and thrust areas.

- **Technical talk:** Students are kept updated about the advances in technologies through technical seminars.

- **Workshops:** The department has introduced a novel initiative for students, wherein they are encouraged to participate in hands-on workshops, thereby enhancing their application skills.

- **Communication classes:** Communication classes are included in the timetable.

- **Industrial visits:** Visits to industries of repute are organized to keep the students abreast with practical knowledge.

- **Internships:** Students are encouraged to take-up short-term internships in industries to understand industry practices

- **NPTEL video lectures:** NPTEL lectures both for faculties and students are included on regular basis.

- **Extracurricular activities:** More Extracurricular activities are included

- **University consideration**: As department follow RGPV Curriculum we have communicated RGPV about the identified gaps and suggested inclusion of certain topics and subjects also In process for adopting teaching and learning process as per outcome based education, in addition to the activities proposed to bridge the gap, the university is also requested to add some changes in the curriculum. In order to attain the Programme Outcomes (POs) and Programme Specific Outcome (PSOs) of all the years at Under Graduate level in Engineering, we have already adopted some of the changes in Course curriculum of B. E. / B. Tech. Computer Science & Engineering of all the years prescribed by RGPV, Bhopal. The details of identified gaps in curriculum were enclosed with letter for university consideration and were requested to do the necessary process for the approval of the course content in the Course curriculum of under graduate course in Engineering as per RGPV, Bhopal ordinance.

B. Delivery details of content beyond syllabus

Table: 2.6. Activities in the Department in CAY (2020-21)

CAY (2020-21): Training, Visit and Challenges Technical, Expert Lecture						
S. No	Gap Identified	Action taken	Date-Month-Year	Resource Person	% of Students	Relevance to POs
1	Awareness in latest virtual tools for Research Conceptualization & Planning and Execution	Online Virtual Tools For Research Conceptualization & Planning and Execution of Writing Good Research Paper for Leading Journals	16/09/2020	Dr. R. K. Saha – Director of Extension Education, CAU, Imphal Dr. R. K. Singh – Director and Project Coordinator, ICAR – CIPHET, Ludhiana	76%	PO1,PO2, PO7, PO8, PO9, PO12 PSO1
2	Motivated in Plans During COVID and Beyond	International Study Opportunities: Pathways and Plans During COVID and Beyond	19/09/ 2020	Mr Atul Nasa Head of Office, Controlling & Licensing Authority Drug Control Department, GNCT Delhi Dr. Roshan Palewar CEO Global Pharma Leader, DocRosh Global Solutions, Mumbai.	78%	PO1,PO2, PO7, PO9, PO12 PSO1
3	NPTEL	NPTEL: An initiative under National Mission on Education through Information Communication Technology (NME – ICT) Programme, Govt. of India	10/4/2021	Prof. (Dr.) Gurpreet Singh Associate Director, Chandigarh University, India	82%	PO1, PO2, PO3,PO4,PO5, ALL PSOs

| 4 | Expert lecture | Recent Trends and Technology (Blockchain) in Computer Science and engineering | 31/07/2021 | Mr. Anubhav Sharma Assistant Professor Department of Computer Science and Engineering IES College of Technology, Bhopal | 74% | PO1, PO2, PO3,PO4,PO5, ALL PSOs |

Table: 2.7. Activities in the Department in CAY (2019-20)

CAY (2019-20): Training, Visit and Challenges Technical, Expert Lecture						
S.No.	Gap Identified	Action taken	Date-Month-Year	Resource Person	% of Students	Relevance to POs
1	Gap1 Awareness in latest Technologies	Workshop on the topic "PYTHON"	29/03/2019 to 10/04/2019	WebTek Labs Pvt. Ltd.	85%	PO 1,2,3,4,7,8,9,11,12
2	Gap2 Need Improvement server Technologies	Workshop on the topic "Linux"	5/11/2020	From IIT Bombay	72%	PO 1,2,3,4,7,8,9,11,12
3	Gap3 (Inadequate ability to apply practical problems in real life)	Expert lecture on "Cautions on Internet Usage"	29/04/2020	Ms Akancha Shrivastava, Cyber Crime Expert.	60%	PO5,PO12 PSO3
4	Gap4 (Skill based Training)	AWS Training	22-07 to 29-07-2019	Mr. Sourabh Kumar, Technical Consultant WebTek Labs Pvt. Ltd.	70%	PO1, PO2, PO12 PSO3

| 5 | Gap5 (Exposure to Equipment and software currently used in the industry) | Guest Lecture on "Artificial intelligence" | 24/02/ 2020 | Dr. Kanak Saxena, Asso.Prof. & HOD, CSE, SATI Vidisha | 75% | PO2, PO5,PO12 PSO3 |
| 6 | Gap6 (Quantitative & Verbal Aptitude classes) | Training session for " Placement Preparation" | 06-07/ 09/2019 | Ms. Farida Ali and Mr. Anil Sable | 60% | PO1, PO2, PO3,PO5,PO11, PO12 PSO3 |

Industrial Visit -Netlink Global D-6 Industrial Area, Mandideep, (21-10-2019)

Table: 2.8. Activities in the Department in CAY (2018-19)

S. No	Gap Identified	Action taken	Resource Person/company name	Date-Month-Year	% of Students	Relevance to POs, PSOs
1	Internship	Internship on 'C' language	INDEYES INFO. PVT, Bhopal	21/12/2018 to 03/01/2019	160	PO1, PO 2, PO 3, PO 4, PO 7, PO 8, PO 9, PO 11, PO 12
2	In house training	In house training on Python	WEBTEK LAB, Pvt. Ltd	31/12/2018 to 15/01/2019	84	PO1, PO 2, PO 3, PO 4, PO 7, PO 8, PO 9, PO 11, PO 12
3	Seminar	Smart IOT and its Key Application	In-house Seminar By Mr. Anubhav Sharma and Harsh Mathur	25/01/2018	70	PO1, P02, PO7, PO8, PO9, PO11, PO12

4	Expert Lecture	Theory of Computation	Dr. (Prof) Uday Pratap Singh, MITS Gwalior	26/02/2018 to 27/02/2018	78	PO1, P02, PO3, PO7, PO8, PO9,PO11,PO12
5	Expert Lecture	Google cloud source	Dr. Varsha Nagle, Google cloud source community Manager	26/03/2018	65	PO1, P02, PO3, PO7, PO8, PO9,PO11,PO12
6	Expert Lecture	Start-ups on career	Prof. Thillai Ranjan, IIT Madras	16/02/2019	78	PO1, P02, PO6, PO7, PO8, PO9, PO11, PO12
7	Exposure to Equipment and software currently used in the industry	Workshop on "Entrepreneurship awareness camp" by EDII Cell	NSTEDB, DST GOI	11/03/2019 to 13/03/2019	80%	PO5, PO8, PO9, PO10, PO11, PO12, PSO3
8	Quantitative & Verbal Aptitude classes	Training session for " Placement Preparation"	Ms. Farida Ali and Mr. Anil Sable	06-07/ 08/2018	60%	PO1, PO2, PO3,PO5,PO11, PO12 PSO3

Table: 2.9 Delivery details of content beyond syllabus (CAYm2: 2017-2018)

CAY (2017-18): Training, Visit and Challenges Technical, Expert Lecture						
S. No.	Gap Identified	Action taken	Resource Person/company name	Date-Month-Year	% of Students	Relevance to POs, PSOs
1	Industrial training at state data center MAP-IT	Industrial training	MAP-IT	10/10/2017 to 11/10/2017	70	PO1, PO2, PO3, PO4, PO5, PO11 PSO2, PSO 3
2	Students interaction program & technical model contest (Vigyan Mela)	Students interaction	MPCST	9/02/2018 to 11/02/2018	70	PO1, PO2, PO3, PO4, PO5, PO11 PSO2, PSO3
3	Industrial training on "Appin technology"	Industrial training	Appin Technology	21/04/2018	65	PO1, PO2, PO3, PO4, PO5, PO11 PSO2, PSO3
4	In house training	In house training on campus preparation	E-Box Training Institute	24/06/2018	55	PO1, PO2, PO3, PO4, PO5, PO11 PSO2, PSO3

Industrial Visit (CS4th SEM): Net link Global D-6 Industrial Area Mandideep, (14-02-2019)

Student Participated at Bhopal Smart City Hackathon

Expert Talk on Career perspective in IT Sector by Mr. Kaustubh Bhadbhade, Senior Manager - Human Resources, Persistent India, Pune

National seminar organized on Big Data & Cloud Computing

2.2 Teaching-Learning Processes (100)

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

The Teaching and Learning process is given foremost importance in the department. The initiatives for Quality improvement in teaching and learning are achieved through a well defined system of an 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 slow students and encourage bright students.

    D. Initiatives and Implementation of improving quality of class room 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

Institutional calendar is prepared and aligned with academic calendar of RGPV with concern of COVID19 guidelines. In addition to events proposed by the college in academic calendar, department introduces many other events and activities that are beneficial in overall development of the students. The academic calendar is implemented as per schedule with respect to commencement of class work, Mid-I and Mid-II examinations, Last working day, End semester exams (theory) and End semester exams (Practical) in each semester/year. In addition, FDPs, guest lectures, workshop/symposia, industrial visits, etc., are also implemented by the faculty members under the review and guidance of the HoD and Departmental Academics Advisory Committee and prepare extracurricular activity calendar also. Academic Calendar for July - December session, 2020 is as shown below

IES COLLEGE OF TECHNOLOGY, BHOPAL (0177)

IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)		
BE/B.TECH ODD SEMESTER		
SESSION:2020-2021 (JULY-DEC 2020)		
S.NO	**NAME OF ACTIVITY**	**SCHEDULE DATE** **3rd /5th/7th Sem**
1	Commenecement of Academic Session	6th August 2020
2	End of Teaching	28th Nov 2020
Assignments:-		
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
Internal Examination:		
8	Mid Semester-1	12th to 16th Oct.2020
9	Mid semester II	23rd to 27th Nov. 2020
	Institute Events: Orientation	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	**Holiday:** 1.Rakashabandhan	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	**Sem Break**	15 days after RGPV Examination
16	**ACADEMIC WORKING DAYS**	
	Month	**Working days**
	July	0
	August	16
	September	22
	October	19
	November	14
	Total	71

w.e.f : 06 August 2020

PRINCIPAL
IES College of Technology
BHOPAL
PRINCIPAL
(ICOT)

Head of Department
Computer Science and Engineering
HEAD OF DEPARTMENT
(ICOT)

In the beginning of every academic session, the academic calendar is framed and issued to the faculty members and students. An academic calendar is framed based on the discussions with the Controller of Examinations, Department Heads, club coordinator and other decision-making authorities.

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 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 choice to give options 1, 2, 3... etc. for 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:

Structured time table will also have an impact in 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 lectures/Video lectures 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 Instructions 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 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.
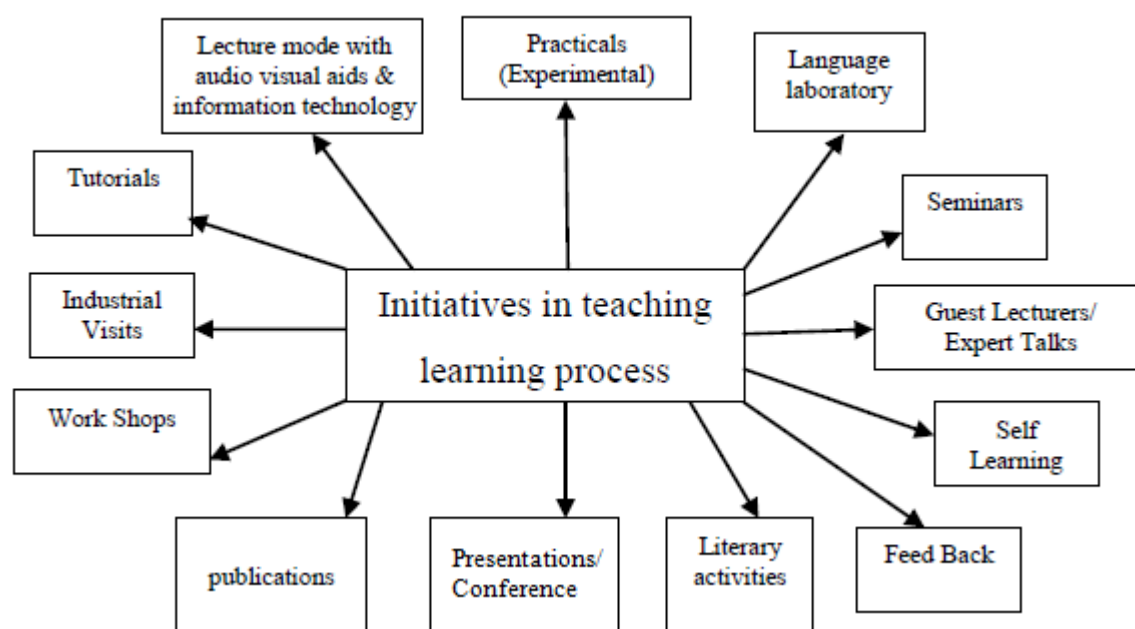

Figure 2.2: Different initiates in teaching and learning process.

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

- Use pedagogy like TPS (Think Pair Share) activity In Tutorial class.

- Revision of syllabus before examinations

- Identifying 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 sufficient number of computers, LCD projectors, internet facility, 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 *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 classroom* is 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 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 and 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 Lectures

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 as depicted in table.

S. No.	COURSE	ASSOCIATED LAB
SEM I		
1	Engineering Physics	Physics lab
2	English	Language Lab
SEM II		
3	Engineering Chemistry	Chemistry lab
4	Fundamental of Electronics	Analog Electronics lab
SEM III		
3	Data Structure	Data Structure Lab
4	Digital Systems	Digital Systems Lab
5	Object Oriented Programming & Methodology	C/C++ Computer Lab
6	Computer Workshop	Computer Programming Lab
SEM IV		
7	Computer Org. & Architecture	Computer Org. & Architecture lab
8	Operating Systems	Operating Systems Lab
9	Programming Practices	Computer Programming Lab
SEM V		
10	Computer Programming V (Unix/Linux Lab)	Linux Lab
SEM VI		
11	Computer Networking	Computer Networking Lab
12	Minor Project –I	Project lab
SEM VII		
13	Cloud Computing	AWS Lab
SEM VIII		
14	Major Project	Project Lab

Table: 2.10. Collaborative learning

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.

- 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 in order 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 increasing popular as its potential is realized. Faculty members are assigned with the responsibility of mentorship. 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

Others are considered as academically bright students. Slow/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 about 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.
   - Remedial classes are conducted for slow/slow learner students
   - Remedial classes are also conducted for tough subjects.
   - 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.

- Student securing 100% attendances are also awarded by certificate Students are motivated for attending workshops, seminars, paper presentation and paper publications in national and international conferences, technical contests like Accenture Innovation Challenges, Smart India Hackathon and many other Technical Hackathons & Innovative Contest.

- Students are encouraged to undergo for Internships

- Students are encouraged to participate in other activities like essay writing, English role play model, assembly anchoring, quiz, poster presentation, inter college competitions, fashion shows etc.

- Students are motivated to achieve RGPV Chancellor Awards.

- Students are encouraged to participate in other activities like essay writing, English role play model, anchoring in seminars, functions and in special assembly which is scheduled on every Monday quiz, poster presentation, inter college competitions, cultural events etc.

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

- Based on the extra care/ initiatives taken for slow 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 received RGPV Chancellor awards

- Students participated in various activities and outstanding performance in various national level technical and non technical contests like Accenture Innovation Challenge, Hackathon, Wipro Earthian & many more.

- Slower students performed well in class tests, unit tests and in many inter college sports and cultural events etc. with improved confidence and team work.

D. Initiatives and Implementation of improving quality of class room teaching

Teaching-Learning process is 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 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

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

1. Providing Infrastructure/Procurement of Equipment

The resources needed for Teaching-Learning process are met by suitable Budget. Quality equipment is procured by the Department. Similarly the infrastructure requirements of the Department are also proposed by the Department and provided/ approved by the Principal/Management

2. **Faculty Recruitment**

Effective Teaching-Learning process requires qualified and competent faculty members. Eligible and qualified candidates are selected through proper selection process.

3. Academic calendar/Adherence to Academic calendar

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

4. Continuous Evaluation

This consists of Mid Semester exams, Assignments, class tests etc., 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 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 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 appraisal of their performance annually, in a prescribed format, which is further reviewed by HOD and Principal for approval/corrective actions.

E. Initiatives and Implementation of improving quality of Laboratory Experiments

- Faculty members of respective subjects prepare lab manual and viva- voce questions before commencement of semester.

- The practical's are conducted as per university scheme.

- Every batch consists of around 30 students. Each batch is further split into smaller batches of 3 to 4 students per team.

- List of Experiments 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 inter-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.

- Calculation is done based on the observation made which is checked and verified by concern faculties.

- 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.

[SELF ASSESSMENT REPORT]

Lab Performance Evaluation Rubric

Student Name: ------------------   **Enrollment Number:** ----------------

Evaluation Date: ----------------

S.N	Method of Evaluation	Parameter	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		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	
3		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	
4		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	
5	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.	
6		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.	
7		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	The student has shown irresponsibility using the	

				about the cleanliness of work place	equipment and didn't clear the leftovers at the workplace on completion of lab work	
8	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	
9		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.	
10		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.	
11	Process 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.	
12		Achieves what it was designed to do	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	
13		Coding Skills (Operates without errors)	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.	
		Source code is efficient	Performance is above the expectations stated in the outcomes.	Performance meets the expectations stated in the outcomes	Performance does not meet the expectations stated in the outcomes	
		Source code is well-documented	Performance is above the expectations stated in the outcomes.	Performance meets the expectations stated in the outcomes	Performance does not meet the expectations stated in the outcomes	

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 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.
- Student learnt about individual and team work skill.
- Awareness about modern tools and their application.
- Student learnt about Professional ethics and communication skills
- Student learnt lifelong learning.
- Student learnt about Design and development skills.
- Student learnt about Engineering and society issues.

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 technical 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 gamming etc as per the table given below. Apart from indoor and outdoor sports activities, College fest etc. are conducted during academic year. Students participate in various activities and achieve distinctions as under:

Table: 2.11. Co-curricular activities

1. **E learning (NPTEL)**

Students completed NPTEL Certification Year (2020-2021)

S.No	Students Name	Course Name	SCORE	Relevance with POs and PSOs
01	Jahida Khanam	Programming Data Structure &Algorithm using Python	76 %	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
02	Shubham Kumar	Python For Data Science	46%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
03	Anas zubair	Introduction to block chain tech. & application	85%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
04	Shashank Kumar	Programming in Java	89%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
05	Sanjit Kumar	Programming in Java	97%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
06	Rohit Sahu	Programming in Java	96%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
07	Shivam Kumar	Programming in Java	99%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
08	Satyam	Programming in Java	94%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
09	Deepak Kr Verma	Programming in Java	97%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
10	Pratik kumar	Programming in Java	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
11	Sujeet kumar	software testing	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
12	Aditya Sourabh	cloud computing	96%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
13	Shubham singh	cloud computing	66%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
14	Bhaskar singh	programming, data structure & algorithm, using python	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
15	Bicky Kr Jha	Python For Data Science	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
16	Sujeet kumar	Google cloud computing foundation course	64%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
17	Sujeet kumar	Introduction to ML		PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3

Jan - June 2020 (NPTEL)

S No.	Name	Subject	Score	Relevance with POs and PSOs
1	Anas Zubair	Introduction to Blockchain Tech. & Application	85%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
2	Shashank Kumar	Programming in Java	89%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
3	Sanjit Kumar Singh	Programming in Java	97%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
4	Rohit Sahu	Programming in Java	96%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
5	Shivam Kumar	Programming in Java	99%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
6	Satyam	Programming In Java	94%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
7	Deepak Kumar Verma	Programming in Java	97%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
8	Pratik Kumar	Programming in Java	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
9	Sujeet Kumar	Software Testing	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
10	Aditya Saurabh	Cloud Computing	96%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
11	Shubham Singh	Cloud Computing	66%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
12	Bhaskar Singh	Programming, Data Structure & Algo Using Python	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
13	Sujeet Kumar	Introduction to Ml	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
14	Bicky Ku. Jha	Python for Data Science	64%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3

15	Sujeet Kumar	Google Cloud Computing Foundation Course	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3

January to June (2019)

S No.	NAME	SUBJECT	SCORE	Relevance with POs and PSOs
1	Abhishek Kumar	DBMS	67%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
2	Narendra Kumar	Introduction to OS	43%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
3	Sujeet Kumar	Python for Data Science	79%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
4	Shivam Jagtap	Python for Data Science	72%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
5	Aditya Saurabh	Introduction to IOT	75%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3

July to December (2019)

S No.	Name	Subject	Score	Certificate	Relevance with POs and PSOs
1	Abhishek Kumar	DBMS	67%	Elite	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
2	Narendra Kumar	Introduction to OS	43%	successfully completed the course	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
3	Sujeet Kumar	Python for Data Science	79%	Elite	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
4	Shivam Jagtap	Python for Data Science	72%	Elite	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
5	Aditya Saurabh	Introduction to IOT	75%	Elite	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
6	Rohit Gour	Programming in Java	57%	successfully completed the course	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3

January - June (2018)

S No.	Name	Subject	Score	Certificate	Relevance with POs and PSOs
1	Navneet	Introduction to Modern Application Development	78%	Elite	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3

2	Kartik	Introduction to Modern Application Development	50%	Successfully completed the course	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
3	Swapnil Dwivedi	Introduction To Modern Application Development	44%	Successfully completed the course	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
4	Jay Prakash Sharma	Cryptography & Network Security	63%	Elite	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
5	Syeda Tabassum	Cryptography & Network Security	73%	Elite	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
6	Sandeep Choudhary	Dbms	60%	Elite	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
7	Manoj kumar	Cloud Computing	60%	Elite	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
8	Swapnil dwivedi	Cloud Computing	52%	Successfully completed the course	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
9	Kundan kumar	Cloud Computing	41%	Successfully completed the course	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3
10	Kundan kumar	Programming, Data Structure & Algorithm Using Python	48%	Successfully completed the course	PO1,PO2,PO3,PO5, PO12 ,PSO1,PSO3

JANUARY TO JUNE (2017)

S No.	Name	Subject	Score	Certificate	Relevance with POs and PSOs
1	Navneet	Programming in C++	71%	Elite	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3

July To December(2017)

S No.	Name	Subject	Score	Certificate	Relevance with POs and PSOs
1	Navneet	Programming, Data Structure & Algorithm Using Python	83%	Elite	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
2	Kartik	Introduction To IOT	73%	Elite	PO1,PO2,PO3,PO5,P

					O12 ,PSO1,PSO3
3	Deepak Kumar	Introduction To Programming In C	64%	Elite	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
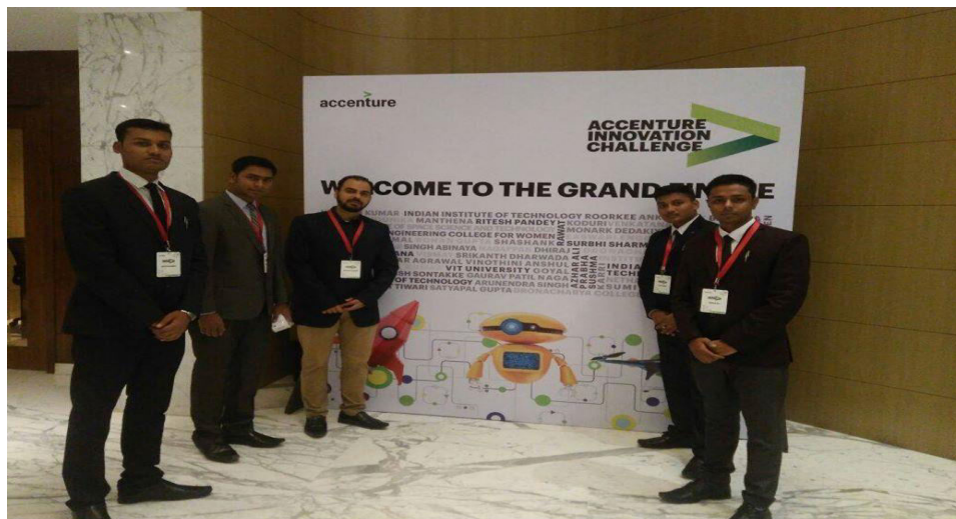
Accenture Innovation Challenge organized by Accenture at Bangalore on 27th and 28th Nov, 2017

2. **Annual Technical Events (Tech fest)**

Table: 2.12. Different Co-Curricular activities

Students participate in National/State/District/City level computations.

S. No	Name of Students	Tournament	Year	Organized By	Result	Relevance with POs and PSOs
1	Md. Shakiluzzama	Cricket	2019	SATI Vidisha	Participation	PO6, PO7, PO8, PO9, PO12, PSO3
2	Sachin Kumar	Cricket	2019	SATI Vidisha	Participation	PO6, PO7, PO8, PO9, PO12, PSO3
3	Atul Kumar	Innovation Challenge	2019	MANIT	III Position	PO6, PO7, PO8, PO9, PO12, PSO3
4	Shreya Singh	Essay Writing	2019	WWF	Participation	PO6, PO7, PO8, PO9, PO12, PSO3

| 5 | Shubhanshu Sharma | Football | 2017 | OIST | I Position | PO6, PO7, PO8, PO9, PO12, PSO3 |

2. NSS/NCC Activities :

Table: 2.10. Students Participation in inter and intra college activities.

S No.	NCC Activity	Details	Date	Person	CSE	Relevance with POs and PSOs
1	CATC-XIII Camp at 1MP-CTR Bhopal	CATC-XIII Camp at 1MP-CTR Bhopal	08/02/2021 to 12/02/2021	CO & PI Staff of 1MP-CTR Bhopal	1	PO6, PO7, PO8, PO9, PO12, PSO3
2.	CATC-XX Camp at 1MP-CTR Bhopal	CATC-XX Camp at 1MP-CTR Bhopal	15/02/2021 to 17/02/2021	CO & PI Staff of 1MP-CTR Bhopal	8	**Relevance with POs and PSOs**
3.	CATC-XVI Camp at 1MP-CTR Bhopal	CATC-XVI Camp at 1MP-CTR Bhopal	22/02/2021 to 26/02/2021	CO & PI Staff of 1MP-CTR Bhopal	1	PO6, PO7, PO8, PO9, PO12, PSO3

S No.	NCC Activity	Details	Date	Person	CSE	Relevance with POs and PSOs
1	Army Attachment Camp Gwalior	Attachment of NCC Cadets with regular Army Unit	04/09/2017 to 20/09/2017	Gwalior military Station	1	PO6, PO7, PO8, PO9, PO12, PSO3
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	4	PO6, PO7, PO8, PO9, PO12, PSO3
3	NCC 'C' Certificate Examination 2017-18	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	27/02/2018 to -28/2/ 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	3	PO6, PO7, PO8, PO9, PO12, PSO3

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)	3	PO6, PO7, PO8, PO9, PO12, PSO3
5	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	10 - 19/06/2018	under 2 MP Air Squadren	1	PO6, PO7, PO8, PO9, PO12, PSO3
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 NCO	3	PO6, PO7, PO8, PO9, PO12, PSO3
7	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which day wise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15/9/2018 - 02/10/2018	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	3	PO6, PO7, PO8, PO9, PO12, PSO3
8	NCC 'B' Certificate Examination 2018-19	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	23-24/02/2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2	PO6, PO7, PO8, PO9, PO12, PSO3
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	1	PO6, PO7, PO8, PO9, PO12, PSO3
10	Enrollment of NCC 2019 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR	12/8/2019	Akshay Varkale (NCC Incharge) & PI Staff	3	PO6, PO7, PO8, PO9, PO12, PSO3

		Bhopal (To maintain the enrolled strength 50)				
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	16/09/2019	Akhilesh Dwivedi (NCC Caretaker), Prof. R C Maheshwari	7	PO6, PO7, PO8, PO9, PO12, PSO3
12	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14 - 23/01/ 2020	2 MP AIR SQN NCC Bhopal	1	PO6, PO7, PO8, PO9, PO12, PSO3
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.	15/9/ - /10/2019	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	7	PO6, PO7, PO8, PO9, PO12, PSO3
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 - 23/06/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	2	PO6, PO7, PO8, PO9, PO12, PSO3
15	Firing Practice	Firing by .22 Rifle at firing range Sukhi Sevaniya Bhopal	13-14/12/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & NCC Unit - 1MPCTR Bhopal (Col. N P Semalti,	3	PO6, PO7, PO8, PO9, PO12, PSO3

				Commanding Officer)		
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 to 29/12/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	3	PO6, PO7, PO8, PO9, PO12, PSO3
17	Army Attachment Camp	Attachment of NCC Cadets with regular Army (68 Engineers regiments, Bairagarh)	14-29/01/2020	68 Engineers Regiment Bhopal	1	PO6, PO7, PO8, PO9, PO12, PSO3
18	NCC 'B' Certificate Examination 2019-20	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	18 - 19/02/ 2020	Under Supervision of Col. N P Semalti (Commanding Officer) 1 MP CTR	4	PO6, PO7, PO8, PO9, PO12, PSO3
19	NCC 'C' Certificate Examination 2019-20	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	25 - 26 /02/ 2020	Under Supervision of Col. N P Semalti (Commanding Officer) 1 MP CTR	2	PO6, PO7, PO8, PO9, PO12, PSO3
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)	13/08/2020	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer) PO6, PO7, PO8, PO9, PO12, PSO3	3	PO6, PO7, PO8, PO9, PO12, PSO3

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 Rijiju (Youth & Sports Minister)	18/11/2020	Akhilesh Dwivedi (Associate NCC Officer) & ADG NCC Directorate Bhopal (MP&CG)	2	PO6, PO7, PO8, PO9, PO12, PSO3
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	3	PO6, PO7, PO8, PO9, PO12, PSO3

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.

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 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

```
┌─────────────────────────────────┐
│   Question papers are planned    │
│        according to COs          │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│     Mapping Questions with COs   │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────────────────┐
│  Weightage calculation of COs are decided     │
│  as per require class session, completion     │
│  and complexity of COs                        │
└─────────────────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│    Drafting of Question Paper(s) │
└─────────────────────────────────┘
                 ↓
┌─────────────────────────────────┐
│  Examination Co-ordinator review │
│       the question paper         │
└─────────────────────────────────┘
                 ↓
        ┌──────────────┐        ◇ If Satisfactory
  NO ───┤              ├─────── ◇
        └──────────────┘
                 ↓ YES
┌─────────────────────────────────┐
│      Setup Final Question Paper(s)│
└─────────────────────────────────┘
```
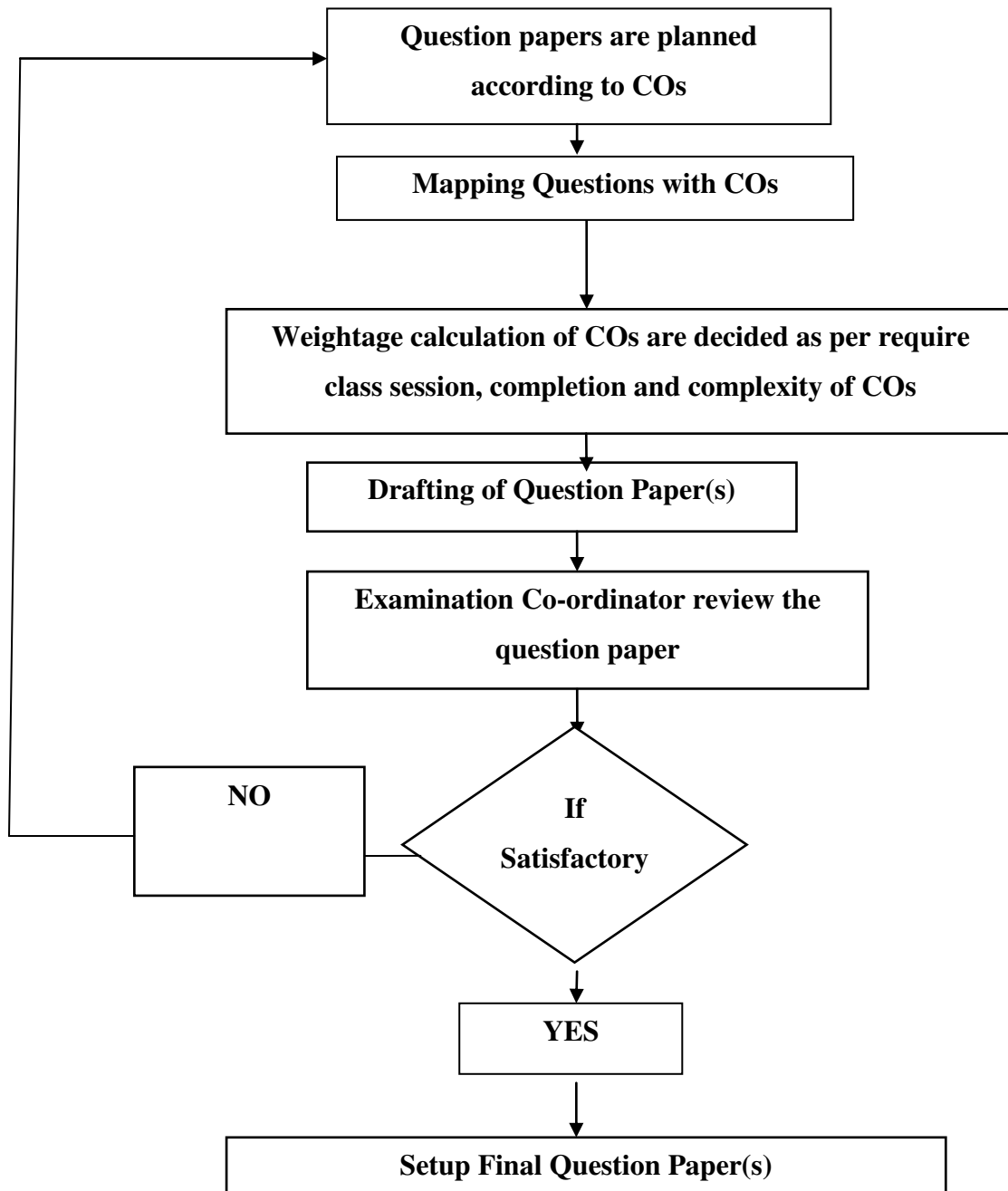
Figure 2.3 Evaluation Process

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.

- 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.

[SELF ASSESSMENT REPORT]

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

Total No. of Questions: 06	**Enrollment No. _____**

IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MID SEMESTER EXAMINATION- I

Branch :	**CSE**	
Semester:	**V**	**Max. Marks: 40**
Subject :	**THEORY OF COMPUTATION**	**Sub Code: CS-501** **Time: 2Hrs**

Course Outcome

C501.1: Define the mathematical principles behind theoretical computer science

C501.2: Classify automata, finite automata; push down automata, linear bounded automata and turing machine.

C501.3: Apply the various automata techniques for solving real time applications**.**

C501.4**:** Apply Interpret rigorously formal mathematical methods to prove properties of languages, grammars and automata.

C501.5: Identify the various computational problems and their associated complexity**.**

Question No.	Question	Marks	CO Mapping
	UNIT I (Solve any 2)		
1(A)	Define automation. Justify this statement "L is a subset of closure of alphabet".	10	C501.1
1(B)	Describe parsing? How Left most and Right most derivation helps to find out the ambiguity in a grammar?	10	C501.1
1(C)	Explain Mealy and Moore Machines with example.	10	C501.1
	UNIT II (Solve any 2)		
2(A)	Explain Chomsky classification of Grammars.	10	C501.2
2(B)	Define 2-way Finite Automata. With example.	10	C501.2
2(C)	Explain the pumping lemma for regular languages.	10	C501.2

[SELF ASSESSMENT REPORT]

Total No. of Questions: 06	**Enrollment No. _____**

IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MID SEMESTER EXAMINATION- I

Branch :	**CSE**	
Semester:	**III**	**Max. Marks: 40**
Subject :	**Data Structure**	**Sub Code: CS-303** **Time: 2Hrs**

Course Outcome

C303.1: Classify the structure and data type, and their basic usability
C303.2: Analyze and differentiate various algorithms based on their time complexity.
C303.3: Apply linear and non-linear data structures using linked lists.
C303.4: Apply stacks, queues, trees, graphs to solve various computing problems.
C303.5: Evaluate searching and sorting techniques.

Question No.	Question	Marks	CO Mapping
	UNIT I (Solve any 2)		
1(A)	Define Algorithm? Write algorithms for Insertion & Deletion operation for Linear Array.	10	C303.1
1(B)	Explain how Physical memory allocated for a 2D array? If each element of an array x [20] [50] requires 4 bytes of storage base address of DATA is 2000, determine the location of X [10][10] when the array is stored as row major and column major order.	10	C303.1
1(C)	Define the advantages and disadvantages of Linked List data structure. Write an algorithm for inserting a node at the end of the singly linked list.	10	C303.1
	UNIT II (Solve any 2)		
2(A)	Convert the following expression into postfix and prefix form. i. (A + B) * C / D + E ↑ F ↑G ii. (A + B ↑ D) / (E - F) + G	10	C303.2
2(B)	Define is Stack? Write algorithm for PUSH & POP Operation.	10	C303.2
2(C)	Explain how the queue is implemented by linked list?	10	C303.2

	IES COLLEGE OF TECHNOLOGY, BHOPAL DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Branch/Semester	CS/6th	Session	2020-2021
Name of Faculty	Dr. Anil Yadav		
Subject	Machine Learning	Sub Code	CS - 601
Date of Given	12/02/2020	Date of Submission	24/02/2020

ASSIGNMENT-V

Course Outcome

C601.1.   Apply knowledge of computing and mathematics to machine learning problems, models and algorithms.

C601.2.   Analyze a problem and computing requirements for appropriate solution.

C601.3.   Compare mathematical foundations, algorithmic principles and computer science theory to the modeling.

C601.4.   Evaluate an algorithm to meet desired needs for modeling techniques.

C601.5.   Assess the concept behind neural networks for learning nonlinear function.

S.No	Question	Marks	CO Attained
1	Define Linearity vs Non Linearity and also explain separable and non-separable problem.	4	C601.1
2	What is activation Function and explain type of activation function.	4	C601.1
3	Explain L1 and L2 Loss in details.	4	C601.2
4	What is artificial neural network (ANN), explain along with back propagation.	4	C601.2
5	What is gradient descent explain with example.	4	C601.3

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.
- In order to bridge the gap in university curriculum, sometimes students are also given assignments beyond syllabus.
- 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.

- 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 2.13 Evaluation of Assignments and Allocation of Marks

Evaluation Components (Grading System) *

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

Evaluation Components (CBCS)*

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

Evaluation Components (CBGS)*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		
1	**Mid Semester Test**	20	30
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.

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 below. 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: 2.14 Course Outcomes for student Projects

CO	Course Outcomes for student Projects	Relevance to POs/PSOs	
		POs	**PSOs**
CL-805.1	Examine the literature Survey	1, 2, 5	1,2,3
CL805.2	Apply the theoretical concepts to solve industrial problems with teamwork and multidisciplinary approach	4, 5, 10	1,2,3
CL805.3	Built hardware of the project	3,9,11,12	1,2,3
CL805.4	Test the parameters of project	3,9,11,12	1,2,3
CL805.5	Demonstrate professionalism with ethics; present effective communication skills and relate engineering issues to broader societal context	8,9,10,12	1,2,3

C. Process for monitoring and evaluation

Guide will give ideas and suggestions for conceptualisation and developments of projects. Based on the given ideas, students will start their project work. To ensure proper conduct 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

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 Team work
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: ----------------

Agenda	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	Contains of Report	Excellent	Very Good	Good	Average	Poor

Table: 2.15 Samples of Major Projects

AY_2020-2021

Group No	Group Member	Enrolment No.	Project Name	Project Guide
Batch 2016-2020, IES College of Technology, Bhopal(0177)				
CSE 8th Semester Major Projects (Best and average projects of last three batch)				
1	Vibhuti Rai	0177EC161109	Aspire Online Exam System	Dr. Anil Kumar Yadav
	Tanya Sharma	0177CS161083		
	Mohini Rajawat	0177CS161094		
	Meemansha Vyas	0177CS161091		
2	Avanish Ranjan	0177CS161048	Billing Software	Mr. Anshul Sarawagi
	Azigya Aryan	0177CS161052		
	Abhimanyu Kumar	0177CS161005		
	Aman Raj Kumar	0177CS161022		
3	Prashant Jaiswal	0177CS161114	Covid 19Live Status	Ms. Aishwarya Mishra
	Rahul Kumar	0526CS161034		
	Vishnu kumar	0177CS161188		
	Ravi Ranjan Kumar	0177CS161132		
4	Chaman Upadhyay	0177EC161055	Wiki Assistant	Ms. Nirmala Reddy
	Saloni Henecha	0177CS161072		
	Omkar Narayan Singh	0177CS161109		
	Prince Kumar	0177EC161079		
5	Krishna Vishwakama	0177CS161076	BMI Calculator	Mr. Anubhav Sharma
	Sonu Kumar	0177CS161172		
	Garima Singh	0177CS161065		
	Sweety Charpe	0177CS161182		

[SELF ASSESSMENT REPORT]

Batch: 2015-2019 (AY_2019-2020)

Group No	Group Member	Enrolment No.	Project Name	Project Guide
1	Abhinav Kumar Pandey	0177CS151003	Online Restaurant System	Ms. Aishwarya Mishra
	Ankit Kumar	0177CS151026		
	Prateek Raj	0177CS151109		
	Sugandh Raj	0177CS151159		
2	Ashish Mewada	0177CS151035	Twitter Sentiment Analysis	Mr. Vijay Dhote
	Shivampatil	0177CS151146		
	Ankit Tiwari	0177CS151010		
	Navneet	0177CS151094		
3	Kartik	0177CS151066	Rakshak Mobile Application	Mr. Anubhav Sharma
	Ali Husain	0177CS151016		
	Rajeev Kumar	0177CS151118		
	Alisha Raman	0177CS151017		
	Rajnesh Kumar	0177CS151119		
4	Diksha Chaurasiya	0177CS151051	Data Generator Utility	Mr. Anshul Sarawagi
	Kajal Kumari	0177CS151062		
	Manoj Kumar	0177CS151060		
	Kundan Kumar	0177CS151074		
5	Akash	0177CS151014	Health Care Medicine Finding Store	Ms. Aishwarya Mishra
	Tanveer Hasan	0177CS151165		
	Shubham Humar	0177CS151153		
	Manoj Gour	0177CS151078		
	Kundan Kumar	0177CS151074		

Batch: 2014-2018 (AY_2018-2019)

Group No	Group Member	Enrolment No.	Project Name	Project Guide
1	Krishnandan Sharma	0177CS141058	Chatting Software	Ms. Nirmala Reddy
	Sri Ram Kumar	0177CS141131		
	Dhiraj Kumar	0177CS141043		
	Deepika Kumari	0177CS141041		
2	Shahzeb	0177CS141058	Emergency Locator	Mr. Anshul Sarawagi
	Ritik Saxena	0177EX141027		
	Uttkarsha Mudggal	0177CS141140		
3	Akash Deep Masih	0177CS141001	Topic IT	Mr. Anubhav Sharma
	Kapil Keshav	0177CS141053		
	Abhishek Kunal	0177CS141006		
	Dev Yadav	0177CS141042		
4	Deepak Kumar	0177CS141039	E- Commerce on Android OS	Ms. Aishwarya Mishra
	Gaurav Kumar	0177CS141044		
	Anand Mohan Tiwari	0177CS141019		
	Vikas Gupta	0177CS141148		
5	Anand Saurabh	0177CS141020	Attendance Management System	Mr. Anubhav Sharma
	Anoop Saurabh	0177CS141024		
	Abhishek Ku. Singh	0177CS141007		
	Abhishek Aman	0177CS141002		

Batch: 2013-2017 (AY_2017-2018)

Group No	Group Member	Enrolment No.	Project Name	Project Guide
1	Abhishek Kumar	0177CS131006	We Care	Mr. Rakesh Verma
	Arbind Ram	0177CS131024		
	Atish Kumar	0177CS131033		
	Awadhesh Kumar	0177CS131037		
	Kingson Kumar	0177CS131065		
2	Jyoti Kumari	0177CS131062	Health & Safety	Dr. Ramakant Mohanti
	Megha Singh	0177CS131084		
	Rajnish Kumar Jha	0177CS131126		
	Shivani Singare	0177CS131156		
3	Anshu kumar	0177CS131023	e-Cart	Ms. Nirmala Reddy
	Ashvini kuma rsingh	0177CS131032		
	Chandan kumar	0177CS131042		
4	Ashish Kumar Pandey	0177CS131010	Dashboard	Mr. Rakesh Verma
	Arindam Sarkar	0177CS131025		
	Prabhat Ranjan	0177CS131109		
5	Manish Kumar Singh	0177CS131025	Indian Post System	Dr. A.K.Yadav
	Pankaj Kumar Malviya	0177CS131025		
	Madhu Kumari	0177CS131025		

Major Project Training by Mr. Ashutosh, Trainer, Webtek Labs, Delhi

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:

Table: 2.16. Tie-Up Name of Organisation/ MOU's:

S No	Year	Name of Organisation	Area of Cooperation
1	2020-21	AIC RNTU	E-Cell facilitation, design develop faculty training, design and work simultaneously activity, B-plan competition, Innovation Challenge
		IndEyes Infotech	Short Term Training programs at UG & PG level, Enhance knowledge, skills, attitudes & awareness among students
		Confederation of Indian Industry (CII)	YI & Education Partner shall motivate & provide opportunity to students, Promotion of Mutual Cooperation activities
2	2019-20	IndEyes Infotech	Short Term Training programs at UG & PG level, Enhance knowledge, skills, attitudes & awareness among students
		Netlink, Bhopal	Industrial training, Visit and Internship
4	2017-18	Red Hat	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness
		IBS (Innovative Business Solutions)	Industrial Training
		NASSCOM	Education Partner shall motivate & provide opportunity to students, Promotion of Mutual Cooperation activities
5	2016-17	COEP Pune	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness
6	2014-15	Microsoft Innovation Centre (MIC)	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness
7	2013-14	IBM (Software Centre of Excellence (COE))	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness
8	2011-12	Remote Centre Programs (IIT, Bombay)	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness

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: 2.17. Industrial Training

S.No.	Year/Date	Company/ Organization Name	Activities	PO and PSO Attained
1	17.12.2019 to 02.01.2020	IBS	C++/Python	PO1, PO2, PO3, PO5, PO12
2	17.12.2019 to 02.01.2020	IBS	Web Development	PO1,PO2,PO3,PO5,PO1
3	17.12.2019 to 02.01.2020	IBS	IOT	PO1,P02,P03,PO5,PO12
4	30.11.2019 to 19.12.2019	Indyses ltd	Python	PO1,PO2,PO3,PO5,PO12
5	21.12.2018 to 03.01.2018	Indyses ltd	C Lang.	PO1,PO2,PO3,PO5,PO12
6	30.11.2019 to 25.12.2019	IBS	Python	PO1,PO2,PO3,PO5,PO12
7	31.12.2018 to 26.12.18	Webtek	Python	PO1,PO2.PO3,PO5,PO12
8	22.07.2019 to 29.07.2019	Webtek	AWS	PO1,PO2,PO3,PO5,PO12
9	16.09.2019 to 24.09.2019	Webtek	AWS	PO1,PO2,PO3,PO5,PO12
10	05.08.2019 to 13.08.2019	Webtek	AWS	PO1,PO2.PO3,PO5,PO12
11	29.03.2019 to 10.04.2019	Webtek	Python	PO1.PO2.PO3,PO5,PO12

| 12 | 01.06.2018 to 23.06.2018 | Webtek | ML & Python | PO1,PO2,PO3,PO5,PO12 |
| 13 | 02.06.2018 to 20.06.2018 | Webtek | Big data & Python | PO1,PO2,PO3,PO5,PO12 |

Student Training Program on Data Science

C. Industry-Attached Laboratories

Table: 2.18. To bridge the curricular gap between industry and academia, we at IES College of Technology, Bhopal having 2 industries attached laboratories as under.

S. No.	Industry/Company Name	Establishment Year
1	Red Hat Centre of Excellence	2018-19
2	Microsoft Innovation Centre (MIC): MICROSOFT, India	2014-15
3	IBM Centre of Excellence: IBM, India	2013-14

Inauguration of Microsoft Innovation Centre by Mr. Ranbir Singh, Group Director, Microsoft, India.

Inauguration of IBM COE by Mr. Karthik Padmanabhan, Country Manager-ISV Developer Relation IBM, India.

D. Workshops:

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

- Workshops on Entrepreneurship development skills.
- Workshops on recent ongoing Engineering related topics

Table: 2.19 Details of Workshops:

Training/Workshop by IBM Software centre of Excellence-IBM, India: Our college students who have undergone technical training courses are detailed as under:

S. No.	Training	Trainer	From	To	No. of Students	Semester / Batch
1	AWS Training	Mr. Sourabh Kumar Technical Consultant WebTek Pvt. Ltd.	Aug 5,2019	Aug 13, 2019	29	V(2019-2020)
2	AWS Training	Mr. Sourabh Kumar Technical Consultant WebTek Pvt. Ltd.	Sep 16,2019	Sep 24,2019	43	V(2019-2020)
3	Data 64	Satya Prakash (Webtech Lab)	Apr 11,2016	Apr 16,2016	11	VIII (2015-2016)
4	IBM CE Major Project	Satya Prakash (Webtech)	July 3,2016	July 18,2016	70	VII (2015-2016)

5	IBM CE Minor Project	Satya Prakash (Webtech Lab)	June 18,2016	July 1,2016	65	V(2015-2016)

Table: 2.20. Training/Workshop by Microsoft Innovation Center, Microsoft, India: Students at IES College of Technology, Bhopal who have undergone technical training courses are detailed as under:

S. No.	Training	From	TO	No. of students	Semester/ Batch
1	Workshop: Windows Phone & AZURE	Feb 2 2015	Feb 19,2016	40	2012-2016 2013-2017
2	Workshop: Windows Phone	Sept 4,2014	Sept 9,2014	65	2012-2016 2013-2017
3	Workshop: Windows 8+MTA	Feb 8,2014	Feb 8,2014	98	2012-2016
4	Workshop: Windows Phone	July 8,2013	July 27,2013	37	2011-2015
5	Workshop: Windows Azure	Jan 9,2013	Jan 13,2013	38	2010-2014
6	Workshop: Windows Phone	Oct. 10,2012	Oct. 10,2012	43	2009-2013 2010-2014
7	MTA: Database, web development, DotNet	Oct. 20,2012	Oct. 20,2012	45	2009-2013 2010-2014

Microsoft Technology Associate Certified Students

➢ Student selected as Microsoft Student Partner: Because of above-noted initiatives, a number of students of CSE department are selected for the Microsoft student Partner. Their names are as follows.

Table: 2.21. List of Microsoft Student Partner

S. No	Name of Student	Batch	Year of MSP awarded
1	Anand Kumar	2013-2017	2016
2	Adarsh Sarkar	2013-2017	2016
3	Arindam Sarkar	2013-2017	2016
4	Rohit Pandey	2013-2017	2016
5	Sumit Singh Rathour	2013-2017	2016
6	Santosh Kr. Vishwakarma	2012-2016	2015
7	Mayank Singh	2012-2016	2015
8	Rahul Kumar	2012-2016	2015
9	Mahadev Parmanik	2012-2016	2015
10	Krishna Kumar	2012-2016	2015
11	Satyadeep Bhardwaj	2012-2016	2015
12	Niket Chandrawanshi	2010-2014	2012

Selected students as Microsoft Student Partner

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 which provide industry exposure to the students beyond the class room learning and curriculum.

Table: 2.20. Expert lectures & Talk organized by the Department:

S. No.	Topics	Resource Person	Date	Relevance to Pos and PSOs
1	Data Structure	Prof. Dr. Uday Pratap Singh, MITS Gwalior	22 & 23 Sep 2017	PO2,PO3,PO5,PO6,PO8, PO12,PSO1, PSO3
2	Theory of Computation	Prof. Dr. Uday Pratap Singh, MITS Gwalior	26-feb-2018 to 28-feb-2018	PO2,PO3,PO5,PO6,PO8, PO12,PSO1, PSO3

|				
3	Apache Pig and Hive	Dr. Akhtar Rasool, Associate Professor, MANIT, Bhopal	01 Oct 2019	PO2,PO3,PO5,PO6,PO8, PO12,PSO1, PSO3
4	Machine Learning	Dr Sandeep Raghuvanshi, Asstt. Prof, Dept. of CSE, SATI Vidisha	27 Feb2020	PO2,PO3,PO5,PO6,PO8, PO12,PSO1, PSO3
5	"Artificial Intelligence In Gaming And Robotics"	Dr. Sandeep Raghuvanshi, Asstt. Prof. Dept. of CSE, SATI Vidisha	12 Feb 2021	PO2,PO3,PO5,PO6,PO8, PO12,PSO1, PSO3
6	Database Management System	Dr. Kanak Saxena, Asso. Prof. & Head Dept. Of CSE, SATI Vidisha	08 April 2021	PO2,PO3,PO5,PO6,PO8, PO12,PSO1, PSO3
7	Machine Learning	Dr. Sandeep Raghuvanshi, Asstt. Prof, Dept. of CSE, SATI Vidisha	09 April 2021	PO2,PO3,PO5,PO6,PO8, PO12,PSO1, PSO3

IES Students Participated in National Student Startup & Innovation Summit 2019 at LNCT Bhopal

IES Students Participated in HR Conclave on Industry 0.4 at IES College of Technology Bhopal
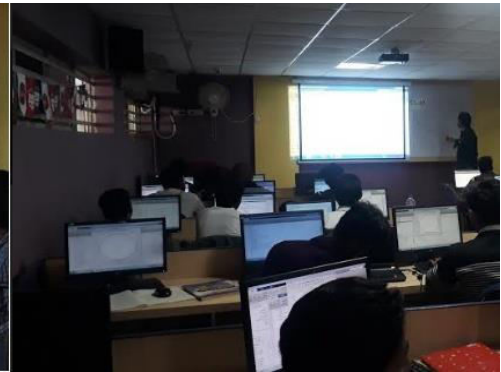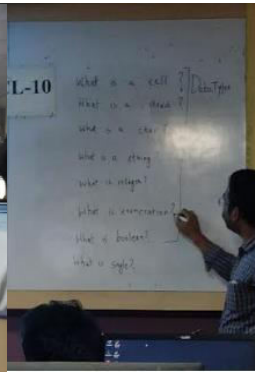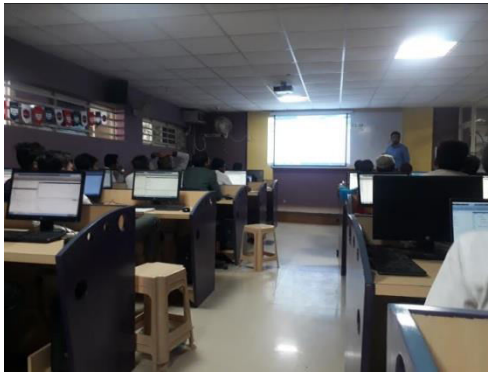
IES Students Participated in Data Analytics Workshop at IES college of Technology Bhopal

IES Students participated in MANIT Bhopal

D. Workshops

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.

- 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 Computer Science department has supported laboratories with the following industries:

1. RedHat

2. 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 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 their 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.

Details of industry visit by students are mentioned below:

S.No.	Date	Name of the Industry	No. of Students Visited	Relevance to POs and PSOs
1	14-2-2019	Netlink Mandideep	46	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
2	11-2-2020	Netlink Mandideep	46	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
3	10-10-2017	MAP-IT	25	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
4	16-3-2016	IBM India Ltd, Noida	50	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
5	17-3-2016	State Data Centre, Bhopal	40	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
6	7-3-2016	TCS ,Bhopal	60	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
7	26-4-2015	HCL, Bhopal	90	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
8	12-09-2014	State Data Centre, Bhopal	47	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
9	4-08-2014	Netlink, Bhopal	80	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
10	5-10-2013	CRISP ,Bhopal	62	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2

Table: 2.21. Industry Visit by students:

Receiving Participation Certificate Mayank Singh from Mr. Venkatesh Sarvasiddhi, Head Academic Initiatives & Student outreach Microsoft Corporation India Pvt. Ltd.

2.2.5.3 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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CRITERION 3	Course Outcomes and Program Outcomes	120

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

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):

The graduates of the department will attain:

PSO 1: Provide solution, design and development of web based software application using open source technology.

PSO 2: Solve the problem of society in relevance to security issues by applying the concept of network and cyber security.

PSO3: Provide solution of hardware and software related problems to maintain the operations of a computer system.

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)

Subject & Code	BE 3rd Semester
3rd SEM	
CS-3005 **Discrete Structures**	**Student will be able:**. **C3005.1:** Solve problems using algebraic structures. **C3005.2:** Solve problems using counting techniques and combinatorics. **C3005.3:** Apply operations on discrete structures such as sets, relations and functions in different areas of computing **C3005.4:** Solve discrete probability problems and variety of mathematical properties in discrete structure. **C3005.5:** Apply recurrence relations to solve problems in different domains
4TH SEMESTER	
CS-4004 **Analysis & Design** **of algorithm**	**Student will be able to:** C4004.1. Identify the dynamic-programming paradigm and algorithms based on this technique C4004.2. Analyze complexity of algorithms using asymptotic analysis. C4004.3. Describe the greedy paradigm and explain when an algorithmic design situation calls for it. Synthesize greedy algorithms, and analyze them. C4004.4. Analyze the performance of searching and sorting algorithm and its complexities. C4004.5. Apply the dynamic programming technique to compute real world problem.

5thSEM

CS 5003 **Database** **management System**	**Students will be able to:** **C5003.1:**. Summarize SQL Commands and its basic operators. **C5003.2:** Develop database programming skills in SQL. **C5003.3:** Apply Normalization theory for design database which possess no anomalies. **C5003.4:**. Demonstrate SQL query and various Relation algebra operations. **C5003.5:** Apply triggers and stored procedures in DBMS

6th SEM	
CS-6001 **Advanced Computer Architecture**	**Students will be able to** **C6001.1:** Demonstrate the classes of computers, and new trends and developments in computer architecture. **C6001.2:** Identify the several advanced optimizations to achieve cache performance. **C6001.3:** Compare advanced performance enhancement techniquespipelines dynamic scheduling branch predictions, virtual machines. **C6001.4:** Contrast the modern computer architectures RISC, Scalar, and multi CPU systems. **C6001.5:** Apply experience to design computer processor and algorithm.
7th SEM	
CS-7001 **Distributed System**	**Student will be able to** **C7001.1:** Outline the core concepts and architecture of distributed systems **C7001.2:** Apply the concept of Distributed Operating Systems for computer applications. **C7001.3:** Differentiate distributed computing paradigm from other computing. **C7001.4:** Summarize the mechanisms for inter process communication in a distributed computing system. **C7001.5:** Identify appropriate distributed system principles in ensuring transparency, consistency and fault-tolerance in distributed file systems**.**
8thSEM	
CS-8001 **Soft Computing**	**Student will be able to** **C8001.1:** Outline the fuzzy logic and the concept of fuzziness for systems and fuzzy set theory. **C8001.2:** Apply fundamental theory and concepts of neural networks. **C8001.3:** Classify Neural Network architectures, algorithms, applications and their limitations **C8001.4:** Analysis appropriate learning rules for neural network paradigms and its applications. **C8001.5:** Apply the concept of genetic algorithm for soft computing problems.

Table B.3.1.1

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)

➢ **CO-PO matrices of courses**

3rd SEM

Course Name: CS-3005 Discrete Structures

CS-3005 Discrete Structures	Students will be able to:
	C3005.1: Solve problems using algebraic structures.
	C3005.2: Solve problems using counting techniques and combinatorics.
	C3005.3: Apply operations on discrete structures such as sets, relations and functions in different areas of computing
	C3005.4: Solve discrete probability problems and variety of mathematical properties in discrete structure.
	C3005.5: Apply recurrence relations to solve problems in different domains

POs / COs	PO1: Engineering knowledge	PO2: Problem analysis	PO3: Design/development of solutions	PO4: Conduct investigations of complex problems	PO5: Modern tool usage	PO6: The engineer and society	PO7: Environment and sustainability	PO8: Ethics	PO9: Individual and team work	PO10: Communication	PO11: Project management and finance	PO12: Life-long learning
C3005.1	2	2	-	-	1	-	-	-	-	-	-	-
C3005.2	2	1	-	-	-	-	-	-	-	-	-	-
C3005.3	2	3	-	-	-	-	-	-	1	-	-	-
C3005.4	2	2	-	-	1	-	-	-	-	-	-	1
C3005.5	1	3	2	-	1	-	-	-	-	-	-	1
SUM	9	11	2	-	3	-	-	-	1	-	-	2
AVG	1.8	2.2	2	-	1	-	-	-	1	-	-	1

4th Semester

CS-4004 Analysis & Design of algorithm	**Students will be able to:**
	C4004.1: Identify the dynamic-programming paradigm and algorithms based on this technique
	C4004.2: Analyse complexity of algorithms using asymptotic analysis.
	C4004.3: Describe the greedy paradigm and explain when an algorithmic design situation calls for it. Synthesize greedy algorithms, and analyse them.
	C4004.4: Analyse the performance of searching and sorting algorithm and its complexities.
	C4004.5: Apply the dynamic programming technique to compute real world problem.

POs / COs	PO1: Engineering knowledge	PO2: Problem analysis	PO3: Design/development of solutions	PO4: Conduct investigations of complex problems	PO5: Modern tool usage	PO6: The engineer and society	PO7: Environment and sustainability	PO8: Ethics	PO9: Individual and team work	PO10: Communication	PO11: Project management and finance	PO12: Life-long learning
C4004.1	2	2	-	-	1	-	-	-	-	-	-	1
C4004.2	2	1	-	-	-	-	-	-	-	-	-	-
C4004.3	2	3	-	2	-	-	-	-	1	-	-	-
C4004.4	2	3	-	2	1	-	-	-	-	-	-	1
C4004.5	1	3	2	-	1	-	-	-	-	-	-	1
SUM	9	12	2	4	3	-	-	-	1	-	-	3
AVG	1.8	2.4	2	2	1	-	-	-	1	-	-	1

5th SEM

CS 5003 Database management System	**Students will be able to:** **C5003.1:**.SummarizeSQL Commands and its basic operators. **C5003.2:** Develop database programming skills in SQL. **C5003.3:** Apply Normalization theoryfor design database which possess no anomalies. **C5003.4:** .Demonstrate SQL query and various Relation algebra operations. **C5003.5:** Apply triggers and stored procedures in DBMS

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
C5003.1	2	2	-	-	1	-	-	-	-	-	-	1
C5003.2	2	1	-	-	-	-	-	-	-	-	-	-
C5003.3	2	3	-	-	-	-	-	-	1	-	-	-
C5003.4	2	3	-	-	1	-	-	-	-	-	-	1
C5003.5	2	3	-	-	1	-	-	-	-	-	-	1
Sum	**10**	**12**	-	-	**3**	-	-	-	**1**	-	-	**3**
Avg	**2**	**2.4**	**-**	**-**	**1**	**-**	**-**	**-**	**1**	**-**	**-**	**1**

6th SEM

	Students will be able to:
CS-6001 Advanced Computer Architecture	**C600.1:** Discuss the classes of computers, and new trends and developments in computer architecture. **C600.2:** Identify the several advanced optimizations to achieve cache performance. **C600.3:** Compare advanced performance enhancement techniques such as pipelines dynamic scheduling branch predictions, virtual machines. **C600.4:** Contrast the modern computer architectures such as RISC, Scalar, and multi CPU systems. **C600.5:** Acquire experience to design computer processor and algorithm.

POs COs	PO1: Engineering knowledge	PO2: Problem analysis	PO3: Design/development of solutions	PO4: Conduct investigations of complex problems	PO5: Modern tool usage	PO6: The engineer and society	PO7: Environment and sustainability	PO8: Ethics	PO9: Individual and team work	PO10: Communication	PO11: Project management and finance	PO12: Life-long learning
C6001.1	2	2	2	-	1	-	-	-	-	-	-	1
C6001.2	2	1	-	-	-	-	-	-	-	-	-	1
C6001.3	2	2	-	-	-	-	-	-	1	-	-	-
C6001.4	2	1	-	-	2	-	-	-	-	-	-	-
C6001.5	2	2	2	-	1	-	-	-	1	-	-	1
SUM	10	8	4	-	4				2			3
AVG	2.0	1.6	2.0	-	1.3				1.0			1.0

7th SEM

	Students will be able to:
CS-7001 **Distributed System**	**C7001.1:** Outline the core concepts and architecture of distributed systems **C7001.2:** Apply the concept of Distributed Operating Systems for computer applications. **C7001.3:** Differentiate distributed computing paradigm from other computing. **C7001.4:** Summarize the mechanisms for inter process communication in a distributed computing system. **C7001.5:** Identify appropriate distributed system principles in ensuring transparency, consistency and fault-tolerance in distributed file systems.

POs / COs	Engineering knowledge PO1:	Problem analysis PO2:	Design/development of solutions PO3:	Conduct investigations of complex problems PO4:	Modern tool usage PO5:	The engineer and society PO6:	Environment and sustainability PO7:	Ethics PO8:	Individual and team work PO9:	Communication PO10:	Project management and finance PO11:	Life-long learning PO12:
C7001.1	2	2	-	-	-	-	-	-	-	-	-	1
C7001.2	2	1	-	-	-	-	-	-	-	-	-	1
C7001.3	2	3	1	-	-	-	-	-	-	-	-	
C7001.4	2	3	-	-	1	-	-	-	-	-	-	1
C7001.5	2	2	1	-	1	-	-	-	-	-	-	1
SUM	10	11	2	-	2	2	-	-	-	-	-	4
AVG	2	2.2	1	-	1	1	-	-	-	-	-	1

8ᵗʰ SEM

Soft Computing (CS-8001)	Students will be able to:
	C8001.1: Outline the fuzzy logic and the concept of fuzziness for systems and fuzzy set theory.
	C8001.2: Apply fundamental theory and concepts of neural networks.
	C8001.3: Classify Neural Network architectures, algorithms, applications and their limitations
	C8001.4: Analysis appropriate learning rules for neural network paradigms and its applications.
	C8001.5: Apply the concept of genetic algorithm for soft computing problems.

POs / COs	Engineering knowledge PO1:	Problem analysis PO2:	Design/development of solutions PO3:	Conduct investigations of complex problems PO4:	Modern tool usage PO5:	The engineer and society PO6:	Environment and sustainability PO7:	Ethics PO8:	Individual and team work PO9:	Communication PO10:	Project management and finance PO11:	Life-long learning PO12:
C8001.1	2	2	-	-	1	-	-		-	-	-	1
C8001.2	2	1	-	-		-	-	1	-	-	-	2
C8001.3	2	1	-	-		-	-	1	-	-	-	1
C8001.4	2	3	-	-	1	-	-	1	-	-	-	1
C8001.5	2	3	-	-	1	-	-	1	-	-	-	2
SUM	10	10	-	-	3	-	-	4	-	-	-	7
AVG	2	2	-	-	1	-	-	1	-	-	-	1.4

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

3rd SEM

Subject Name /Code	COs	PSO1	PSO2	PSO3
CS-3005 **Discrete Structures**	C3005.1	1	-	1
	C3005.2	1	-	1
	C3005.3	1	-	1
	C3005.4	1	-	1
	C3005.5	1	-	1
SUM		5	-	5
AVG		1	-	1

4th Semester

Subject Name /Code	COs	PSO1	PSO2	PSO3
CS-4003 **Analysis & Design of algorithm**	C4003.1	1	-	1
	C4003.2	1	-	1
	C4003.3	1	2	1
	C4003.4	1	2	1
	C4003.5	1	1	1
SUM		5	5	5
AVG		1	1.67	1

5thSEM

Subject Name /Code	COs	PSO1	PSO2	PSO3
Database management System (CS-5003)	C5003.1	3	2	1
	C5003.2	3	2	1
	C5003.3	2	1	-
	C5003.4	1	2	-
	C5003.5	1	1	1
SUM		10	8	3
AVG		2	1.6	1

6ᵗʰ SEM

Subject Name /Code	COs	PSO1	PSO2	PSO3
Advanced Computer Architecture (CS-6001)	C6001.1	2	1	1
	C6001.2	2	1	1
	C6001.3	2	-	-
	C6001.4	2	-	-
	C6001.5	2	-	-
SUM		10	2	2
AVG		2.0	1	1.0

7ᵗʰ SEM

Subject Name /Code	COs	PSO1	PSO2	PSO3
Distributed System (CS-7001)	C7001.1	1	1	-
	C7001.2	3	-	2
	C7001.3	2	1	-
	C7001.4	1	-	-
	C7001.5	1	-	-
SUM		8	2	2
AVG		1.6	1	2

8ᵗʰ SEM

Subject Name /Code	COs	PSO1	PSO2	PSO3
Soft Computing (CS-8001)	C8001.1	1	-	-
	C8001.2	1	1	1
	C8001.3	2	1	
	C8001.4	2	-	-
	C8001.5	2	1	1
SUM		8	3	2
AVG		1.6	1	1

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

3.1.3. Program level Course-PO matrix of all courses including first year courses (10)

Mapping of Program Level Course with POs

CO-PO Mapping 2016-2020 Batch												
SEM	**Course**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**POl2**
I	MA110	1.2	1.8	3.0	1.0		1.0	1.0	-	-	-	1.0	1.0
	PH110	1.4	1.0			1.0	-	-	-	1.0	-	-	1.0
	ME111	2.4	2.0	-	-	-	1.0	1.0	-	-	-	-	1.5
	HU110	2.4	1.8	-	-	-	1.0	-	-	1.0	-	-	1.3
	ML 110	2.0	1.0	3.0	-	1.0	1.3	1.3	-	1.3	-	-	1.0
	HU 111	2.6	2.4	1.0	-	1.0	1.5	-	1.0	1.6	3.0	-	1.6
	EC111	2.2	1.5	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
	CS111	2.0	2.0		-	1.0	-	-	-	-	-	-	1.0
II	MA111	1.6	2.4	-	-	-	-	-	-	-	-	-	1.0
	CY110	2.4	2.1	-	-	0.5	0.5	-	-	0.8	-	-	1.0
	ME112	2.0	1.4		-	1.0	1.0	-	-	1.5	-	-	1.0
	ME113	2.2	2.2	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
	CS110	2.0	2.4	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
	HU112	2.6	2.8	1.0	-		1.0	1.0	1.3	1.8	1.5	-	1.0
	CS112	2.4	1.6		-	-	-	-	-	-	-	-	1.0
	CS113	2.0	2.6		-	-	-	-	-	-	-	-	1.0
III	BE-3001	2.2	1.8		-	-	-	-	-	-	-	-	1.00
	CS-3002	1.93	2.50	3.00	-	1.50	-	1.00	1.00	1.50	-	-	1.83
	CS3003	2.30	1.90	2.83	-	1.00	-	-	-	1.42	-	-	1.00
	CS3004	1.80	2.40	1.50	2.00	1.50	1.50	-	-	1.00	1.00	1.00	1.50
	CS 3005	1.80	2.20	1.33	-	-	-	-	-	-	-	-	1.00
	CS3006	1.40	1.60	-	-	1.00	-	-	-	1.80	3.00	-	1.33
	CS 3007	2.60	2.80	1.00	-	-	1.00	1.00	1.33	1.80	1.50	-	1.00
	CS 3008	1.6	1.6	1	1	1.666667	1	1	1	1	1	1	1.4
IV	ES 3001	2.00	1.80	1.00		1.00	2.00	1.60	1.60	1.00	1.75		1.80
	CS4002	1.80	1.80			1.25	-	-	-	-	-	-	2.00
	CS4003	2.00	2.00	2.00	1.00	1.00	-	-	-	-	-	-	1.00
	CS 4004	1.90	1.90	2.00	2.00	1.50	-	2.00	1.33	1.00	-	-	1.50
	CS4005	1.60	2.00	1.67	1.33	-	-	-	-	-	-	-	-
	CS 4006	2.40	2.40	2.33	2.00	1.75	-	-	-	2.00	2.00	2.00	1.67

Sem	Course												
	CS 4007	1.20	1.40	-	-	1.20	1.00	1.00	2.00	1.00	-	-	1.00
	CS 4008	1	2	-	-	-	2	1.25	2.4	1	1	-	1.8
V	CS5001	1.4	2.6	-	-	1.0	-	1.0	1.0	1.0	1.0	-	1.0
	CS5002	1.8	2.2	-	-	2.0	-	-	-	-	-	-	1.0
	CS5003	1.8	2.4	-	-	1.5	-	-	-	1.0	-	-	1.5
	CS5004	1.8	2.3	-	-	1.1	-	-	-		-	-	1.0
	CS5005	1.8	2.4	-	-	1.0	-	-	-	1.0	-	-	1.3
	CS5006	1.8	1.8	-	-	1.0	-	-	-	1.0	-	-	1.7
	CS5007	1.8	1.6	1.0	1.0	1.0	1.0	1.3	1.8	1.0	1.3	1.4	1.6
	CS5008	1.6	1.6	1.0	1.0	1.7	1.0	1.0	1.0	1.0	1.0	1.0	1.4
VI	CS6001	1.8	2.4	-	-	1.0	-	-	-	1.0	-	-	1.0
	CS6002	1.6	2.0	1.2	1.3	1.0	-	-	-	1.0	-	1.3	1.0
	CS6003	1.8	1.4	1.4		1.4	1.1	-	-	-	-	1.8	2.0
	CS6004	1.4	1.5	1.5	2.0	1.8	1.5	-	-	-	-	-	1.5
	CS6005	2.0	2.0	-	-	1.7	-	-	-	1.0	-	-	1.0
	CS6006	1.2	2.6	3.0	1.0	1.3	1.0	1.0	1.5	1.5	1.8	1.0	1.5
	CS6007	1.2	1.8	3.0	1.0	1.5	1.0	1.0	1.5	1.5	1.0	1.0	1.4
	CS6008	1.2	1.6	2.0	1.5	1.0	1.0	1.0	1.3	1.5	1.5	1.0	1.6
VII	CS7001	1.8	2.4	-	-	1.0	-	-	-	-	-	-	1.0
	CS7002	2.0		1.2		1.3	-	-	-	-	-	-	1.5
	CS7003	1.9	2.2	-	-	1.3	-	-	-	1.0	-	-	1.3
	CS7004	1.8	2.0	-	-	1.0	-	-	-	1.0	-	-	1.0
	CS7005	1.8	1.8	-	-	1.7	-	-	-	-	-	-	1.0
	CS7006	1.2	2.6	3.0	1.0	1.3	1.0	1.0	1.5	1.5	1.8	1.0	1.5
	CS7007	1.8	1.7	1.0	1.0	1.3	1.0	1.0	1.7	1.7	1.5	1.7	1.5
VIII	CS8001	1.8	2.4	-	-	1.0	-	-	-	-	-	-	1.0
	CS8002	1.8	2.4	-	-	1.0	-	-	-	1.0	-	-	1.0
	CS8003	1.8	2.4	-	-	1.0	-	-	-	1.0	-	-	1.0
	CS8004	1.8	2.4	-	-	1.0	-	-	-	1.0	-	-	1.3
	CS8005	2.0	2.6	3.0	1.0	1.3	1.0	1.0	1.5	1.5	1.8	-	1.5
	CS8006	1.8	2.4	-	-	1.0	-	-	-	1.0	-	-	1.1
	CS8007	1.3	1.3	-	-	1.0	1.0	1.0	1.3	1.8	2.4	2.0	1.6
	Avg	**1.83**	**2.03**	**1.97**	**1.30**	**1.20**	**1.12**	**1.11**	**1.42**	**1.26**	**1.61**	**1.29**	**1.26**

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

	Program Level Course PSO matrix of all courses including first year			
	CSE Department			
	CO-PSO Mapping (2016-2020 Batch)			
Sem	**Course Code**	**PSO1**	**PSO2**	**PSO3**
I	MA110	1.20	1.00	1.00
	PH110	1.00	1.00	1.00
	ME111	1.00	1.00	1.00
	HU110	1.10	1.00	1.25
	ML 110	1.40	1.33	1.67
	HU 111	1.00	1.00	1.00
	EC111	1.60	1.00	1.00
	CS111	2.00	1.00	1.00
II	MA111	1.00	1.00	1.00
	CY110	1.00	-	1.00
	ME112	1.60	1.00	1.00
	ME113	1.60	1.00	1.00
	CS110	1.40	1.00	1.00
	HU112	1.00	2.00	1.00
	CS112	1.00	1.00	1.00
	CS113	1.00	1.00	1.00
III	BE-3001	-	-	1.20
	CS-3002	2.10	1.33	1.00
	CS3003	2.20	1.37	1.00
	CS3004	1.40	2.00	1.00
	CS 3005	1.20	-	1.00
	CS3006	1.25	1.00	1.00

	CS 3007	1.20	1.25	1.40
	CS 3008	1.2	1.25	1.4
IV	ES 3001	1.00	-	1.00
	CS4002	1.00	-	1.20
	CS4003	1.60	1.67	2.00
	CS 4004	1.40	1.50	1.50
	CS4005	1.60	1.00	1.00
	CS 4006	2.20	2.00	1.33
	CS 4007	1.40	1.33	1.00
	CS 4008	-	1	1.6
V	CS5001	1.8	1.00	1.6
	CS5002	1.80	1.33	1.58
	CS5003	2.00	1.30	1.13
	CS5004	2.00	1.00	1.80
	CS5005	2.00	2.00	1.20
	CS5006	2.00	2.00	1.25
	CS5007	2.00	1.00	1.60
	CS5008	1.20	1.25	1.40
VI	CS6001	2	1.25	1
	CS6002	1.20	1.50	1.40
	CS6003	1.40	1.37	1.37
	CS6004	1.63	1.35	1.58
	CS6005	1.20	1.50	1.00
	CS6006	2.50	1.33	1.80
	CS6007	2.20	1.40	1.80
	CS6008	1.33	1.00	1.60
VII	CS7001	1.8	1.5	

	CS7002	1.80	1.36	1
	CS7003	1.80	1.57	1.3
	CS7004	1.80	2.00	1.33
	CS7005	1.40	1.40	1.00
	CS7006	2.50	1.80	1.67
	CS7007	2.33	2.00	1.50
VIII	**CS8001**	1.3	1.00	1.00
	CS8002	1.00	1.00	1.00
	CS8003	1.00	1.00	1.00
	CS8004	1.00	1.00	1.00
	CS8005	2.75	1.80	1.33
	CS8006	1.00	1.00	1.00
	CS8007	1.60	1.25	2.40
Avg		**1.5**	**1.3**	**1.3**

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

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 (Grading System) *

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		
1	**Mid Semester Tests**	**20**	**30**
2	**Quiz/ Assignment**	**10**	

II	END SEMESTER EXAMINATION	70
	TOTAL	100

Evaluation Components (CBCS)*

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

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

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 onMid Semester examination, unit tests assignments, seminar, group discussion, self study, tutorials, internal viva and end semester examination. 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.

A. Direct Assessment Methods

	Direct Assessment Methods	
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 may be conducted for the eligible students 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, Project assessment	The Internal Assessment marks in the case 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-voice	Viva-voice examination of project work is

		conducted batch-wise.

B. 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 program Satisfaction and college 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.
6	Feedback Form on Facilities	Collect variety of information about facilities from the students.

PO Assessment Tools:

Method of Assessment	Source For Data Collection	Setting of Target	Data Assessment
Internal/External Evaluation	Evaluation Data	Target Set with respect to previous results analysis and internal assessment	End of the Semester
Course Exit Survey	Survey Report	Target Set with reference to previous survey report and internal assessment	End of the Year
Program Exit Survey			
Alumni Survey			

POs	Skill to be Demonstrated	Assessment Tools
PO1	**Engineering knowledge:**	- Internal/External Evaluation as per University exam. - Project work/Lab Experiments - Mentoring, Core software skills - TechnicalEvents/Workshop/conferences/Seminar/Group discussion/Social Activities - Course Exit Survey/Program Exit Survey - Industrial Visit/Industrial Training - Alumni Feedback/Student Feedback/Employer Feedback - Course Beyond syllabus - Add on course assessment - Project base and Problem base learning
PO2	**Problem analysis**	- Internal/External Evaluation as per University exam. - Project work/Lab Experiments - Mentoring, Core software skills - Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities - Course Exit Survey/Program Exit Survey - Industrial Visit/Industrial Training - Alumni Feedback/Student Feedback/Employer Feedback - Course Beyond syllabus - Add on course assessment - Project base and Problem base learning
PO3	**Design/development of solutions:**	- Internal/External Evaluation as per University exam. - Project work/Lab Experiments - Mentoring, Core software skills - Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities - Course Exit Survey/Program Exit Survey - Industrial Visit/Industrial Training

		• Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO4	**Conduct investigations of complex problems:**	• Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO5	**Modern tool usage:**	• Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO6	**Engineer and Society**	• Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities • Course Exit Survey/Program Exit Survey

			• Industrial Visit/Industrial Training
			• Alumni Feedback/Student Feedback/Employer Feedback
			• Course Beyond syllabus
			• Add on course assessment
			• Project base and Problem base learning
PO7	Environment and sustainability		• Internal/External Evaluation as per University exam.
			• Project work/Lab Experiments
			• Mentoring, Core software skills
			• Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities
			• Course Exit Survey/Program Exit Survey
			• Industrial Visit/Industrial Training
			• Alumni Feedback/Student Feedback/Employer Feedback
			• Course Beyond syllabus
			• Add on course assessment
			• Project base and Problem base learning
PO8	Ethics		• Internal/External Evaluation as per University exam.
			• Project work/Lab Experiments
			• Mentoring, Core software skills
			• Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities
			• Course Exit Survey/Program Exit Survey
			• Industrial Visit/Industrial Training
			• Course Beyond syllabus
			• Add on course assessment
			• Alumni Feedback/Student Feedback/Employer Feedback
			• Project base and Problem base learning
PO9	Individual and team work		• Internal/External Evaluation as per University exam.
			• Project work/Lab Experiments
			• Mentoring, Core software skills
			• Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities

		- Course Exit Survey/Program Exit Survey - Industrial Visit/Industrial Training - Alumni Feedback/Student Feedback/Employer Feedback - Course Beyond syllabus - Add on course assessment - Project base and Problem base learning
PO10	**Communication**	- Internal/External Evaluation as per University exam. - Project work/Lab Experiments - Mentoring, Core software skills - Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities - Course Exit Survey/Program Exit Survey - Industrial Visit/Industrial Training - Alumni Feedback/Student Feedback/Employer Feedback - Course Beyond syllabus - Add on course assessment - Project base and Problem base learning
PO11	**Project management and finance**	- Internal/External Evaluation as per University exam. - Project work/Lab Experiments - Mentoring, Core software skills - Technical/Events/Workshop/conferences/Seminar/Group discussion/Social Activities - Course Exit Survey/Program Exit Survey - Industrial Visit/Industrial Training - Alumni Feedback/Student Feedback/Employer Feedback - Course Beyond syllabus - Add on course assessment - Project base and Problem base learning
PO12	**Lifelong learning**	- Internal/External Evaluation as per University exam. - Project work/Lab Experiments - Mentoring, Core software skills - Technical/Events/Workshop/conferences/Seminar/Group

		discussion/Social Activities
		• Course Exit Survey/Program Exit Survey
		• Industrial Visit/Industrial Training
		• Alumni Feedback/Student Feedback/Employer Feedback
		• Course Beyond syllabus
		• Add on course assessment
		• Project base and Problem base learning

- 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

```
                    ┌─────────────────────────────┐
                    │   Question papers are planned │
                    │        according to COs       │
                    └─────────────────────────────┘
                                   │
                    ┌─────────────────────────────┐
                    │   Mapping Questions with COs  │
                    └─────────────────────────────┘
                                   │
          ┌──────────────────────────────────────────────────┐
          │  Weightage calculation of COs are decided as per   │
          │  require class session, completion and complexity  │
          │                    of COs                          │
          └──────────────────────────────────────────────────┘
                                   │
                    ┌─────────────────────────────┐
                    │   Drafting of Question Paper(s) │
                    └─────────────────────────────┘
                                   │
                    ┌─────────────────────────────┐
                    │  Examination Co-ordinator      │
                    │  review the question paper     │
                    └─────────────────────────────┘
                                   │
        ┌──────────┐            ◇
        │   NO     │◀────── If Satisfactory
        └──────────┘            ◇
                                   │
                                 YES
                                   │
                    ┌─────────────────────────────┐
                    │  Setup Final Question Paper(s) │
                    └─────────────────────────────┘
```

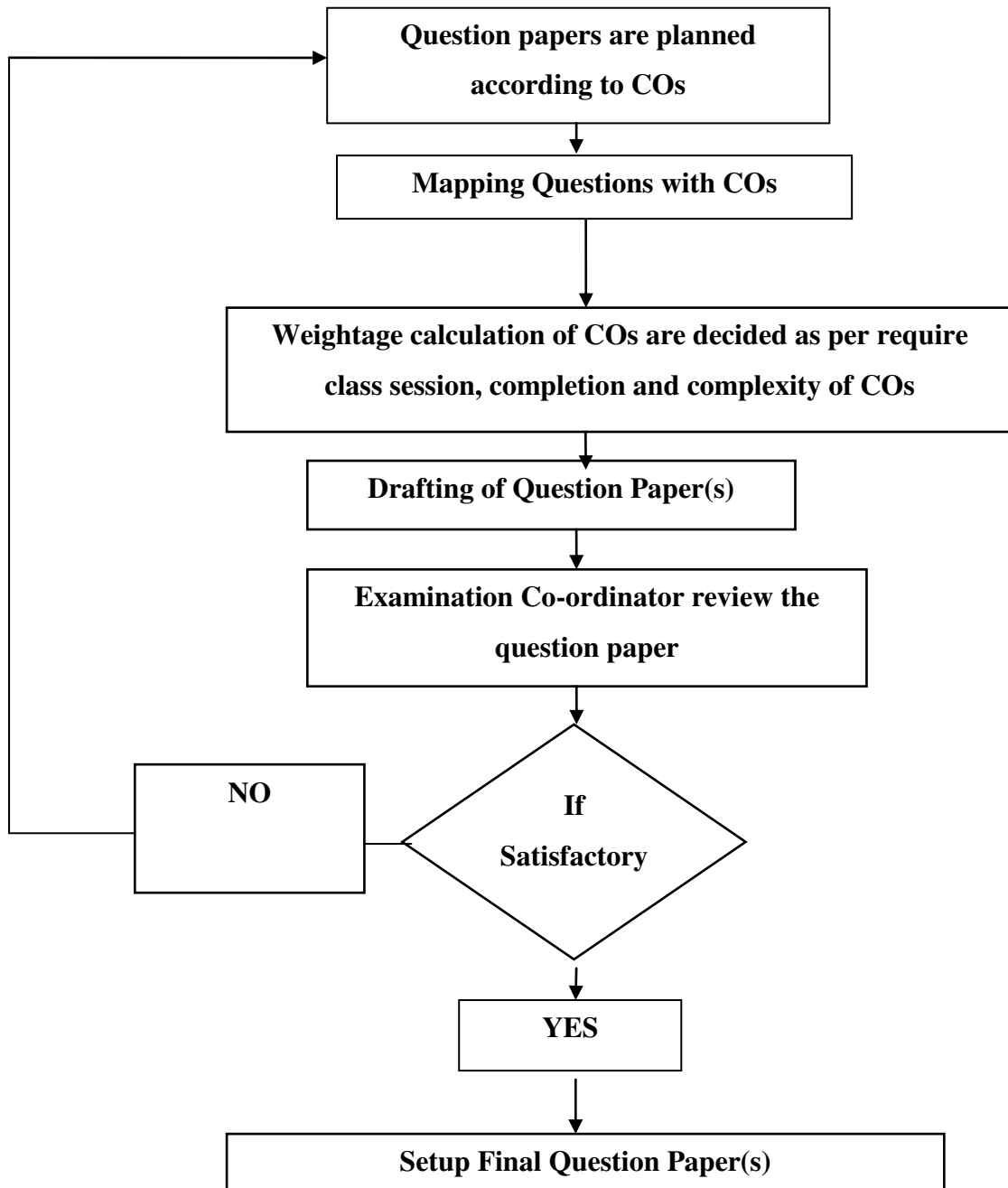**Figure 3.1 Evaluation Process**

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 university examination result
- Subject internal Assessment Average Marks
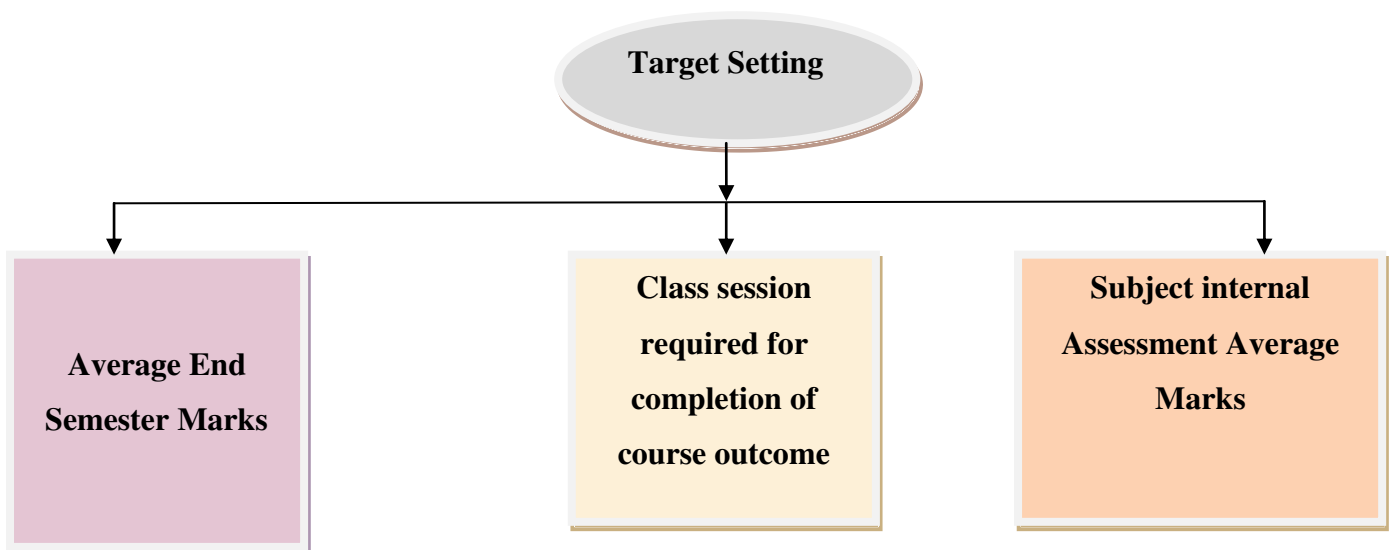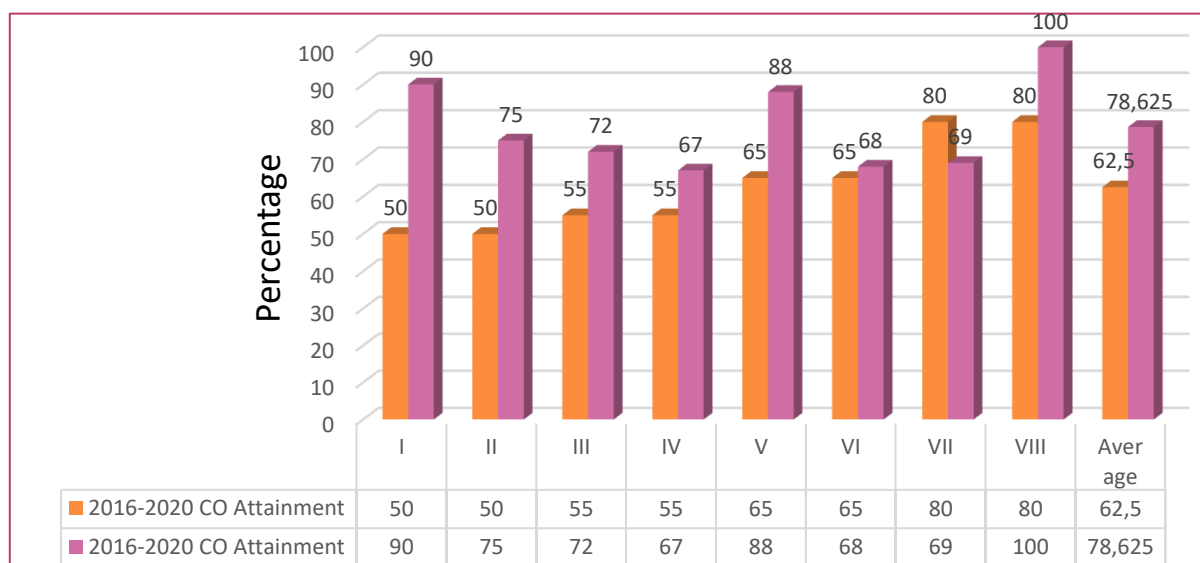- Class session require for completion of course outcome

Figure 3.2 Process of Target Setting

B. **CO-ATTAINMENT (2016-2020 Batch)**

CO Attainment Analysis 2016-2020 Batch

Sem	2016-2020 CO Attainment	2016-2020 CO Attainment
I	50	90
II	50	75
III	55	72
IV	55	67
V	65	88
VI	65	68
VII	80	69
VIII	80	100
Average	62,5	78,625

2016-2020 CO Attainment in %		
Sem	**Target%**	**Achieved%**
I	50	90
II	50	75
III	55	72
IV	55	67
V	65	88
VI	65	68
VII	80	69
VIII	80	100
Average	62.5	78.625

Record of all CO Attainment					
IES College of Technology, Bhopal [0177]					
Department OF Computer Science & Engineering 2016-2020 Batch					
I SEM					
S.NO	**Subject Name / Code**	**CO**	**Target Level**	**Total Attainment**	**Difference**
1	Mathematics- I (MA-110)	C110.1	1.2	1.8	0.6
		C110.2	1.2	1.8	0.6
		C110.3	1.2	1.8	0.6

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
		C110.4	1.2	1.8	0.6
		C110.5	1.2	1.8	0.6
2	Physics (PH-110)	CPH110.1	1.3	2.4	1.1
		CPH110.2	1.3	2.4	1.1
		CPH110.3	1.3	2	0.7
		CPH110.4	1.3	2.4	1.1
		CPH110.5	1.3	2.4	1.1
3	English (HU-110)	CHU110.1	1.5	3	1.5
		CHU110.2	1.5	3	1.5
		CHU110.3	1.5	3	1.5
		CHU110.4	1.5	3	1.5
		CHU110.5	1.5	2.4	0.9
4	EC111 Fundamental of Electronics Engg.	CCE110.1	1.2	3	1.8
		CCE110.2	1.2	3	1.8
		CCE110.3	1.2	3	1.8
		CCE110.4	1.2	3	1.8
		CCE110.5	1.2	3	1.8
5	Engineering Graphics (ME-111)	CME111.1	1.2	2.5	1.3
		CME111.2	1.5	2.7	1.2
		CME111.3	1.5	2.7	1.2
		CME111.4	1.5	2.7	1.2
		CME111.5	1.5	2.7	1.2
6	Environmental Sciences (ML-110P)	CML110. 1	1.8	3	1.2
		CML110. 2	1.8	3	1.2
		CML110. 3	1.8	3	1.2
		CML110. 4	1.8	3	1.2
		CML110. 5	1.8	3	1.2
7	Introduction to computer science Engg (CS-111P)	CLEC110.1	1.8	3	1.2
		CLEC110.2	1.8	3	1.2
		CLEC110.3	1.8	3	1.2
		CLEC110.4	1.8	3	1.2
		CLEC110.5	1.8	3	1.2
8	Communication (HU-111P)	CLHU111.1	1.8	3	1.2
		CLHU111.2	1.8	3	1.2
		CLHU111.3	1.8	3	1.2
		CLHU111.4	1.8	3	1.2
		CLHU111.5	1.8	3	1.2
		Target Level	**50%**	**Achieved Attainment Level**	**90%**
		II SEM			
S.NO	**Subject Name / Code**	**CO**	**Target Level**	**Total Attainment**	**Difference**
1	Mathematics- II (MA-111)	C111.1	1.3	1.2	-0.1
		C111.2	1.3	1.2	-0.1
		C111.3	1.3	1.2	-0.1
		C111.4	1.3	1.2	-0.1
		C111.5	1.3	0.4	-0.9

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
2	Fundamental of Computer Science Engg (CS112)	C112.1	1.5	2.1	0.6
		C112.2	1.5	2.1	0.6
		C112.3	1.5	1.7	0.2
		C112.4	1.5	2.1	0.6
		C112.5	1.2	2.1	0.9
3	Data Structure-I (CS113)	CEE111.1	1.3	2.1	0.8
		CEE111.2	1.3	2.1	0.8
		CEE111.3	1.3	2.1	0.8
		CEE111.4	1.5	2.1	0.6
		CEE111.5	1.5	1.7	0.2
4	Concepts in Engineering Design (ME-112)	CME112.1	1.1	1.2	0.1
		CME112.2	1.1	2.4	1.3
		CME112.3	1.1	2.4	1.3
		CME112.4	1.1	2.4	1.3
		CME112.5	1.1	2.4	1.3
5	Chemistry (CY-110)	CY110.1	1.5	1.9	0.4
		CY110.2	1.8	2.1	0.3
		CY110.3	1.5	2.1	0.6
		CY110.4	1.5	1.7	0.2
		CY110.5	1.3	2.1	0.8
6	Manufacturing Practices (ME-113)	CLME113.1	1.8	3	1.2
		CLME113.2	1.8	3	1.2
		CLME113.3	1.6	3	1.4
		CLME113.4	1.6	3	1.4
		CLME113.5	1.6	3	1.4
7	Computer Programming (CS-110)	CCS110.1	1.8	3	1.2
		CCS110.2	1.8	3	1.2
		CCS110.3	1.8	3	1.2
		CCS110.4	1.8	3	1.2
		CCS110.5	1.8	3	1.2
8	Rural Outreach (HU-112)	CLHU112.1	1.8	3	1.2
		CLHU112.2	1.8	3	1.2
		CLHU112.3	1.8	3	1.2
		CLHU112.4	1.8	3	1.2
		CLHU112.5	1.8	3	1.2
		Target Level	**50%**	**75%**	
III SEM					
S.NO	Subject Name / Code	CO	**Target Level**	**Total Attainment**	**Difference**
1	Mathematics-III (Departmental Mathematics) M-3001	C3001.1	1.3	0.9	-0.4
		C3001.2	1.3	0.9	-0.4
		C3001.3	1.3	0.9	-0.4
		C3001.4	1.3	0.9	-0.4
		C3001.5	1.3	0.9	-0.4
2	Electronic Devices & Circuits (CS3002)	C3002.1	1.2	1.9	0.7
		C3002.2	1.2	2.3	1.1
		C3002.3	1.2	2	0.8

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
		C3002.4	1.2	1.9	0.7
		C3002.5	1.2	1.9	0.7
3	Digital Circuit & Design (CS3003)	C3003.1	1.8	2.5	0.7
		C3003.2	1.8	2.65	0.85
		C3003.3	1.8	2.65	0.85
		C3003.4	1.8	2.05	0.25
		C3003.5	1.8	2.05	0.25
4	Data Structures-II (CS 3004)	C3004.1	1.5	1.95	0.45
		C3004.2	1.5	1.95	0.45
		C3004.3	1.5	1.95	0.45
		C3004.4	1.5	1.55	0.05
		C3004.5	1.5	1.95	0.45
5	Discrete Structure CS 3005)	C3005.1	1.5	2.3	0.8
		C3005.2	1.5	2.3	0.8
		C3005.3	1.5	2.3	0.8
		C3005.4	1.5	2.3	0.8
		C3005.5	1.5	2.3	0.8
6	Computer Programing (CS3006)	CL3006.1	2	3	1
		CL3006.2	2	2.6	0.6
		CL3006.3	2	3	1
		CL3006.4	2	2.6	0.6
		CL3006.5	2	2.2	0.2
7	Computer Programing (CS3007)	CL3007.1	2.3	3	0.7
		CL3007.2	2.3	3	0.7
		CL3007.3	2.3	3	0.7
		CL3007.4	2.3	3	0.7
		CL3007.5	2.3	3	0.7
		Target Level	**55%**	**Achieved Attainment Level**	**72%**

IV SEM					
S.NO	Subject Name / Code	CO	**Target Level**	**Total Attainment**	**Difference**
1	ES 3001	E3001.1	**1.5**	**2.3**	**0.8**
		E3001.2	**1.5**	**2.3**	**0.8**
		E3001.3	**1.5**	**2.3**	**0.8**
		E3001.4	**1.5**	**2.3**	**0.8**
		E3001.5	**1.5**	**2.3**	**0.8**
2	Computer Organization & Architecture (CS4002)	C4002.1	1.4	3	1.6
		C4002.2	1.4	3	1.6
		C4002.3	1.4	3	1.6
		C4002.4	1.4	3	1.6
		C4002.5	1.4	3	1.6
3	Analog & Digital Communication (CS4003)	C4003.1	1.5	1.95	0.45
		C4003.2	1.5	1.95	0.45
		C4003.3	1.5	1.95	0.45
		C4003.4	1.5	1.95	0.45
		C4003.5	1.5	1.95	0.45

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
4	Theory of Computation CS4004	C4004.1	1.5	3	1.5
		C4004.2	1.5	3	1.5
		C4004.3	1.5	3	1.5
		C4004.4	1.5	3	1.5
		C4004.5	1.5	3	1.5
5	Analysis Design Algorithm CS4005	C4005.1.	1.5	1.95	0.45
		C4005.2	1.5	1.95	0.45
		C4005.1.	1.5	1.95	0.45
		C4005.3	1.5	1.95	0.45
		C4005.1.	1.5	1.95	0.45
6	CP- II 4006	CL4006.1	2.1	3	0.9
		CL4006.2	2.1	3	0.9
		CL4006.3	2.1	3	0.9
		CL4006.4	2.1	3	0.9
		CL4006.5	2.1	3	0.9
7	PROGRAMING TOOLS (CS 4007)	CL4007.1	1.5	3	1.5
		CL4007.2	1.5	3	1.5
		CL4007.3	1.5	3	1.5
		CL4007.4	1.5	3	1.5
		CL4007.5	1.5	3	1.5
8	Professional Ethics (PE 4008)	CL4008.1	2.2	3	0.8
		CL4008.2	2.2	3	0.8
		CL4008.3	2.2	3	0.8
		CL4008.4	2.2	3	0.8
		CL4008.5	2.2	3	0.8
		Target Level	**55%**	**Achieved Attainment Level**	**88%**

V SEM					
S.NO	Subject Name / Code	CO	**Target Level**	**Total Attainment**	**Difference**
1	CS-5001 Data Communication	C5001.1	1.5	1.6	0.1
		C5001.2	1.5	1.6	0.1
		C5001.3	1.5	1.3	-0.2
		C5001.4	1.5	1.6	0.1
		C5001.5	1.5	1.6	0.1
2	CS-5002 Operating System	C5002.1	1.7	2.3	0.6
		C5002.2	1.7	1.9	0.2
		C5002.3	1.7	1.7	0
		C5002.4	1.7	1.7	0
		C5002.5	1.7	2.3	0.6
3	CS 5003 Database management System	C5003.1	2	2.3	0.3
		C5003.2	2	2.1	0.1
		C5003.3	2	1.7	-0.3
		C5003.4	2	1.7	-0.3
		C5003.5	2	2.3	0.3
4	CS-5004 Computer Graphics &Multimedia	C5004.1	1.6	1.75	0.15
		C5004.2	1.6	1.55	-0.05

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
		C5004.3	1.6	1.35	-0.25
		C5004.4	1.6	1.55	-0.05
		C5004.5	1.6	1.95	0.35
5	CS-5005 Object Oriented Analysis & Design	C5005.1	1.4	1.6	0.2
		C5005.2	1.4	1.6	0.2
		C5005.3	1.4	1.6	0.2
		C5005.4	1.4	1.6	0.2
		C5005.5	1.4	1.6	0.2
6	CS-5006 Computer Programing -V (Unix /Linux Lab)	CL5006.1	2.2	2.2	0
		CL5006.2	2.2	2.2	0
		CL5006.3	2.2	1.8	-0.4
		CL5006.4	2.2	2.2	0
		CL5006.5	2.2	3	0.8
7	CS- 5007 Management Skill Development	CL5007.1	2.6	3	0.4
		CL5007.2	2.6	3	0.4
		CL5007.3	2.6	3	0.4
		CL5007.4	2.6	3	0.4
		CL5007.5	2.6	3	0.4
8	CS- 5008 Innovative Thinking	CL5008.1	2.6	3	0.4
		CL5008.2	2.6	3	0.4
		CL5008.3	2.6	3	0.4
		CL5008.4	2.6	3	0.4
		CL5008.5	2.6	3	0.4
		Target Level	**65%**	**Achieved Attainment Level**	**72%**

VI SEM					
S.NO	Subject Name / Code	CO	**Target Level**	**Total Attainment**	**Difference**
1	CS-6001 Advanced Computer Architecture	C6001.1	1.80	0.90	-0.90
		C6001.2	1.80	0.90	-0.90
		C6001.3	1.80	0.90	-0.90
		C6001.4	1.80	0.00	-1.80
		C6001.5	1.80	0.90	-0.90
2	CS-6002 Principles of Programming Languages	C6002.1	2.00	2.65	0.65
		C6002.2	2.00	2.65	0.65
		C6002.3	2.00	2.05	0.05
		C6002.4	2.00	2.45	0.45
		C6002.5	2.00	2.05	0.05
3	CS-6003 Software Engineering & Project Management	C6003.1	1.60	1.95	0.35
		C6003.2	1.60	1.35	-0.25
		C6003.3	1.60	1.20	-0.40
		C6003.4	1.60	1.80	0.20
		C6003.5	1.60	1.55	-0.05
4	CS-6004 Computer Networking	C6004.1	1.50	2.30	0.80
		C6004.2	1.50	2.30	0.80

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
		C6004.3	1.50	1.90	0.40
		C6004.4	1.50	2.10	0.60
		C6004.5	1.50	2.30	0.80
5	Elective-II Internet of Things-CS 6005	C6005.1	1.80	0.90	-0.90
		C6005.2	1.80	0.90	-0.90
		C6005.3	1.80	0.90	-0.90
		C6005.4	1.80	0.90	-0.90
		C6005.5	1.80	0.30	-1.50
6	CS 6006 MINOR PROJECT	CL6006.1	2.50	3.00	0.50
		CL6006.2	2.50	3.00	0.50
		CL6006.3	2.50	2.60	0.10
		CL6006.4	2.50	1.80	-0.70
		CL6006.5	2.50	2.60	0.10
7	CS- 6007 Creativity and Entrepreneurship Development	CL6007.1	2.30	3.00	0.70
		CL6007.2	2.30	3.00	0.70
		CL6007.3	2.30	3.00	0.70
		CL6007.4	2.30	3.00	0.70
		CL6007.5	2.30	3.00	0.70
8	CS- 6008 Start-up / Industrial Lectures	CL6008.1	2.10	3.00	0.90
		CL6008.2	2.10	3.00	0.90
		CL6008.3	2.10	3.00	0.90
		CL6008.4	2.10	3.00	0.90
		CL6008.5	2.10	3.00	0.90
		Target Level	**65%**	**Achieved Attainment Level**	**68%**

VII SEM					
S.NO	Subject Name / Code	CO	**Target Level**	**Total Attainment**	**Difference**
1	CS-7001 Distributed System	C7001.1	2.30	2.65	0.35
		C7001.2	2.30	2.35	0.05
		C7001.3	2.30	1.90	-0.40
		C7001.4	2.30	2.50	0.20
		C7001.5	2.30	2.65	0.35
2	CS-7002 Compiler Design	C7002.1	2.20	1.95	-0.25
		C7002.2	2.20	1.35	-0.85
		C7002.3	2.20	1.35	-0.85
		C7002.4	2.20	1.95	-0.25
		C7002.5	2.20	1.95	-0.25
3	CS-7003 Web Engineering	C7003.1	2.20	1.95	-0.25
		C7003.2	2.20	1.75	-0.45
		C7003.3	2.20	1.40	-0.80
		C7003.4	2.20	1.65	-0.55
		C7003.5	2.20	1.55	-0.65
4	CS-7004 Elective-III Embedded Systems	C7004.1	2.50	2.30	-0.20
		C7004.2	2.50	2.30	-0.20
		C7004.3	2.50	2.30	-0.20

S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
		C7004.4	2.50	2.30	-0.20
		C7004.5	2.50	1.70	-0.80
5	CS-7005 Elective-IV Data Science & Big data	C7005.1	2.20	1.00	-1.20
		C7005.2	2.20	1.60	-0.60
		C7005.3	2.20	1.60	-0.60
		C7005.4	2.20	1.60	-0.60
		C7005.5	2.20	0.70	-1.50
6	CS-7006 Project -I	C7006.1	2.90	2.40	-0.50
		C7006.2	2.90	3.00	0.10
		C7006.3	2.90	3.00	0.10
		C7006.4	2.90	3.00	0.10
		C7006.5	2.90	3.00	0.10
7	CS-7007 Industrial Training	C7007.1	2.60	2.20	-0.40
		C7007.2	2.60	1.80	-0.80
		C7007.3	2.60	2.60	0.00
		C7007.4	2.60	1.80	-0.80
		C7007.5	2.60	2.60	0.00
		Target Level	**80%**	**Achieved Attainment Level**	**69%**

VIII SEM					
S.NO	Subject Name / Code	CO	Target Level	Total Attainment	Difference
1	CS-8001 Soft Computing	C8001.1	2.20	3.00	0.80
		C8001.2	2.20	3.00	0.80
		C8001.3	2.20	3.00	0.80
		C8001.4	2.20	3.00	0.80
		C8001.5	2.20	3.00	0.80
2	CS-8002 Cloud Computing	C8002.1	2.20	3.00	0.80
		C8002.2	2.20	3.00	0.80
		C8002.3	2.20	3.00	0.80
		C8002.4	2.20	3.00	0.80
		C8002.5	2.20	3.00	0.80
3	Elective-V CS-8003 Data Mining	C8003.1	2.20	3.00	0.80
		C8003.2	2.20	3.00	0.80
		C8003.3	2.20	3.00	0.80
		C8003.4	2.20	3.00	0.80
		C8003.5	2.20	3.00	0.80
4	CS-8004 Advance Computer Networks	C8004.1	2.50	3.00	0.50
		C8004.2	2.50	3.00	0.50
		C8004.3	2.50	3.00	0.50
		C8004.4	2.50	3.00	0.50
		C8004.5	2.50	3.00	0.50
5	Elective-VI Major Project (CS -8005)	CL8005.1	2.60	3.00	0.40
		CL8005.2	2.60	3.00	0.40
		CL8005.3	2.60	3.00	0.40
		CL8005.4	2.60	3.00	0.40
		CL8005.5	2.60	3.00	0.40
6	Elective-V CS-	CL8006.1	2.50	3.00	0.50

	8006Data Mining	CL8006.2	2.50	3.00	0.50
		CL8006.3	2.50	3.00	0.50
		CL8006.4	2.50	3.00	0.50
		CL8006.5	2.50	3.00	0.50
7	GD & SEMINAR CS8007	CL8007.1	2.60	3.00	0.40
		CL8007.2	2.60	3.00	0.40
		CL8007.3	2.60	3.00	0.40
		CL8007.4	2.60	3.00	0.40
		CL8007.5	2.60	3.00	0.40
		Target Level	**80%**	**Achieved Attainment Level**	**100%**

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

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.
- 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.

- Under Indirect methods, feedbacks of the stakeholders are considered 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)

The process of attainment has described in flow chart

```
                          ┌─────────────────────┐
                          │   Total Attainment   │
                          └──────────┬──────────┘
           ┌─────────────────────────┴─────────────────────────┐
   ┌───────────────┐                                   ┌───────────────┐
   │  80% Direct   │                                   │  20% Indirect │
   │  Attainment   │                                   │  Attainment   │
   └───────┬───────┘                                   └───────┬───────┘
     ┌─────┴──────┐                                    
┌─────────────┐ ┌─────────────┐                        ┌──────────────────────────┐
│End Semester │ │  Internal   │                        │ • Course/ Program Exit    │
│Examination  │ │ Assessment  │                        │   Survey (30%)            │
└─────┬───────┘ └──────┬──────┘                        │ • Alumni Feedback (20%)   │
                                                       │ • Employer Feedback (10%) │
                                                       │ • Parents Feedback (10%)  │
                                                       │ • 30% Student Feedback    │
                                                       │   (About OBE)             │
                                                       └──────────────────────────┘
```

- **80% Direct Attainment**
  - **End Semester Examination**
    - **70% End Semester Theory Examination**
    - **60% End Semester Practical Examination**
  - **Internal Assessment**
    - **30% Theory Assessment**
      - **67 % Mid Semester Examination**
      - **33% Assignment/ Quizzes/Tutorial/ Seminar**
    - **40% Practical Assessment**
      - **Practical Quizzes/Term Work/Project Work/ Seminar/Group Discussion**
- **20% Indirect Attainment**
  - Course/ Program Exit Survey (30%)
  - Alumni Feedback (20%)
  - Employer Feedback (10%)
  - Parents Feedback (10%)
  - 30% Student Feedback (About OBE)

Figure 3.2 Flow ChartAttainment 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 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)

Rubrics	
External Evaluation	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
Internal Evaluation	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 (Lab Subject)

Rubrics	
External Evaluation	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 Evaluation	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: -------------------   **Enrolment Number: ----------------**

Evaluation Date: ----------------

S.N	Method of Evaluation	Parameter	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		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	
3		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	
4		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	
5	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.	
6		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.	
7		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	
8	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	
9		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.	
10		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.	
11	Process 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.	
12		Achieves what it was designed to do	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	
13		Coding Skills (Operates without errors)	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.	
		Source code is efficient	Performance is above the expectations stated in the outcomes.	Performance meets the expectations stated in the outcomes	Performance does not meet the expectations stated in the outcomes	
		Source code is well-documented	Performance is above the expectations stated in the outcomes.	Performance meets the expectations stated in the outcomes	Performance does not meet the expectations stated in the outcomes	

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	Notfollowed 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	Notrelevant & 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 PartiallyJustified	Notdemonstrated and no justification
Viva	10	Handling Questions	Answered allquestions withproper justification	Answered 80% questions	Answered 60% questions	Answered 40% question	Answered 20% questions
Project Report	20	Well organized, clear objectives and outcomes for every chapter	Very Good	Good	Average	Very Good	Good

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 student audience ask questions and seek clarifications on specific issues related to the seminar. The effectiveness of the student's response to these queries is assessed.

SEMINAR EVALUATION RUBRIC

- **StudentPresenter:** _____

- **Evaluator Date:** --

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

	and reinforce text and presentation	presentation	presentation	support text and presentation

- **Rubrics for evaluation of Indirect Assessment**

Internal Evaluation	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

Internal Evaluation	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

Internal Evaluation	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

Internal Evaluation	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

3.3.2 Provide results of evaluation of each PO & PSO (40)

A. Evaluation of each PO for CAY 2020-2021
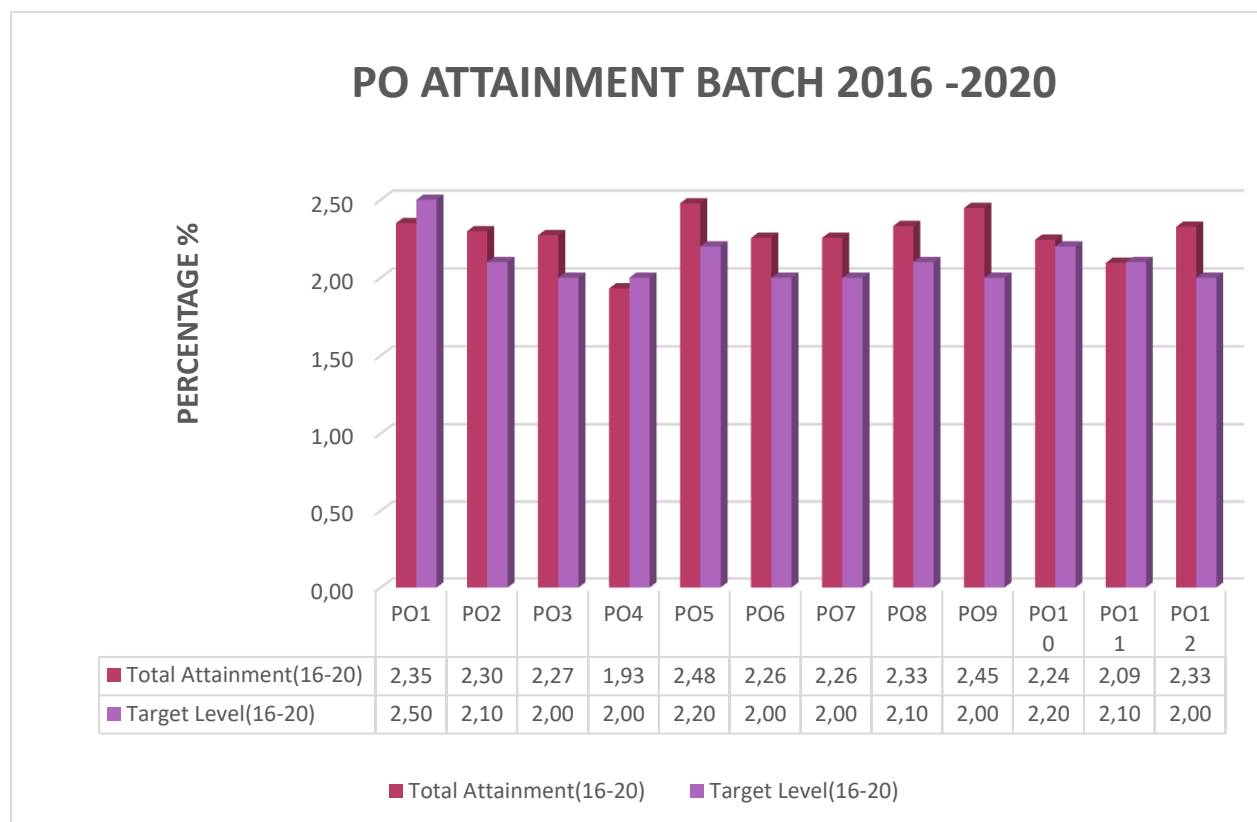
(2016-2020) BATCH ATTAINMENT EVOLUATION (DEPT. COMPUTER SCIENCE AND ENGINEERING) 0177

SEM	Subject Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I	MA110	1.80	1.80	1.80	1.80		1.80	1.80	-	-	-	1.80	1.80
	EC111	3.00	3.00	3.00		3.00	3.00		-	3.00	-	-	3.00
	ME111	2.65	2.68	-	-	3.00	2.40	2.40	-	-	-	-	2.67
	PH110	2.67	2.66	-	-		2.30	2.27	2.40	3.00	-	-	2.66
	HU110	2.86	2.92	-	-	2.80	3.00	-	3.00	3.00	2.94	-	2.89
	ML110	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	CS111	3.00	3.00	-	-	3.00	-	-	-	3.00	-	-	3.00
	HU110	2.86	2.92	-	-	2.80	3.00	-	3.00	3.00	2.94	-	2.89
II	MA111	1.00	1.07	-	-		-	-	-	-	-	-	0.93
	ME112	2.20	2.07		-		1.80	2.00	1.20	-	-	-	2.16
	CS112	2.03	2.00	0.40	-	3.00	-	-	-	3.00	-	-	2.00
	CS113	2.02	2.01	-	-	2.00	-	-	-	-	-	1.04	3.00
	CY110	2.03	1.96	-	-	-	1.07	1.07	-	-	-	-	2.06
	ME 113	3.00	3.00	3.00	-	3.00	-	-	-	3.00	-	-	3.00
	HU112	3.00	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00		3.00
	CS110	3.00	3.00	3.00	-	3.00	-	-	-	3.00	-	-	3.00

III	CS3001 MIII	0.90	0.60	-	-	-	-	- -	-	-	-	-	0.90
	CS3002(EDC)	2.02	1.76	2.60	-	2.30	-	3.00	1.60	2.10	-	-	2.06
	CS3003(DC&D)	2.31	2.43	2.50	0.00	2.46	0.00	0.00	0.00	2.61	0.00	0.00	2.46
	CS3004(DS-II)	1.86	1.63	1.68	0.90	1.82	3.00	-	-	3.00	3.00	3.00	1.85
	CS300(DS)	2.30	1.15	2.30	-	2.30	2.30	-	-	2.30	2.30	2.30	2.30
	CS3006 (CP)	2.66	2.70	-	-	2.68	-	-	-	2.69	2.68	-	2.50
	CS3007 (RO)	3.00	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	-	3.00
	CS3008(NCC)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
IV	CS3001 (MIII)	2.30	2.30	-	-	2.30		-	-	-	-	-	2.30
	CS4002 (CSO)	3.00	2.50	3.00		3.00		-	-	-	3.00	-	3.00
	CS4003(ADC)	1.95	1.35	1.95	1.50	1.50				0.00		-	0.45
	CS4004(ADA)	1.95	1.52	1.95	0.90	1.95		3.00	3.00	0.90		-	1.95
	CS4005	3.00	3.00	3.00	3.00	-	-	-	-	-	-	-	-
	CS4006(CP-II)	3.00	2.14	-	-	3.00	-	-	3.00	3.00	-	-	-
	CS4007(PT)	3.00	3.00	-	-	3.00	-	-	3.00	3.00	-	-	-
	CS4008(PF)	3.00	3.00	-	-	-	3.00	3.00	3.00	-	3.00	-	3.00
V	CS5001(DC)	1.54	1.53	-	-	1.60	1.60	-	1.60	1.60	1.60	-	1.60
	CS5002(O S)	1.98	1.97	-	-	2.10	-	-	-	1.80	-	-	2.00
	CS5003(DBMS)	2.02	2.01	0.00	0.00	2.10	0.00	0.00	0.00	1.70	0.00	1.50	2.10
	CS5004(CGM)	1.59	1.60	-	-	1.75	-	-	-	-	-	-	1.75
	CS5005(EII)	1.60	1.60	1.60	-	1.60	-	-	-	1.60	-	-	1.60
	CS5006(CPV)	2.20	2.29	2.60	-	2.47	-	3.00	-	2.07	-	-	2.52
	CS5007(MSD)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	CS5008(IT)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
VI	CS6001(ACA)	0.72	0.79	0.90	-	-	-	-	-	-	-	-	0.90
	CS6002(PPL)	2.45	2.43	2.42	3.00	2.65	-	-	-	2.58	-	2.60	2.25
	CS6003(SEPM)	1.57	1.70	1.48	-	1.80	1.62	-	2.40	3.00	0.60	1.53	1.60
	CS6004(CN)	2.18	2.19	2.10	-	2.14	2.10	-	-	2.60	3.00	-	2.18
	CS6005(EII)	0.78	0.84	-	-	0.66	-	-	-	-	-	-	0.90
	CS6006(MP)	2.67	2.57	2.20	3.00	2.36	2.60	2.80	2.60	2.40	2.43	1.80	2.53
	CS6007(CED)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
	CS6008(S/IL)	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
VII	CS7001(DS)	2.41	2.38	2.58	0.00	2.58	1.00	-	-	1.80	0.00	0.00	2.42
	CS7002(CD)	1.68	1.71	1.75	0.90	1.55	-	-	-	0.45	1.02	1.50	1.55
	CS7003(WE)	1.64	1.72	1.55	1.33	1.57	0.00	0.00	0.00	0.30	0.00	1.23	0.35
	CS7004(EIII)	2.23	2.24	-	-	2.10	-	-	-	2.30	-	-	2.30
	CS7005(EIV)	1.37	1.27	-	-	1.00	-	-	-	-	-	-	1.10
	CS7006(P-I)	2.80	2.86	3.00	3.00	3.00	3.00	3.00	3.00	2.90	2.91	3.00	2.90
	CS7007(IT)	2.26	2.15	2.20	1.80	2.12	2.47	2.30	2.12	2.27	2.50	2.28	2.31
VIII	CS8001(SE)	3.00	3.00	3.00	-	3.00	-	-	3.00	-	-	-	3.00
	CS8002(CC)	3.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	3.00	0.00	0.00	3.00

CS8003(EV)	3.00	3.00	-	-	3.00	-	-	-	3.00	-	-	3.00
CS8004(EVI)	3.00	3.00	-	-	3.00	-	-	-	3.00	-	-	3.00
CS8005 (P-II)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	-	3.00
CS8006(L-EV)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
CS8007(GD)	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Direct Attainment(2016-2020)	**2.39**	**2.32**	2.27	1.86	2.47	2.24	2.32	2.36	2.51	2.20	2.07	2.33
Indirect Attainment (2016-2020)	**2.2**	**2.20**	2.30	2.50	2.50	2.30	2.40	2.20	2.20	2.40	2.40	2.50
Total Attainment(2016-2020)	**2.35**	**2.30**	2.27	1.99	2.48	2.26	2.34	2.33	2.45	2.24	2.13	2.37
Total Attainment(2016-2020) IN %	**78**	**77**	76	66	83	75	78	78	81	75	70	79
Target Level (2016-2020)	**2.5**	**2.1**	**2.5**	**2**	**2.2**	**2**	**2**	**2.1**	**2.5**	**2.2**	**2**	**2.5**
Target Level (2016-2020) IN %	80	**83**	**70**	**80**	**69**	**74**	**69**	**69**	**70**	**83**	**74**	**69**

Overall SetTarget Average	70%
Overall Total Achieved Attainment	72%

B. Evaluation of each PSO for CAY 2020-2021

	PSO1	PSO2	PSO3
■ Total Attainment(16-20)	2,41	2,36	2,31
■ Target Level(16-20)	2,10	2,00	2,20

PSO ATTAINMENT BATCH 2016 -2020

■ Total Attainment(16-20)   ■ Target Level(16-20)
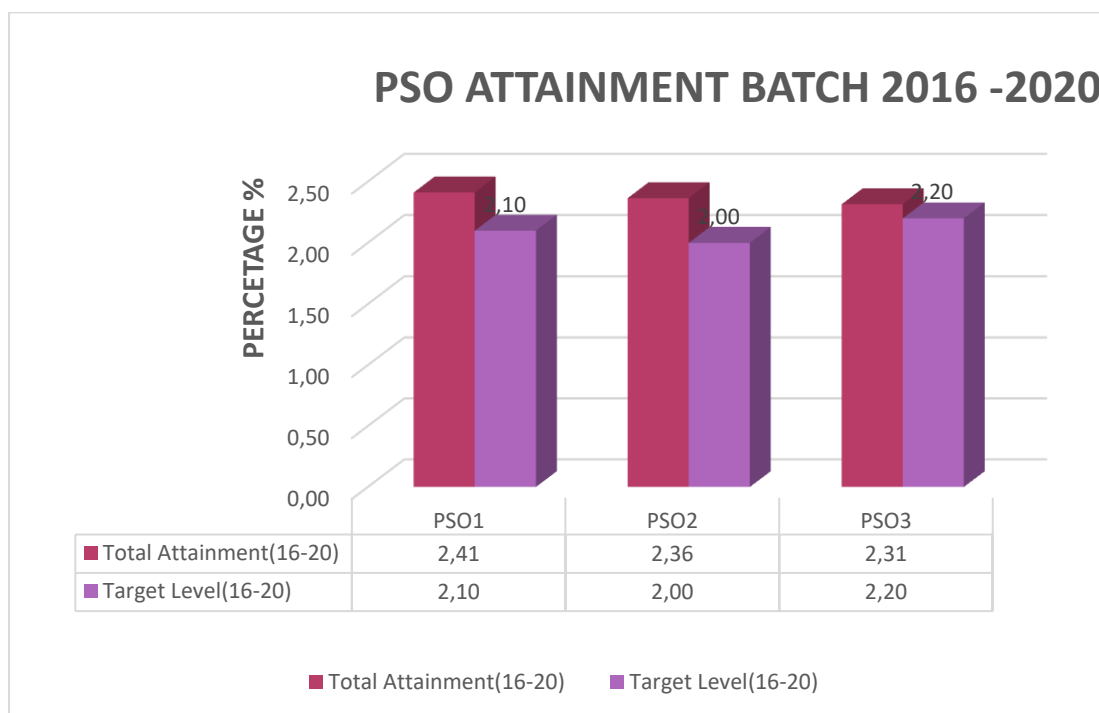
2016-2020 BATCH PSO ATTAINMENT EVOLUATION (DEPT. COMPUTER SCIENCE AND ENGINEERING) 0177

SEM	Subject Code	PSO1	PSO2	PSO3
I	MA110	1.80	1.80	1.80
	EC111	3.00	3.00	3.00
	ME111	3.00	3.00	3.00
	PH110	2.67		
	HU110	2.93		2.90
	ML110	3.00	3.00	3.00
	CS111	3.00		3.00
	HU110			2.90
II	MA111	1.07		0.93
	ME112			2.10
	CS112	2.03		2.10
	CS113	2.03		1.97
	CY110			1.97
	ME 113			3.00
	HU112	3.00	3.00	3.00
	CS110			3.00
III	CS3001 MIII			0.90
	CS3002(EDC)	2.01	2.10	2.10
	CS3003(DC&D)	2.55	2.61	2.65
	CS3004(DS-II)	1.87	1.95	1.87
	CS300(DS)	2.30	2.30	2.30
	CS3006 (CP)		2.60	2.70
	CS3007 (RO)	3.00	3.00	3.00
	CS3008(NCC)	3.00	3.00	3.00
IV	CS3001 (MIII)	2.30		2.30
	CS4002 (CSO)	3.00	3.00	3.00
	CS4003(ADC)	1.95	1.50	0.45
	CS4004(ADA)	1.95	1.95	1.95
	CS4005	3.00	3.00	3.00
	CS4006(CP-II)	3.00		3.00
	CS4007(PT)	3.00		3.00
	CS4008(PF)		3.00	3.00
V	CS5001(DC)	1.53	1.60	1.48
	CS5002(O S)	1.98	1.90	2.10
	CS5003(DBMS)	2.06	2.03	2.10
	CS5004(CGM)	1.61	1.68	1.66
	CS5005(EII)	1.60	1.60	1.60
	CS5006(CPV)	2.20	2.20	2.28
	CS5007(MSD)	3.00	3.00	3.00
	CS5008(IT)	3.00	3.00	3.00

	CS6001(ACA)	0.72	0.90	0.90
	CS6002(PPL)	2.32	2.32	2.42
	CS6003(SEPM)	1.57	1.74	1.61
VI	CS6004(CN)	2.18	2.20	2.22
	CS6005(EII)	0.80	0.80	0.30
	CS6006(MP)	2.56	2.80	2.60
	CS6007(CED)	3.00	3.00	3.00
	CS6008(S/IL)	3.00	3.00	3.00
	CS7001(DS)	2.35	2.58	2.25
	CS7002(CD)	1.62	1.50	1.65
	CS7003(WE)	1.63	1.67	1.68
VII	CS7004(EIII)	2.23	2.30	2.30
	CS7005(EIV)	1.30	1.39	1.23
	CS7006(P-I)	2.82	2.93	3.00
	CS7007(IT)	2.08	2.12	2.20
	CS8001(SE)	3.38	3.00	3.00
	CS8002(CC)	3.00	3.00	3.00
	CS8003(EV)	3.00	3.00	3.00
VIII	CS8004(EVI)	3.00	3.00	3.00
	CS8005 (P-II)	3.00	3.00	3.00
	CS8006(L-EV)	3.00	3.00	3.00
	CS8007(GD)	3.00	3.00	3.00
Direct Attainment(16-20)		**2.39**	**2.41**	**2.37**
Indirect Attainment 16-20		**2.50**	**2.20**	**2.10**
Total Attainment(16-20)		**2.41**	**2.36**	**2.31**
Total Attainment(2016-2020) IN **%**		**80**	**78**	**77**
Target Level (2016-2020)		**2.1**	**2**	**2.2**
Target Level (2016-2020) IN **%**		**70**	**67**	**73**
Overall Set Target Average		70%		
Overall Total Achieved Attainment		80%		

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CRITERION 4	Students' Performance	150

4. STUDENTS' PERFORMANCE (150)

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2020-21 (CAY)	2019-20(CAYm1)	2018-19(CAYm2)	2017-18(CAYm3)	2016-17 (CAYm4)	2015-16 (CAYm5)	2014-15 (CAYm6)
Sanctioned intake of the program (N)	180	180	180	180	180	180	180
Total number of students admitted in first year *minus* number of students migrated to other programs/institutions plus no. of students migrated to this program ($N1$)	187	186	186	188	188	182	137
Number of students admitted in 2nd year in the same batch via lateral entry ($N2$)	-	18	12	05	13	05	05
Separate division ($N3$)	-	-	-	-	-	-	-
Total number of students admitted in the Program ($N1 + N2 + N3$)	187	204	198	193	201	187	142

Table B.4(a)

Year of entry	Total No of students admitted in the program (N1 + N2 + N3)	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
2020-2021(CAY)	187	-	-	-	-
2019-2020(CAY m1)	204	131	-	-	-
2018-2019(CAYm2)	198	98	96	-	-
2017-2018(CAYm3)	193	101	93	89	-
2016-2017(LYG)	201	135	115	104	104
2015-2016 (LYGm1)	187	34	28	26	26
2014-2015 (LYGm2)	142	31	16	16	16

Table B.4b

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
2020-2021(CAY)	187	-	-	-	-
2019-2020(CAY m1)	204	175	-	-	-
2018-2019(CAYm2)	198	174	180	-	-
2017-2018(CAYm3)	193	185	183	183	-
2016-2017(LYG)	201	184	194	190	188
2015-2016 (LYGm1)	187	154	152	150	150
2014-2015 (LYGm2)	142	110	95	94	93

Table B.4(C)

4.1.Enrolment Ratio (20)

Year	N	N1	Enrolment Ratio= [N1/N*100]
2020-21(CAY)	180	187	103.88
2019-20(CAYm1)	180	186	103.33
2018-19(CAYm2)	180	186	103.33

Table B.4.1

Average [(ER1 + ER2 + ER3) / 3]:103.51

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 × Average SI

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	201	187	142
Number of students who have graduated without backlogs in the stipulated period	104	26	16
Success Index (SI)	0.52	0.14	0.11
Average SI	**0.26**		

Table B.4.2.1

Success rate without backlogs in any year of study = 25 ×0.26=6.50

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 × Average SI

Item	Latest Year of Graduation, LYG(2016-2017)	Latest Year of Graduation minus 1, LYGm1(2015-2016)	Latest Year of Graduation minus 2 LYGm2(2014-2015)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	201	187	142
Number of students who have graduated with backlog in the stipulated period	188	150	93
Success Index	0.94	0.80	0.65
Average Success Index	**0.80**		

Table B.4.2.2

Success rate = 15 × 0.80 =12

4.3 Academic Performance in Third Year (15)

*Academic Performance = 1.5 * Average API (Academic Performance Index)*
API = ((Mean of 3rd 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.

.Academic Performance	CAY m3 (2017-2018)	LYG(2016-2017)	LYGm1 (2015-2016)
Mean of CGPA or Mean Percentage of all successful students (X)	7.3	7.28	7.08
Total no. of successful students (Y)	183	190	150
Total no. of students appeared in the examination (Z)	183	194	152
API = x* (Y/Z)	7.3	7.13	6.99
Average API = (AP1 + AP2 + AP3)/3	7.13		

Table B.4.3

Academic Performance Level = 1.5 * 7.14=10.71

4.4Academic Performance in Second Year (15)

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

API = ((Mean of 2nd 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 Third year.

Academic Performance	CAYm2 (2018-2019)	CAYm3 (2017-2018)	LYG (2016-2017)
Mean of CGPA or Mean Percentage of all successful students (X)	6.7	7.15	7.34
Total no. of successful students (Y)	180	183	194
Total no. of students appeared in the examination (Z)	186	190	197
API = x* (Y/Z)	6.5	6.89	7.19
Average API = (AP1 + AP2 + AP3)/3	6.86		

Table B.4.4
Academic Performance Level = 1.5 *6.86=10.29

4.5 Placement, Higher Studies and Entrepreneurship (40)

Assessment Points = 40 × average placement

Item	LYG(2016-17)	LYG(2015-16)	LYG(2014-15)
Total No. of Final Year Students (N)	190	150	94
No. of students placed in companies or Government Sector (x)	153	121	79
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	2	4	2
No. of students turned entrepreneur in engineering/technology (z)	-	-	-
x + y + z =	155	61	62
Placement Index : (x + y + z)/N	0.82	0.816	0.792
Average placement= (P1 + P2 + P3)/3	0.81		

Table B.4.5

Assessment Points = 40 × average placement

Assessment Points = 40 × 0.81=32.40

4.5a. Provide the placement data in the below mentioned format with the name of the Program and the assessment year:

Programs Name and Assessment Year				
S. No.	**Name of the Student Placed**	**Enrollment no.**	**Name of the Employer**	**Appointment letter reference no. with date**
1	AAFREEN BANO	0177CS161002	Capgemini	HR/Campus/LO2020405864/1
2	ABHIJEET KUMAR SINGH	0177CS161004	Innoeye	2-Dec-19
3	ABHINASH KUMAR GUPTA	0177CS161006	Zensar Technologies	576534
4	ABHINAV BHARDWAJ	0177CS161007	XL Dynamics	10-Jul-20
5	ABHINAV KUMAR	0177CS161008	Innoeye	2-Dec-19
6	ABHISHEK KUMAR	0177CS161009	Repro India	13-Jul-20
7	ABHISHEK PANDEY	0177CS161010	Wipro	9380107
8	ABHISHEK PRAKASH	0177CS161011	Ceasfire	27-Jul-20
9	ABHISHEK SAXENA	0177CS161012	Netlink	NSPL/BI&A/0800
10	ADITYA BAROLIYA	0177CS161014	IT Solutions	7-Oct-20
11	ADITYA KUMAR	0177CS161015	M.Tech IIT Madras	MTech2020/3/M2005315
12	AJIT KUMAR	0177CS161017	XL Dynamics	10-Jul-20
13	AMAN KUMAR	0177CS161020	Innoeye	2-Dec-19
14	AMAN RAJ KUJUR	0177CS161022	IT Solutions	7-Oct-20
15	AMIR HASSAN	0177CS161023	Ceasfire	27-Jul-20
16	AMULYA JAIN	0177CS161024	Artech	23-Jul-20
17	ANIMESH JAIN	0177CS161025	Mphasis	MPHTH2020-0367
18	ANISH KUMAR TIWARY	0177CS161027	Innoeye	2-Dec-19
19	ANJAL GUPTA	0177CS161028	IT Solutions	7-Oct-20
20	ANKESH SUMAN	0177CS161029	Mphasis	
21	ANKIT MISHRA	0177CS161030	Pyramid IT	13-Nov-19
22	ANKITA KESHRWANI	0177CS161031	HCL Technologies	
23	ANKUR PRAKASH	0177CS161032	Virtusha	25-May-21
24	ANUJ SINGH	0177CS161034	XL Dynamics	10-Jul-20

25	APOORVA SHARMA	0177CS161037	Capgemini	HR/Campus/LO2020405863/1
26	ARPIT MATHUR	0177CS161039	IT Solutions	7-Oct-20
27	ARPIT SAXENA	0177CS161040	Innoeye	
28	ASHIRWAD SONI	0177CS161042	Pyramid IT	13-Nov-19
29	ASHUTOSH WAGH	0177CS161043	Ceasfire	27-Jul-20
30	ASHUTOSH KUMAR	0177CS161044	Artech	23-Jul-20
31	ATUL KUMAR	0177CS161046	Yash Technologies	13-Dec-19
32	ATUL SAWAI	0177CS161047	Repro India	13-Jul-20
33	AVANISH RANJAN	0177CS161048	Innoeye	2-Dec-19
34	AVINASH KUMAR	0177CS161049	IT Solutions	7-Oct-20
35	AYUSH KUMAR SINGH	0177CS161050	Innoeye	2-Dec-19
36	AZHAR ALI	0177CS161051	T-Systems	26-Nov-19
37	AZIGYA ARYAN	0177CS161052	Jade Global	12-Jul-19
38	BRAJRAJ THAKUR	0177CS161054	XL Dynamics	10-Jul-20
39	CHANDAN KUMAR	0177CS161056	Mphasis	MPHTH2020-0366
40	CHANDAN SUMAN	0177CS161057	T-Systems	26-Nov-19
41	CHETAN PRAKASH	0177CS161058	Pyramid IT	13-Nov-19
42	CHOPAL SHARMA	0177CS161059	XL Dynamics	10-Jul-20
43	DHANANJAY KUMAR PANDEY	0177CS161060	Innoeye	2-Dec-19
44	DHIRAJ KUMAR	0177CS161061	Ceasfire	27-Jul-20
45	GANESH SHARMA	0177CS161064	XL Dynamics	10-Jul-20
46	GARIMA SINGH	0177CS161065	Mphasis	MPHTH2020-0364
47	GAURAV BHARKE	0177CS161066	Artech	23-Jul-20
48	GAURAV KUMAR	0177CS161067	Zensar Technologies	576536
49	GAURAV PANDE	0177CS161069	Jade Global	12-Jul-19
50	HARSH GUPTA	0177CS161070	Hexaware Technologies	9-Sep-19
51	HENECHA SALONI	0177CS161072	Xoriant Solutions	HR/IL/01/20/SH
52	KARTIKESH PRAJAPATI	0177CS161074	IT Solutions	7-Oct-20
53	KHAWASKAR DHEERAJ HARIHAR	0177CS161075	Pyramid IT	13-Nov-19
54	KRISHNA VISHWAKARMA	0177CS161076	Capgemini	HR/Campus/LO2020405867/1
55	KUMAR SHISHIR	0177CS161078	DXC technology	21-Jun-20
56	KUMARI SONAL	0177CS161079	Ceasfire	27-Jul-20

57	MANIKANT CHAUDHARY	0177CS161081	Innoeye	2-Dec-19
58	MANISH JAISWAL (H)	0177CS161082	Artech	23-Jul-20
59	MAUSAM KUMARI	0177CS161084	Hexaware Technologies	9-Sep-19
60	MAYANK SHARMA	0177CS161086	T-Systems	26-Nov-19
61	MD ANWAR ANSARI	0177CS161087	Repro India	13-Jul-20
62	MD FAIZAL REZA	0177CS161088	Zensar Technologies	576537
63	MEEMANSA VYAS	0177CS161091	Innoeye	2-Dec-19
64	MILIND KR SINGH	0177CS161093	Pyramid IT	13-Nov-19
65	MOHINI RAJAWAT	0177CS161094	Zensar Technologies	576533
66	MOYEED AHMAD	0177CS161095	Ceasfire	27-Jul-20
67	MUKESH KUMAR	0177CS161097	Artech	23-Jul-20
68	MUSKAN SAHU	0177CS161098	Tek Systems	10-Sep-19
69	NARENDRA KUMAR	0177CS161099	Pyramid IT	13-Nov-19
70	NISHANT KUMAR	0177CS161103	Innoeye	2-Dec-19
71	NISHANT SINGH CHOUHAN (H)	0177CS161105	Pyramid IT	13-Nov-19
72	NITISH KUMAR SAHANI	0177CS161106	Infosys	HRD/3T/1000386648/21-22
73	OMKAR KUMAR	0177CS161108	Repro India	13-Jul-20
74	OMKAR NARAYAN SINGH	0177CS161109	Wipro	9323165
75	PARTH NAMDEV	0177CS161111	T-Systems	26-Nov-19
76	PARVEJ ANSARI	0177CS161112	Artech	23-Jul-20
77	PRABHANSHU KR SINGH	0177CS161113	Repro India	13-Jul-20
78	PRASHANT JAISWAL	0177CS161114	Capgemini	
79	PRIYANSHU MISHRA	0177CS161115	TCS	
80	PUSPRAJ KUMAR	0177CS161117	Hexaware Technologies	9-Sep-19
81	RAHUL KUMAR	0177CS161118	Adonai	12-Aug-20
82	RAHUL KUMAR	0177CS161119	Innoeye	2-Dec-19
83	RAHUL KUMAR SINGH	0177CS161121	Pyramid IT	13-Nov-19
84	RAHUL PRASAD (H)	0177CS161122	Repro India	13-Jul-20
85	RAHUL SINGH	0177CS161123	Jade Global	12-Jul-19
86	RAJ PRAKASH KUMAR	0177CS161124	DXC technology	21-Jun-20
87	RAJENDRA YADAV	0177CS161126	Zensar Technologies	576539
88	RAJNI RAJ	0177CS161128	Repro India	13-Jul-20
89	RAKESH KUMAR	0177CS161129	Capgemini	HR/Campus/LO2020405856/1
90	RAKESH KUMAR	0177CS161130	Adonai	12-Aug-20

91	RANJEET KUMAR	0177CS161131	IT Solutions	7-Oct-20
92	RICHA PATEL	0177CS161134	CTS	14065519
93	RISHABH MOURYA	0177CS161136	Artech	23-Jul-20
94	RISHIKESH KUMAR SINGH	0177CS161137	TCS	
95	RITIK KUMBHKAR	0177CS161138	Tek Systems	10-Sep-19
96	RITU KUMARI	0177CS161139	DXC technology	21-Jun-20
97	RITURAJ KUMAR	0177CS161140	Repro India	13-Jul-20
98	RIYA SINGH	0177CS161141	Kreativen Technologies	#535
99	ROHIT DUBEY	0177CS161142	TCS	
100	ROHIT KUMAR	0177CS161143	Capgemini	HR/Campus/LO2020405860/1
101	SABINA KHATOON	0177CS161146	IT Solutions	7-Oct-20
102	SAHIL GUPTA	0177CS161147	Kreativen Technologies	#536
103	SAMIR SINHA	0177CS161150	Repro India	13-Jul-20
104	SANDEEP KUMAR	0177CS161151	DXC technology	21-Jun-20
105	SANDEEP VISHWAKARMA	0177CS161152	Rave Technology	3-Jan-20
106	SANJNA SONI	0177CS161153	DXC technology	21-Jun-20
107	SATYAM RAIKWAR	0177CS161154	Innoeye	2-Dec-19
108	SATYANARAYAN SINGH	0177CS161155	Innoeye	
109	SAURABH KUMAR SINGH	0177CS161156	Techmanindra	
110	SAYED FERAZ AHMED	0177CS161157	Hexaware Technologies	9-Sep-19
111	SHANI PRATAP GUPTA	0177CS161160	Zensar Technologies	576538
112	SHIVANAND CHAURASIYA	0177CS161162	Innoeye	2-Dec-19
113	SHIVENDRA KUMAR YADAV	0177CS161163	TCS	
114	SHRAVAN MEENA	0177CS161164	Repro India	13-Jul-20
115	SHREYA TIWARI	0177CS161165	Zensar Technologies	576535
116	SHUBHAM SONARE	0177CS161167	Innoeye	2-Dec-19
117	SHUBHAM YADAV	0177CS161168	Jade Global	12-Jul-19
118	SIDHARTH SINGH	0177CS161169	IT Solutions	7-Oct-20
119	SNEHIL MISHRA	0177CS161170	Capgemini	HR/Campus/LO2020405857/1
120	SONAM CHOUDHARY	0177CS161171	DXC technology	21-Jun-20
121	SONU KUMAR	0177CS161172	Repro India	13-Jul-20
122	SONU KUMAR SINGH	0177CS161173	Wipro	1-Dec-20
123	SOURABH RATHORE	0177CS161174	Innoeye	2-Dec-19
124	SUBHANSHI	0177CS161175	DXC technology	21-Jun-20
125	SUBHANSHU GOSWAMI	0177CS161176	Hexaware Technologies	9-Sep-19

126	SUBHANU SHARMA	0177CS161177	Zensar Technologies	576619
127	SIJIT KUMAR	0177CS161178	Ceasfire	27-Jul-20
128	SUNIL KUMAR YADAV	0177CS161179	IT Solutions	7-Oct-20
129	SURABHI RAJ	0177CS161180	CTS	14065521
130	SWEETY CHARPE	0177CS161182	Hexaware Technologies	9-Sep-19
131	TANYA SHARMA	0177CS161183	Capgemini	1988605/512823
132	UJJWAL VERMA	0177CS161184	Ceasfire	27-Jul-20
133	VIKASH KUMAR	0177CS161185	Zensar Technologies	576541
134	VINIT KUMAR	0177CS161186	Jade Global	12-Jul-19
135	VISHAL KUMAR	0177CS161187	Mphasis	MPHTH2020-0362
136	YAJNESH KUMAR	0177CS161189	Innoeye	2-Dec-19
137	ANJANEE KUMAR GAUTAM	0177EC161018	IT Solutions	7-Oct-20
138	BHARAT RAJ PARAJULI SHARMA	0177EC161029	Hexaware Technologies	9-Sep-19
139	KUMAR SHASHWAT	0177EC161045	TCS	
140	MAYANK RAJ	0177EC161057	Wipro	
141	NEHA GUPTA	0177EC161071	Pyramid IT	13-Nov-19
142	PARWEZ ALAM	0177EC161076	Zensar Technologies	576542
143	SHOURABH	0177EC161101	Jade Global	12-Jul-19
144	SURAJ KUMAR	0177EC161105	Ceasfire	27-Jul-20
145	VIBHUTI RAI	0177EC161109	Innoeye	
146	VIVEK BHARTI	0177EC161119	Pyramid IT	13-Nov-19
147	RAHUL KUMAR	0526CS161034	Pyramid IT	13-Nov-19
148	ANKESH KUMAR	0177CS173D01	Zensar Technologies	576543
149	MANISH BAHESHWAR	0177CS173D04	IT Solutions	7-Oct-20
150	MD ABADAT	0177CS173D05	Innoeye	2-Dec-19
151	MD SHABAB AHSAN	0177CS173D07	Ceasfire	27-Jul-20
152	PRATIK SINGH THAKUR	0177CS173D10	Zensar Technologies	576540
153	SHUBHAM GOUR	0177CS173D13	Zensar Technologies	576544

4.6. Professional Activities (20)

4.6.1(A) Professional Societies / Chapters and Organizing Engineering Events (5)

S No.	Professional Societies / Chapters	Year
1	CSI Chapter, IEEE, NPTEL Local Chapters	CAY (2020-21)
2	CSI Chapter, IEEE, NPTEL Local Chapters	CAYm1 (2019-20)
3	CII, NPTEL Local Chapters	CAYm2 (2018-19)
4	CII, NASSCOM, NPTEL Local Chapters	CAYm3 (2017-18)

4.6.1(A) Professional Societies / Chapters and Organizing Engineering Events (5)

(B) (The Department shall provide relevant details)

Following events have been conducted under the societies/ chapters.

Detail of National Seminars/workshops/Expert talks conducted under CSI Chapter including list of resource persons:-

S. No.	Theme/Event detail	Dates	Resource Persons (Ind/Acd)
1.	Debugging Competition	23/06/2021	Inter Department
2.	CSI Expert talk on "Internet of Things: An Opportunity"	14/06/2021	Mr.Shailesh Mishra, Associate Director, Sales Management with Leading global Network Technology and Telecom Service Provider, Singapore.
3.	E-Summit on Startup Ecosystem	5/3/2021	Centre for Business Incubation and Startups, IES College of Technology, Bhopal
4.	CSI Expert talk on "Artificial Intelligence Gaming And Robotics"	12/2/2021	Dr.SandeepRaghuwanshi, Assitant Professor, Data Science ML –AI Researcher, SATI Vidisha
5.	National Seminar on Data protection & cyber security	30-05-2020	Dr.Irshad Ahmed Ansari, Professor, IIITDM Jabalpur, Dr.NeminathHubbali, Prof., IIT Indore, Hemraj Singh Chouhan, Corporate trainer, IIT Kharagpur
6.	Expert Lecture on Machine Learning	27-01-2020	Dr.SandeepRaghuwanshi, Assitant Professor, Data Science ML –AI Researcher, SATI Vidisha
7.	Seminar on IOT and ML with its emerging application	27-03-2019 to 28-03-2019	Dr. R B Shivagunde, NITTTR, Bhopal Dr.AshutoshRai, Training Manager, NITTTR Bhopal Dr. Deepak Abhyankar Software Engineer at DAVV Indore
8.	Technical Training	24/06/ 2019 to 01/07/2019	Amphisoft Technologies Private Limited,.
9.	Expert Lecture on Google cloud source	26-03-2018	Dr.Varsha Nagle, Google Croud Source Community Manager

10.	Expert Lecture on Theory of Computation	26-02-2018 to 27-02-2018	Dr.UdayPratap Singh, Assistant Professor, CSE, MITS Gwalior
11.	In-house Seminar on Smart IOT and its key applications	25-01-2018	Inter Department
12.	Expert Lecture on Data Structure	22-09-2017 to 23-09-2017	Dr.UdayPratap Singh, Assistant Professor, CSE, MITS Gwalior

Expert lectures/Seminars/Expert talks conducted under IEEE Chapter including list of resource persons:

S.No.	Theme	Dates	Resource Persons (Ind/Acd)
1.	Expert Talk:"IEEE Sight Orientation Program"	19/05/2021	Dr.Hussain F Mahdi,Lecturer, College of Engineering, University of Diyala, IRAQ
2.	Expert Talk"Professional In You"	14/5/2021	Mr.AjayTyagi, Founder CEO, Valt consulting pvt. Ltd.
3.	Webinar on "Alibaba Cloud Computing for Beginners"	12/5/2021	Mr.AmarKalvikatte, Field CTO, Nutanix(EMEA), MVP Alibaba Cloud, Netherlands"
4.	IEEE Expert talk on "How to write an effective technical paper for the IEEE"	13/2/2021	Mr. Pratik Baheti, Vice Chair, Activity planning & management, TPAC IEEE Bombay Section
5.	IEEE Expert talk on "Artificial Intelligence Gaming And Robotics"	12/2/2021	Dr.SandeepRaghuwanshi, Assitant Professor, Data Science ML –AI Researcher, SATI Vidisha
6.	Expert talk on "Know Your IEEE: Activity & advantages" Live National Webinar Organized by: IES IEEE STUDENT BRANCH	29/12/2020	Kirtiraj R Garud Researcher, Data Analyst, Holistic Healer and IEEE Brand Ambassdor Saurabh J. Soni Secretary IEEE Bombay Section CS Chapter.

7.	Webinar on"Creating LinkdIn Profiles"	21/12/2020	Dr.Jinal Shah Assistant Professor, NMIMS

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.

Editorial Board for news letter:

S. No.	Academic Year	Name of the Newsletter	Month and Year of Publication	Name of Editors	Name of Publishers
1	2016-17	QUEST	April - 2017	Chief Editor: 1. Dr. Sunita Singh, Director, IES group of institutions, Bhopal Student Editors: 1. Anand Kumar (CSE) 2. AbhayPratap (ECE) 3. Harsh Patel (EXE) 4. MukulSheode (ME) 5.Kartik Malviya (CE)	IES College of Technology, Bhopal
2	2017-18	QUEST	October - 2017	Chief Editor: 1. Dr. Sunita Singh, Director, IES group of institutions, Bhopal Student Editors: 1. LovleenHarda (CSE) 2. AbhayPratap Singh Rathore (ECE) 3. Nikhil K. Bhatt (EXE) 4. Abhishek Mishra (ME) 5.Kartik Malviya (CE)	
3	2018-19	QUEST	September - 2018	Chief Editor: 1. Dr. Sunita Singh, Director, IES group of institutions, Bhopal Student Editors: 1. DikshaChourasia (CSE) 2. Shekhar K. Soni(ECE) 3. Kritika Sharma (EXE) 4. Shashank Sharma (ME) 5. Indresh K. Mishra (CE)	
4	2019-20	QUEST	March -2019	Chief Editor: 1. Dr. Sunita Singh, Director, IES group of institutions, Bhopal Student Editors: 1. MeemansaVyas (CSE) 2. Shekhar K Soni (ECE) 3.Kritika Sharma (EXE) 4. Shashank Sharma (ME) 5. Indresh K. Mishra (CE)	

| 5 | 2020-2021 | QUEST | March 2020 | 1.CSE- Tanya Sharma(CS) | |

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

(The Department shall provide a table indicating those publications, which received awards in the events/conferences organized by other institutes.)

Table 4.6.3.1: Participation in Inter-Institute Events by Students

S. No.	Name of Students	Event	Date/Year	Organized By	Event Outcome
1	Atul Kumar Azahar Ali Avinash Kumar	Version Beta (MANIT, Bhopal)	02-11-2018 To 04-11-2018	MANIT Bhopal	Finale
2	Atul Kumar Azahar Ali	B-Nest (Hackathon)	22-04-2018	Bhopal	Finale
3	AtulVerma AtulAnand AnasZubair Vicky Kumar	ISEC(Innovation Contest)	22-02-2020 To 29-02-2020	Jabalpur	3rd Position
4	Atul Kumar Azahar Ali Aditya Kumar Dhiraj Kumar	Innovation Challenge 2K17	27-11-2017 TO 28-11-2017	Accenture Bangalore	Finale
5	Amit Kumar	Falling Walls Lab India	07-04-2018	Jadavpur University Kolkata	Finale
6	Amit Singh Akash Kumar	Living Talent FZ LLC	2017	pune	Finale
7	AdarshJyotishi PoojaChouhan Mukul Faiz	Smart India Hackathon 17	02-04-2017 To 03-04-2017	Pune	Finale

| | SardarSuryakant | | | | |
| | RohitPandey | | | | |

Table 4.6.3.2:- Participation in Inter-State Events by Students

SNO.	Student Name	Roll No.	Date	Topic	Event
1	KishanTiwari	0177CS181065	14-09-2019 to 15-09- 2019	Mobile Site Development	IIT Delhi
2	Prakash Singh	0177CS181098	14-09-2019 to 15-09-2019	Mobile Site Development	IIT Delhi
3	Mohit Kumar Upadhyay	0177CS181086	14-09-2019 to 15-09- 2019	Mobile Site Development	IIT Delhi
4	Md. RizwanHasan	0177CS181082	27-01-2020 to 29-01-2020	Cyber Security & Ethical Hacking	STTP
5	RaisAhmed	0177CS181111	27-01-2020 to 29-01-2020	Cyber Security & Ethical Hacking	STTP
6	Md. Rizwanhasan	0177CS181082	14-02-2020 to 15-02-2020	IOT using Arduino/ Rasberry PI	STTP
7	Md. Waseemakhtar	0177CS181083	14-02-2020 to 15-02-2020	IOT using Arduino/ Rasberry PI	STTP
8	Md. Adnan raza	0177CS181075	14-02-2020 to 15-02-2020	IOT using Arduino/ Rasberry PI	STTP
9	Md. Masoom khan	0177CS181072	14-02-2020 to 15-02-2020	IOT using Arduino/ Rasberry PI	STTP
10	Atulsinghbhadoriya	0177CS181038	14-02-2020 to 15-02-2020	IOT using Arduino/ Rasberry PI	STTP
11	Md. Adnan raza	0177CS181075	12-02-2020 to 13-02-2020	International Conference on Mathematical Modeling & High Performance Computing in Science & Technology	TEQIP-3
12	KumariArya	0177CS181068	12-02-2020 to 13-02-2020	International Conference on Mathematical Modeling & High Performance Computing in Science & Technology	TEQIP-3
13	Rohan Kumar Jaiswal	0177CS181090	12-02-2020 to	International Conference on Mathematical Modeling &	TEQIP-3

			13-02-2020	High Performance Computing in Science & Technology	
14	VaibhavPrakash	0177CS181172	12-02-2020 to 13-02-2020	International Conference on Mathematical Modeling & High Performance Computing in Science & Technology	TEQIP-3
15	Shubham Kumar	0177CS181157	12-02-2020 to 13-02-2020	International Conference on Mathematical Modeling & High Performance Computing in Science & Technology	TEQIP-3
16	Shivam Kumar	0526CS181053	12-02-2020 to 13-02-2020	International Conference on Mathematical Modeling & High Performance Computing in Science & Technology	TEQIP-3
17	HasnainRaza	0177CS181056	30-01-2020 to 01-02-2020	Cyber security & ethical hacking	TEQIP-3
18	Anil Kumar Ray	0177CS181026	30-01-2020 to 01-02-2020	Cyber security & ethical hacking	TEQIP-3

2017 NPTEL:

S.No	Students Name	Subject	Score	Certificate
1	Navneet	Programming in C++	71%	Elite
		Programming, Data Structure & Algorithm using Python	83%	Elite
2	Kartik	Introduction to Programming in C	64%	Elite

2018 NPTEL:

S.No	Students Name	Subject	Score	Certificate
1	Navneet	Introduction to Modern Application Development	78%	Elite
2	Kartik	Introduction to Modern Application Development	50%	Successfully Completed the Course
3	SwapnilDwivedi	Introduction to Modern Application Development	44%	Successfully Completed the

S.No	Students Name	Subject	Score	Certificate
				Course
4	Jay Prakash Sharma	Cryptography & Network Security	63%	Elite
5	SyedaTabassum	Cryptography & Network Security	73%	Elite
6	SandeepChoudhary	DBMS	60%	Elite
7	Manoj Kumar	Cloud Computing	60%	Elite
8	SwapnilDwivedi	Cloud Computing	52%	Successfully Completed the Course
9	Kundan Kumar	Cloud Computing	41%	Successfully Completed the Course
10	Kundan Kumar	Programming, Data Structure & Algorithm using Python	48%	Successfully Completed the Course
11	SwapnilDwivedi	Programming, Data Structure & Algorithm using Python	45%	Successfully Completed the Course
12	SandeepChoudhary	Programming, Data Structure & Algorithm using Python	53%	Successfully Completed the Course

2019 NPTEL:

S.No	Students Name	Subject	Score	Certificate
1	PrashantJaiswal	Computer Architecture & Organization	60%	Elite
		Design & Analysis of Algorithm	67%	Elite
		DBMS	82%	Elite
		Introduction to Automata,Language &Computing	78%	Elite
2	Abhishek Kumar	DBMS	67%	Elite
3	Narendra Kumar	Introduction to Operating System	43%	Successfully Completed the Course
4	Sujeet Kumar	Python for Data Science	79%	Elite
5	ShivamJagtap	Python for Data Science	72%	Elite

| 6 | AdityaSaurabh | Introduction to IOT | 75% | Elite |
| 7 | RohitGour | Programming in JAVA | 57% | Successfully Completed the Course |

Sports Students List:

SNO.	NAME	BRANCH	SPORTS	LEVEL
1	Shubhanu Sharma	CSE	Football	Westzone
2	Kumar Satyam	CSE	Football	Westzone

Sports Students List				
Sports	**Level Played**	**Name**	**Roll No**	**Branch**
Cricket	Nodal	Raju Thakur	0177CS181114	CSE
Football	State/National	Suraj Kumar Hela		
	Nodal	ShrawanLimbu	0177CS181153	CSE 2018 Batch
	Nodal	Shubham Raj Singh		
	Nodal	Sanjit Kumar Singh	0177CS181131	CSE 2018 Batch
	Nodal	Pratik Kumar	0177CS181101	CSE 2018 Batch
	Nodal	VenuSahadeva	0177CS181173	CSE 2018 Batch
	State	Lucky Rathore	0177CS171073	CSE 2017 Batch
	State	DivyaSahu	0177CS171055	CSE 2017 Batch
	State	BeenaDubey	0177CS171041	CSE 2017 Batch
	State	Sumit Kumar Singh	0177CS171159	CSE 2017 Batch
	State	AshishSwarnkar	0526CS171009	CSE 2017 Batch
	State	Sanjit Kumar Singh	0177CS181131	CSE 2018 Batch

Detail of NCC:

S.No.	CAY	Name of Cadre Wings	No. of Students
1	2020-2021	MP CNTR NCC	01
2	2019-2020	MP CNTR NCC	08
3	2018-2019	MP CNTR NCC	02
4	2017-2018	MP CNTR NCC	03

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Criterion 5: Faculty Information and Contributions [200]

Information of Faculty
Kindly note that the year mentioned here is exemplary, institute has to consider the academic years as per the definition given in the document and according to the prevailing year.

YEAR 2020-2021

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. SUDARSHAN GOSWAMI	AFOPG3920J	M.Tech. Ph.D	CSE	Professor	01/07/2019	-	Y	Regular	-	-
2.	DR. ANKURAWASTHI	AWHPA4646H	M.Tech. Ph.D	CSE	Associate Professor	01/07/2019	-	Y	Regular	-	-
3.	DR. NIKHAT RAZA KHAN	APQPK6907F	M.Tech. Ph.D	Mobile Adhoc Network	Associate Professor	01/07/2019	-	Y	Regular	-	-
4.	DR. ANIL KUMAR YADAV	ADYPY7112J	M.Tech. Ph.D	Reinforcement learning	Associate Professor	01/07/2019	-	Y	Regular	-	-

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5.	DR. RAKESH KUMAR YADAV	ACUPY6992K	M.Tech. Ph.D	CSE	Associate Professor	01/08/2020	-	Y	Regular	-	-
6.	MS. AISHWARYA MISHRA	AFHPL1138C	M.Tech	Information Technology	Associate Professor	20/03/2010		Y	Regular	-	
7.	MS. NIRMALA REDDY	ALKPR9713J	M.Tech	CSE	Associate Professor	08/01/2010	-	Y	Regular	-	-
8.	MS. MONA SHUKLA	CNIPS8423G	M.Tech	CSE	Asst Professor	23/09/2013	-	Y	Regular	-	-
9.	MS. KHUSHBU KRIPLANI	CNUPK7760A	M.Tech	CSE	Asst Professor	01/07/2013	-	Y	Regular	-	-
10.	MR. RAHUL YOGI	AFCPY9506N	M.Tech	CSE	Asst Professor	29/06/2015	-	Y	Regular	-	-
11.	MR. RAKESH KUMAR VERMA	AMEPV2511P	M.Tech	CSE	Asst Professor	12/9/2015	-	Y	Regular	-	-
12.	MR. AKSHAY VARKALE	AIMPV4021G	M.Tech	CSE	Asst Professor	21/01/2016	-	Y	Regular	-	-
13.	MR. FAHIM MULTANI	BEWPM0200H	M.Tech	CSE	Asst Professor	01/02/2016	-	Y	Regular	-	-

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14.	MS .UDITA HOLKAR	BNYPP8015L	M.Tech	CSE	Asst Professor	01/02/2016	-	Y	Regular	-	-
15.	MR. AKHILESH PAHADE	BQDPP0702N	ME	CSE	Asst Professor	08/12/2016	-	Y	Regular	-	-
16.	MR. ADITYA DWIVEDHI	AXSPD9573A	M.Tech	CSE	Asst Professor	16/12/2016	-	Y	Regular	-	-
17.	MR. RAGHVENDRA SINGH TOMAR	AFUPT1711N	M.Tech	CSE	Asst Professor	29/12/2016	-	Y	Regular	-	-
18.	MR. VIJAY KUMAR RAI	BPYPR6002K	M.Tech	CSE	Asst Professor	28/12/2016	-	Y	Regular	-	-
19.	MR. ANSHUL SARAWAGI	BYMPS6679A	M.Tech	CSE	Asst Professor	01/03/2017	-	Y	Regular	-	-
20.	MR. MAYANK NAGAR	AJIPN8199G	M.Tech	CSE	Asst Professor	01/04/2019	-	Y	Regular	-	-
21.	MR. RISHAB PASTARIYA	BTPPP4563A	M.Tech	CSE	Asst Professor	01/06/2019	-	Y	Regular	-	-
22.	MR. PANKAJ VARMA	AJOPV9635M	M.Tech	CSE	Asst Professor	01/7/2019	-	Y	Regular	-	-
23.	MR. PRADEEP PANDEY	BYWPP9605F	M.Tech	CSE	Asst	01/7/2019	-	Y	Regular	-	-

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					Professor						
24.	MS. SANDHYA VISHWAKARMA	ALPPV6277Q	M.Tech	CSE	Asst Professor	07/1/2019	-	Y	Regular	-	-
25.	MS. KAMIYA PITHODE	BFZPP4855F	M.Tech	CSE	Asst Professor	08/07/2019	-	Y	Regular	-	-
26.	MS. DEEPTI UPADHYAY	ADEPU1980E	M.Tech	CSE	Asst Professor	01/06/2019	-	Y	Regular	-	-
27.	MR. PAWAN KUMAR SHARMA	DROPS3546B	M.Tech	CSE	Asst Professor	02/03/20	-	Y	Regular	-	-
28.	MR. PUSHPENDRA SINGH DANGHI	BJYPD19818A	M.Tech	CSE	Asst Professor	02/03/20	-	Y	Regular	-	-
29.	MS. POOJA SAHU	CZVPS06102	M.Tech	CSE	Asst Professor	18/08/20	-	Y	Regular	-	-
30.	MS. SHIKHA CHOURASIA	AYOPC9447P	M.Tech	CSE	Asst Professor	09/12/2014	-	Y	Regular	-	-
31.	MR. HEMANT SHARMA	DRBPS0943H	M.Tech	CSE	Asst Professor	18/03/2020	-	Y	Regular	-	-
32.	MR. SUDEEP KUMAR GUPTA	ATZPG0859M	M.Tech	CSE	Asst Professor	05/03/2019	-	Y	Regular	-	

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33.	MR. ANUBHAV SHARMA	CGAPS9997L	M.Tech	CSE	Asst Professor	01/3/2017	-	Y	Regular	-	-
34.	MR. VIKALP SHARMA	DFVPS0232B	M.Tech	CSE	Asst Professor	02/07/2018	-	Y	Regular	-	-
35.	MR. ADITYA SHRIVASTAVA	DEVPS7886Q	M.Tech	CSE	Asst Professor	03/07/2017	-	Y	Regular	-	-
36.	MR. CHANDRESH SHRIVASTAVA	GCDPS7359F	M.Tech	CSE	Asst Professor	02/07/2018	-	Y	Regular	-	-
	PG FACULTYLIST										
37.	DR. AMIT GOEL	AHYPG9906A	M.Tech, Ph.D,	CSE	Professor	10/7/2019	-	Y	Regular	-	-
38.	MR. M. UDAYAPAL REEDY	AVCPR2809P	M.Tech	CSE	Asst Professor	2/1/2012	-	Y	Regular	-	-
39.	MR. SHAILENDRA TIWARI	AKPPT2023D	M.Tech	CSE	Asst Professor	16/07/2011	-	Y	Regular	-	-

Principal
ES College of Technology
Bhopal

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5.1 Student Faculty Ratio (No of Faculty as per the sanctioned intake):-(marks -16)

(To be calculated at Department Level)

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 = 180+ 18 =198

No. of Students in UG 3rd Year = 180+ 12 = 192

No. of Students in UG 4th Year = 180+5 =185

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

(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 + …PGm

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

Student Teacher Ratio (STR) = S / F

Year	CAY2020-2021	CAY m1 2019-20	CAYm2 2018-19
U1.1	180+ 18=198	180+ 12=192	180+5=185
U1.2	180+12 = 192	180+ 5 = 185	180+13 =193
U1.3	180+5 =185	180+13 =193	180+ 5 =185
UG1	575	570	563
P1.1	18	18	18
P1.2	18	18	18
PG1	36	36	36
Total No. of Students in the Department (S)	611	606	599
No. of Faculty in the Department (F)	39	34	34
Student Faculty Ration (SFR)	15.71	17.82	17.61
Average SFR	17.04		

Figure 5.1: Student Faculty Ratio

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

Year	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY (2020-21)	39	--
CAYm1(2019-20)	34	--
CAYm2(2018-19)	34	--

Average SFR for three assessment years: 17.04
Assessment SFR :

5.2.Faculty Cadre Proportion (25)

Year	Professors		Associate Professors		Assistant Professors	
	Required (F1)	Available	Required (F2)	Available	Required (F3)	Available
CAY	03	02	06	06	20	31
CAYm1	03	02	06	03	20	29
CAYm2	03	04	06	00	20	30
Average Numbers	RF1=3	AF1=2.66	RF2=6	AF2=3	RF3=20	AF3=30

Table B.5.2 $CadreRatio = \left[\left[\frac{AF1}{RF1}\right] + \left[\frac{AF2*0.6}{RF2}\right] + \left[\frac{AF3*0.4}{RF3}\right]\right] * 12.5 = 23.5$

5.3.Faculty Qualification (25)

Marks:13.54

FQ =2.5 x [(10X +4Y)/F)] where x is no. of regular faculty with Ph.D., 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)

Year	X	Y	F	FQ=2.5x[(10X+4Y)/F)]
CAY(2020-2021)	06	33	30	12.30

CAY m1(2019-20)	05	29	30	13.83
CAYm2(2018-19)	04	30	30	13.33
Average assessment				**13.15**

Table B.5.3

5.4.Faculty Retention (25)

No. of regular faculty members in

CAY [2020-2021]=22

CAYm1 [2019-2020]=23

S.NO.	Description	CAYm1 [2020-21]	CAY [2019-20]
01	No of Faculty Retained	22	23
02	Total No. of Faculty	39	34
03	% of Faculty Retained	62.16	59.45

Average: 60.80

Table B.5.4

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.

```
                        ┌─────────────────────┐
                        │ University Academic │
                        │      Calendar       │
                        └─────────────────────┘
                                  │
                                  ▼
                        ┌─────────────────────┐
                        │    Teachers Plan    │
                        └─────────────────────┘
```

Teaching Lesson Plan	Practical Lab Plan/Assignments/Tutorials	Co-curricular and Extra Co-curricular
Plan Content Delivery Methods (e.g. Slides, Videos, Expert Lectures, Industrial Visits and	Planning (e.g. innovative ways of conducting practical, Rubrics for Assessment and Designing	Projects, Quizzes, Workshop, Technical

Implementation during Semester

Assessment, Faculty Observation	CO Attainment

Bright Students	Slow Learners	Academic Audit of the Course by IQAC
Technical Presentations, Seminars, outside participation in Technical Events	Extra Remedial Classes, Assignments/Tutorials	Identifying CO Attainment Gaps
		PO attainment Calculation & Action Taken

Innovation by the faculty in teaching and learning

Traditional educational methodology is complemented by innovative, updated techniques for the benefit of the learners. Several activities are included which contribute towards enhancement of learning, at the same time facilitating ease of understanding in students with variegated learning styles. These activities involve innovative use of trending technologies, customized instruction module and techniques, Online/Offline assessment, evaluation and inclusive class rooms that lead to effectiveness of instruction delivery.

1. Various diagrams, flow charts and 3D models are used for facilitating better understanding.

2. Demonstration using industrial standard simulation software aid in comprehension of processes.

3. Group assignments are provided in labs and in classes also to ensure healthy competition, team work and new, improved outcomes of the existing problem while promoting peer to peer learning.

4. Faculty members deliver lectures with the help of Videos and Animations in class room. This practical approach for demonstrating complex procedures/topics ensures student can visualize and follow the content with ease.

5. Research papers are used to teach student latest technologies to bridge research gap and help students to gain knowledge of trends and advanced techniques as well to select a viable project for the final terms.

6. Beyond curricula content includes emerging and advances technologies, latest updates, news features, etc which faculty introduce new experiments designed keeping in mind the University syllabus and student existing skill levels.

7. NPTEL, SWAYAM portals with their Nationally–mapped Curriculum are accessed by faculties and students for audio-visual support to textual material.

8. Technical Quizzes Online and offline test, Workshops etc. are adopted to support assessment process.

9. Provide students with the keywords of the related topic to make student grasp the procedure easily.

10. Laboratory Improvement future trends-the designed faculty member constantly update manuals with different activities.

11. Assessments are designed innovatively and also modified as require collecting the attainment levels of course outcomes and program outcomes on frequent basis.

12. Innovations in Evaluations includeusepresentation skills and such process which can enhance the understanding level and assure fair outcomes.

12.2. **Faculty as participants in Faculty development/ training activities /STTPs (15)**

A Faculty scores maximum five points for participation

Participationin2to5daysFacultydevelopmentprogram: **3 Points**

Participation > 5daysFacultydevelopmentprogram: **5 Points**

	Computer Science Engineering					
	CAY m1 (2020-21)		CAY m2 (2019-2020)		CAY m3 (2018-2019)	
1	Dr. NIKHAT RAZA KHAN	5	Dr. NIKHAT RAZA KHAN	5	Dr. BHUPINDER SINGH	0
2	Dr. ANIL KUMAR YADAV	5	Dr. ANIL KUMAR YADAV	5	Mrs. AISHWARYA MISHRA	5
3	Dr. SUDARSHAN GOSWAMI	3	Dr. SUDARSHAN GOSWAMI	3	Ms. REDDY NIRMALA	5
4	Dr. ANKUR AWASTHI	3	Dr. ANKUR AWASTHI	3	Mrs. PANIGRAHI MANASWINI	3
5	Mrs. AISHWARYA MISHRA	5	Mrs. AISHWARYA MISHRA	5	Mr. SHAILENDRA TIWARI	3
6	Ms. NIRMALA REDDY	5	Ms. NIRMALA REDDY	5	Ms. SHIKHA .CHOURASIA	3
7	Ms. MONA SHUKLA	5	Ms. MONA SHUKLA	5	Ms. KHUSHBU KRIPLANI	5
8	Ms. KHUSHBU KRIPLANI	5	Ms. KHUSHBU KRIPLANI	5	Mr. RAHUL YOGI	3
9	Mr. RAHUL YOGI	5	Mr. RAHUL YOGI	5	Mr. RAKESH KUMAR VERMA	3
10	Mr. RAKESH KUMAR VERMA	5	Mr. RAKESH KUMAR VERMA	5	Mr. AKSHAY VARKALE	3
11	Mr. AKSHAY VARKALE	5	Mr. AKSHAY VARKALE	5	Mr. MATHUR HARSH	3
12	Mr. FAHIM MULTANI	3	Mr. FAHIM MULTANI	3	Mr. FAHIM MULTANI	3
13	Mrs .UDITA HOLKAR	3	Mrs .UDITA HOLKAR	5	Ms. AKANSHA AGRAWAL	3
14	Mr. AKHILESH PAHADE	3	Mr. AKHILESH PAHADE	3	Mr. AKHILESH KUMAR PAHADE	5
15	Mr. RAGHVENDRA TOMAR	5	Mr. ADITYA DWIVEDHI	5	Mrs. SHRADDHA PANDIT	3
16	Mr. VIJAY KUMAR RAI	3	Mr. RAGHVENDRA TOMAR	5	Mr. ADITYA KUMAR DWIVEDHI	5
17	Mr. ANSHUL SARAWAGI	5	Mr. VIJAY KUMAR RAI	3	Mr. RAGHVENDRA SINGH TOMAR	5
18	Mr. VIJAY DHOTE	5	Mr. ANSHUL SARAWAGI	5	Mr. VIJAY KUMAR RAI	3
19	Mr. MAYANK NAGAR	3	Mr. VIJAY DHOTE	5	Mr. ANSHUL SARAWAGI	5
20	Mr. ADITYA DWIVEDHI	5	Mr. MAYANK NAGAR	3	Mrs. PRIYA CHANDANI	3

21	Ms. RISHAB PASTARIYA	3	Ms. RISHAB PASTARIYA	3	Mr. ANUBHAV SHARMA	5
22	Mr. PANKAJ VARMA	3	PANKAJ VARMA	3	Mr. VIJAY DHOTE	5
23	Mr. PRADEEP PANDEY	5	Mr. PRADEEP PANDEY	3		
24	Ms. SANDHYA VISHWAKARMA	5	Ms. SANDHYA VISHWAKARMA	5		
25	Ms. KAMIYA PITHODE	5	Ms. KAMIYA PITHODE	5		
26	Ms. DEEPTI UPPODHYAY	5	Mr. CHANDRESH SHRIVASTAVA	5		
27	Mr. HEMANT SHARMA	5	Mr. VIKALP SHARMA	5		
28	Mr. ANUBHAV SHARMA	5	Mr. ANUBHAV SHARMA	5		
	sum	**122**		**43**		**85**
	RF= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1	32		32		32
	Assessment = 3 × (Sum/0.5RF)	**22.87**		**8.06**		**15.93**
	(Marks limited to 15)	15.64				
	Average Marks	15				

Research and Development (30)

5.7.1 Academic Research (10)

Academic research includes research paper publications, Ph.D. guidance, and faculty receiving Ph.D. 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.

Ph.D. Pursuing

S.No.	Research Guide	Name of the scholar	Topic of research	University and year of Registration
1	Dr. Pushpendra Patheja	Ms. Kamiya Pithode	Outlier detection by using deep learning techniques	VIT, Bhopal August 2019

- **Faculty Publication: Following table indicates the list of CSE department faculty publications during the three assessment years.**

List of Publications: -

S. No.	Faculty	SCI	Scopus	UGC	Other Journals
1.	Dr.Nikhat Raza Khan	01	05	20	6
2	Dr. Anil Yadav	02	05	12	5
3	Dr. Manish Shrivastava	-	-	20	-
3.	Dr. Sudarshan	-	-	2	-
4.	Aishwarya Mishra	-	-	12	5
5.	Anshul Sarawagi	-	-	5	5
6.	Anubhav Sharma	-	-	5	5
7.	Harsh Mathur	-	-	5	-
8	Virendra Shrivastava	-	-	-	2
9.	Deepti Dave	-	-	-	12
10.	S.V. Pandit	-	-	-	5
11.	Rakesh Kumar Verma	-	-	-	2

S.N	NAME OF AUTHOR	TITLE/ TOPIC	DESCRIPTION OF THE JOURNAL	YEAR OF THE PUBLICATION	IMPACT FACTOR	CITATION
		IES COLLEGE OF TECHNOLOGY				
		DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING				
		LIST OF FACULTY PUBLICATION DETAILS				
1	Dr. Nikhat Raza Khan	A Machine Learning Approach for the Diagnosis of Diabetes	International Journal of Scientific Research in Computer Science, Engineering and Information Technology(IJSRCSEIT),VOL 6,issue-2 Pages 510-516	2020	6.135	-
2	Dr. Nikhat Raza Khan	"Energy Efficient Secure Multipath Routing Protocol For MANET".	International conference on Recent trends in Science and Engineering,27-28 FEB 2019, HRD, CELL, DAVV, INDORE	2019	6.38	-
3	Dr. Nikhat Raza Khan	Energy -aware multipath routing scheme based on particle swarm optimization	International Research Journal of Engineering and Technology(IRJET),vol 5 , issue 1, e-ISSN: 2395-0056,p-ISSN: 2395-0072	2018	7.529	4
4	Dr. Nikhat Raza Khan	"(EOT-MAODV)- Energy Aware Optimized Trust based MAODV Protocol",	SciTechnol, Journal of Computer Engineering & Information Technology, vol 10, Issue 2, Pages 510-518, Manuscript Num: SciTech-18-951R1, Scientific Research, ISN : 2324-9307I	2018	1.46	-
5	Dr. Nikhat Raza Khan	"Survey Paper on Secure Multipath Routing Protocol Using Optimization"	International Research Journal of Engineering and Technology (IRJET),Vol. 5 Issue: 01, e-ISSN: 2395-0056	Jan-18	1.23	-
6	Dr. Nikhat Raza Khan	"A Review on Different Attack Based on Server Client Communication"	International Journal for Research and Technological Science (IJRTS), VOL.-3, ISSUE 1, , ISSN NO 2349-0667	Jun-16	4.298	-
7	Dr. Nikhat Raza Khan	"EDGE DETECTION TECHNIQUE USING FUZZY LOGIC AND DISCRETE AUTO FUNCTION ALGORITHAM"	International Journal for Research and Technological Science (IJRTS), VOL.2, ISSUE 2, ,ISSN:2349-0667	Dec 2015	4.298	-
8	Dr. Nikhat Raza Khan	"Back up Path Algorithm for Fault Tolerance in WSN,"	2nd International Conference on Advanced Trends in Engineering and Technology ,Conference will be held on . INDORE	18-19 Apr,2014	1.23	-
9	Dr. Nikhat Raza Khan	"Nobel framework for enhancing the encryption and decryption of database"	International Journal of Emerging Technology and Advance Engineering, Issue 2,ISSN: 2250-2459	February 2013.	0.876	-

10	Dr. Nikhat Raza Khan	"A New Approach of Cryptography for Database Security"	International Journal of Emerging Technology and Advance Engineering, Vol. 3, issue 2,ISSN 2250-2459	Feb-13	0.876	-
11	Dr. Anil Kr Yadav	"A Novel Algorithm for Wireless Sensor Network Routing Protocols Based on Reinforcement Learning."	Springer, Switzerland Communicated	2021	-	-
12	Dr. Anil Kr Yadav	"IOT Model-UV based System for Sanitization of Package Surfaces Conference Springer nature online Presented"	Conference Springer nature online Presented	24th October 2020	-	-
13	Dr. Anil Kr Yadav	"Assessment of Real House Price using Machine Learning".	Conference Springer nature online Presented	20th August 2020	-	-
14	Dr. Anil Kr Yadav	"System to Identify and Monitor Boundaries and Crop Conditions of an Agricultural Field"	Patent No: 2.02021E+11 online published	2020	-	-
15	Dr. Anil Kr Yadav	"Camshaft approach in Machine Intelligence",	International journal of sceitific progress and research(IJSPR),SERSC,INDIA,Vol -41,No.2,pp.61-68,(ISSN:2349-4689).	NOV 2017	5.7	1
16	Dr. Anil Kr Yadav	An Effect of Particle Swarm Optimization on SDLC	International Journal of Innovations & Advancement in Computer Science .IJIACS, Vol 5, Issue 1,ISSN:2347 – 8616.	Jan-16	4.05	0
17	Dr. Anil Kr Yadav	"A Novel Searching Algorithm based on Reinforcement Learning."	International Journal of U-and e-service,science and technology (IJUNESST),SERSC,Korea, Volume-8,No.6 , pp.331-340, (ISSN: 2005-4246)	Jun-15	0.104	4
18	Dr. Anil Kr Yadav	" Analysis of Dynamic Neural Network Model Based on Self Learning",Publisher:IEEE.	IEEE, Proceedings of the International Conference on Information Systems and Computer Networks (ISCON 2014),pp.1–5, (ISBN:978-1-4799-2981-8).	1-2 march 2014,	0.128	0
19	Dr. Anil Kr Yadav	"DNN Tree Search for Bayesian Reinforcement Learning to Machine Intelligence."	International Journal of Soft Computing and Engineering, vol.4,pp. 8-11, ISSN:2231-2307	2014	1.00	0
20	Dr. Anil Kr Yadav	"Challenging Domain In Reinforcement Learning for Machine Learning Research"	International Journal of Advance Foundation and Research in Computer, vol.1 pp.38-42, ISSN: 2348 – 4853	2014	1	1

21	Dr. Anil Kr Yadav	"Research and Application of Dynamic Neural Network based on Reinforcement Learning".	springer,Germany, Vol.132, pp. 931–942, ISSN: 978-3-642-274	2012	1	4
22	Dr. Anil Kr Yadav	Evaluation of Reinforcement Learning Techniques	ACM,132,vol 18, pp.88-92, 978-1-4503-04	2010	2	7
23	Dr. Anil Kr Yadav	Learning Data Reduction for Query Base Reinforcement Learning using DCT	International Journal of Computer Science, Systems Engineering and Information Technology,vol.1, PP 23-30, ISSN: 0974-5807	**2010**	0.4750	2
24	Dr. Anil Kumar yadav	"Research and Application of Dynamic Neural Network based on Reinforcement Learning"	Springer,Germany, Vol.132, pp 931–942,ISBN:978-3-642-27442,	January 2012,	0.95	3
25	Dr. Manish Shrivastava	Implementation of Fruit Fly Optimization Algorithm (FFOA) to escalate the attacking efficiency of node capture attack in Wireless Sensor Networks (WSN)	Computer Communications	2020	3.167	14
26	Dr. Manish Shrivastava	Fifth revolution: Applied AI & human intelligence with cyber physical systems	International Journal of Engineering and Advanced Technology	2019	1	15
27	Dr. Manish Shrivastava	Best fit based VM allocation for cloud resource allocation	International Journal of Computer Applications	2017	3.12	6
28	Dr. Manish Shrivastava	Low contrast image enhancement technique by using fuzzy method	International Journal of Engineering Research and General Science	2016	3.843	13
29	Dr. Manish Shrivastava	Various image compression techniques: Lossy and lossless	International Journal of Computer Applications	2016	3.12	47
30	Dr. Manish Shrivastava	An Image Compression Using Multilayer Wavelet Transform with 2DTCWT: A Review	International Journal of Computer Applications	2014	3.12	6
31	Dr. Manish Shrivastava	Study of mobile ad hoc networks	International Journal of Computer Applications	2014	3.12	10
32	Dr. Manish Shrivastava	Contrast enhancement of remote sensing images using DWT with kernel filter and DTCWT	International Journal of Computer Applications	2014	3.12	5

33	Dr. Manish Shrivastava	Review of information authentication in mobile cloud over SaaS & PaaS layers	International Journal of Advanced Computer Research (IJACR)	2013	0.641	14
34	Dr. Manish Shrivastava	Cluster formation through improved weighted clustering algorithm (IWCA) for mobile ad-hoc networks	2013 tenth international conference on wireless and optical communications networks (WOCN)	2013	-	16
35	Dr. Manish Shrivastava	An evaluation of MANET routing protocol	International Journal of Advanced Computer Research	2013	0.641	5
36	Dr. Manish Shrivastava	Survey of Routing Scheme in MANET with clustering Techniques	Int. J. Mod. Eng. Res.(IJMER)	2012	7.21	5
37	Dr. Manish Shrivastava	Medical Image Protection using stenography by crypto-image as cover image	International Journal of Advanced Computer Research	2012	0.641	14
38	Dr. Manish Shrivastava	Colour image segmentation techniques and issues: an approach	International Journal of Scientific & Technology Research	2012	5	84
39	Dr. Manish Shrivastava	Cloud computing for intelligent transportation system	International Journal of Soft Computing and Engineering (IJSCE)	2012	2.5	23
40	Dr. Manish Shrivastava	Optimal service pricing for cloud based services	International Journal of Soft Computing and Engineering (IJSCE), ISSN	2012	2.5	6
41	Dr. Manish Shrivastava	Mobile Cloud Computing through J2ME application: cloud enabled web services	International Journal of Advanced Computer Research (IJACR)	2012	0.641	10
42	Dr. Manish Shrivastava	Medical image protection by using cryptography data-hiding and stenography	International Journal of Emerging Technology and Advanced Engineering	2012	0.745	8
43	Dr. Manish Shrivastava	Cluster based on demand routing protocol for mobile ad hoc network	International Journal of Engineering Research & Technology (IJERT)	2012	7.87	16
44	Dr. Manish Shrivastava	Secure medical image transmission using combined approach of data-hiding, encryption and stenography	International Journal of Advanced Research in Computer Science and Software Engineering	2012	2.5	11
45	Aishwarya Mishra	"A Novel Approach for color image watermarking using multichannel SVD"	International Journal of Scientific Progress in Research (IJSPR) issue- 155, vol55, no.1 ISSN-2349-4689	2019	5.749	-

46	Aishwarya Mishra	"A Node Identification based IDS Security against Sybil Attack in MANET".	International Journal of Current Trends in Engineering & Technology volume 4, issue-02, ISSN: 2395-3152	May-June, 2018	0.158	-
47	Aishwarya Mishra	"An Extensive Survey of color Image Watermarking Based on Transforms".	International Journal of Innovative Trends in Engineering(IJITTE), Vol 40, Issue 62, Number 02.	Apr-18	0.672	-
48	Aishwarya Mishra	"A Survey of Attackers Effects And Security In MANET".	International Journal of Emerging Technology & Research (IJETR)volume 4, issue-3, ISSN 2347-6079,	May-June, 2017	3.1	-
49	Aishwarya Mishra	Performance Comparison of Extracted features using Hybrid SIFT Approach	International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE). volume 5, issue-11, ISSN 2320-9798 .	Nov-17	7.488	-
50	Aishwarya Mishra	Enhanced the performance of Visual cryptography using watermarking Technique	International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE) volume 5, issue-6, ISSN 2320-9798	Jun-17	7.488	-
51	Aishwarya Mishra	Visual Cryptography Schemes for the Generation of Secret Share Generation for The Information Hiding.	International Journal of Scientific Research (IJSR) volume 6, issue-6, ISSN 2277-8179	2017	7.803	-
52	Aishwarya Mishra	Ant Based Distributed Information Centric Network for Effective Management of Resources	International Journal of Scientific & Engineering Research, Volume 7, Issue 8,	August 2016.	4.9	-
53	Aishwarya Mishra	Ensemble Classification for Intrusion Detection	SMART MOVES JOURNAL IJOSCIENCE, Vol: 2, Issue: 9,ISSN: 2582-4600	Nov 2016	2	-
54	Aishwarya Mishra	Priority with adoptive data migration in case of disaster using cloud computing use style	International Conference on Communication, Information & Computing Technology (ICCICT),Electronic ISBN:978-1-4799-5522-0 CD:978-1-4799-5521-3	02//2015	1.054	3
55	Aishwarya Mishra	Optimize intrusion Prevention and minimization of threats for stream data classification.	Fourth International Conference on Communication System and Network, Pages 408-413, IEEE.		2.53	3
56	Aishwarya Mishra	Energy Efficient & Low Power Consuming Data Aggregation Method for Intrusion Detection in MANET.	International Journal of Application or Innovation in Engineering & Management (IJAIEM) volume 4, issue 3 , ISSN: 2219-4847.	2015	4.2	-

57	Aishwarya Mishra	"Intrusion Detection & their Countermeasures-A Survey"	International Journal of Scientific & Engineering Research.(IJSER) (1) volume, 6, issue 4 , ISSN: 2229-5518	2015	5	-
58	Aishwarya Mishra	"An Efficient Technique For DDoS Intrusion Detection & Prevention."	Internatuonal Journal of Emerging Technology and Advanced Engineering Vol 2, issue 10, ISSN 2250-2459.	2015	7.2	-
59	Aishwarya Mishra	Segmentation of low Quality Fingerprint Images using SVM	International Journal, Volume 4, Issue 1, ISSN:	2014		2
60	Aishwarya Mishra	Survey on Direct and Indirect Discrimination Prevention Attribute Method and Evaluation Parameter	International Journal of Latest Technology in Engineering, Managemen& Applied Sciencet(IJLTEMAS), Volume III-Issue VI (/150-154.(ISSN : 2278-2540)	2014	5.4	-
61	Aishwarya Mishra	Ant Based Distributed Information Centric Network for Effective Management of Resources	International Journal of Scientific & Engineering Research, Volume 7, Issue 8, August 2016.	2016	4.2	-
62	Aishwarya Mishra	"An Approach for the Load Balancing in Cloud Based on the Dynamic Threshold"	International Journal of Science and Research (IJSR) IVolume 3 Issue 10, ISSN (Online): 2319-7064	6-Jul-05	3.8	2
63	Deepti Dave	"A Review on Health Monitoring Issues &Challenges."	International Journal of Scientific & Engineering Research,Volume 6, Issue 5, May-2015, ISSN 2229-5518,.	May 2015	3.8	-
64	Deepti Dave	"Privacy Preserving Patient's Health Monitoring Using Elliptic Curve Based IBE"	International Journal of Advances In Computer Science and Cloud Computing ,Volume- 3, Issue- 2, Nov-2015 ISSN: 2321-4058	Nov 2015	0.499	-
65	Anubhav Sharma	A SURVEY ON: HOW ONLINE RATING IS HELPFUL IN BUILDING CONSUMER TRUST	International Journal of Advanced and Innovative Research Volume 8 Issue 1 ISSN: 2278-7844.	2019	4.23	-
66	Anubhav Sharma	Efficient Multi-Stage Multi-Level Hybrid Filtered Image De-noising	International Journal of Scientific Progress And Research (IJSPR) I Volume 44, Issue 128, Number 03, pp. 157-163, .	Feb-18	3.28	-
67	Anubhav Sharma	Survey on Similarity Validation Based Image Denoising Methods	International Journal of Innovative Trends In Engineering (IJITE) , Volume 37, Issue: 57	January 2018	4.6	-

68	Anubhav Sharma	Detecting Relay Attacks in RFID Using Bloom Filter for Unauthorized Reading	International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE) May (2017).ISSN (Online) 2320-9801, ISSN (Print) 2320-9798 Vol.05, pages 10641-10649.	2017	2.8	-
69	Anubhav Sharma	An Effect of Particle Swarm Optimization on SDLC	International Journal of Innovations & Advancement in Computer Science IJIACS Volume 5, Issue 1,ISSN 2347 – 8616	Jan-16	27	-
70	S. V. Pandit	Anonymous Packet Format (APF) based Secure and Effective Routing Protocol in MANET.	International Journal of Application or Innovation in Engineering & Management (IJAIEM), Volume 4, Issue 2, February 2015	2015	3.11	- -
71	S. V. Pandit	ENERGY EFFICIENT AND LOW COST ORIENTED HIGH SECURITY METHOD FOR MANET: A Review	International Journal of Application or Innovation in Engineering & Management (IJAIEM),Volume 3, Issue 3, March 2014 ISSN 2319 - 4847	Mar-14	4.01	- -
72	Rakesh kr. Verma	Analysis Low Frequency component of DWT-SVD Hybrid Technique for Digital Image Watermarking.	International Journal of Innovative Research in Science, Engineering and Technology, Vol. 6, Issue 11, ISSN(Online): 2319-8753, ISSN(Print): 2347-6710	Nov-17	3	-
73	Rakesh kr. Verma	Secure Data for Digital Image Watermarking Using DWT and SVD Technique.	International Journal of Scientific Progress and Research (IJSPR), Volume 40, Number 02, PP. 01-04,	2017	5	-
74	Vijay Dhote	"A COMPARATIVE STUDY OF CLOUD COMPUTING THROUGH IOT"	INTERNATIONAL JOURNAL OF COMPUTER ENGINEERING & TECHNOLOGY (IJCET),ISSN Online: 0976 – 6375	2019	3.89	-
75	Vijay Dhote	"Challenges in Big Data applications - A Review"	International Journal of Computer Applications (IJCA) volume-121, nu. 19, ISBN- 09758887	2015	3.12	-
76	Vijay Dhote	" Runof prediction using Big Data Analytics Based on ARIMA MODEL"	Indian Journal of Geo marine Science Volume-47(11) pp2163-2170	2018	0.496	-

5.7.2 Sponsored Research (5)

Funded Research:

S.No	Title of the Project	Funding Agency	Year	Amount Sanctioned(INR)	Department of Principal Investigator	Status
1	NATIONAL SEMINAR INDUSTRY 4.0 FUTURE SKILLS	TEQIP - III	2019-2020	1,17,000	Dr. NIKHAT RAZA	Received
2	TTP ON DATA ANALYTICS USING PYTHON	AICTE/ RGPV	2019-2020	2,80,000	Dr. NIKHAT RAZA	Received
3	FDP ON STUDENT INDUCTION PROGRAM	AICTE	2019-2020	92,000	VIJAY DHOTE	Received
4	ONLINE WEBINARON CYBERS ECURITY	TEQIP-III	2019-2020	25,000	Dr. NIKHAT RAZA	Received
5	IOT Enabled UV_C based Self Activated Chain Conveyor Disinfections system for sanitization of surface of goods	Internal	2020	4,92,000	Dr. Anil Kumar Yadav	Received

Communicated (Applied) Research Projects:

S.No	Title of the Project	Funding Agency	Year	Amount Sanctioned(INR)	Department of Principal Investigator	Faculty
1	Smart farming futuristic approach using drone and AI	STPI & NGIS	2020	21,00000	COMPUTER SCIENCE	Dr. Anil Yadav

2	Design and Implementation of a Virtual Network Based on Controller in Future IoT Application	AICTE	2020	14,06,590	COMPUTER SCIENCE	Dr.Nikhat Raza Khan

Product Development :- Products developed in Computer Science Engineering Department

Product Developed by Faculty Member

S.No.	Title of the Project	Name of the Faculty Member	Assessment Year
1	BACHPAN	Anubhav Sharma	**2017**
2	Kawach - Shield against malpractices & corruption	Khushbu Kriplani	**2017**
3	SEVA APP	Vijay Dhote	**2018**
4	Smart Driving	Anshul Sarwagi	**2020**
5	"Suicide Defender using ML" (AICTE Chhatra Vishwakarma Awards -2020)	Dr. Anil Kumar Yadav	**2021**

List of Patents:-

S.No	Name of Faulty	Applied Date	Published Date	Title
1	Dr. Anil Kumar Yadav	27-02-2018	30-08-2019	Method for reinforcement learning
2	Dr. Anil Kumar Yadav	01-07-2020	30-07-2020	System to Identify and Monitor Boundaries and Crop Conditions of an Agriculture Fields

3	Dr. Anil Kumar Yadav	20-01-2021	12-02-2021	IOT enabled self actuated conveyor system fo disinfection system for sainitization of goods.
4	Dr. Nikhat Raza	14-04-2021	17-04-2021	Smart Glove For Visually Impaired People
5	Dr. Nikhat Raza	16-04-2021	03-05-2021	Apparatus For Real Time Prisoner Monitoring & Alerting System using IOT

Year: 2020-2021

Best & Average Project Guided by Faculty members				
IES College of Technology, Bhopal(0177)				
CSE8th Semester Major Projects				
Group No	**Group Member**	**EnrolmentNo.**	**Project Name**	**Project Guide**
1	Vibhuti Rai	0177EC161109	Aspire Online Exam System	Dr. Anil Kumar Yadav
	Tanya Sharma	0177CS161083		
	Mohini Rajawat	0177CS161094		
	Meemansha Vyas	0177CS161091		
2	Avanish Ranjan	0177CS161048	Billing Software	Mr. Anshul Sarawagi
	Azigya Aryan	0177CS161052		
	Abhimanyu Kumar	0177CS161005		
	Aman Raj Kumar	0177CS161022		
3	Prashant Jaiswal	0177CS161114	Covid 19Live Status	Ms. Aishwarya Mishra
	Rahul Kumar	0526CS161034		
	Vishnukumar	0177CS161188		
	Ravi Ranjan Kumar	0177CS161132		
4	Chaman Upadhyay	0177EC161055	Wiki Assistant	Ms. Nirmala Reddy
	Saloni Henecha	0177CS161072		
	Omkar Narayan Singh	0177CS161109		
	Prince Kumar	0177EC161079		
5	Krishna Vishwakama	0177CS161076	BMI Calculator	Mr. Anubhav Sharma

	Sonu Kumar	0177CS161172		
	Garima Singh	0177CS161065		
	Sweety Charpe	0177CS161182		

Year: 2019-2020

Group No	Group Member	Enrolment No.	Project Name	Project Guide
1	Abhinav Kumar Pandey	0177CS151003	Online Restaurant System	Ms. Aishwarya Mishra
	Ankit Kumar	0177CS151026		
	Prateek Raj	0177CS151109		
	Sugandh Raj	0177CS151159		
2	Ashish Mewada	0177CS151035	Twitter Sentiment Analysis	Mr. Vijay Dhote
	Shivampatil	0177CS151146		
	Ankit Tiwari	0177CS151010		
	Navneet	0177CS151094		
3	Kartik	0177CS151066	Rakshak Mobile Application	Mr. Anubhav Sharma
	Ali Husain	0177CS151016		
	Rajeev Kumar	0177CS151118		
	Alisha Raman	0177CS151017		
	Rajnesh Kumar	0177CS151119		
4	Diksha Chaurasiya	0177CS151051	Data Generator Utility	Mr. Anshul Sarawagi
	Kajal Kumari	0177CS151062		
	Manoj Kumar	0177CS151060		
	Kundan Kumar	0177CS151074		
5	Akash	0177CS151014	Health Care Medicine Finding Store	Mr. Akshay Varkley
	Tanveer Hasan	0177CS151165		
	Shubham Humar	0177CS151153		
	Manoj Gour	0177CS151078		

Year: 2018-2019

Group No	Group Member	Enrolment No.	Project Name	Project Guide
1	Krishnandan Sharma	0177CS141058	Chatting Software	Ms. Nirmala Reddy
	Sri Ram Kumar	0177CS141131		
	Dhiraj Kumar	0177CS141043		
	Deepika Kumari	0177CS141041		
2	Shahzeb	0177CS141058	Emergency Locator	Mr. Anshul Sarawagi
	Ritik Saxena	0177EX141027		
	UttkarshaMudggal	0177CS141140		
3	Akash Deep Masih	0177CS141001	Topic IT	Mr. Anubhav Sharma
	Kapil Keshav	0177CS141053		
	Abhishek Kunal	0177CS141006		
	Dev Yadav	0177CS141042		
4	Deepak Kumar	0177CS141039	E- Commerce on Android OS	Ms.Aishwarya Mishra
	Gaurav Kumar	0177CS141044		
	Anand Mohan Tiwari	0177CS141019		
	Vikas Gupta	0177CS141148		
5	Anand Saurabh	0177CS141020	Attendance Management System	Mr. Anubhav Sharma
	Anoop Saurabh	0177CS141024		
	Abhishek Ku. Singh	0177CS141007		
	Abhishek Aman	0177CS141002		

Year: 2017-18

Group No	Group Member	Enrolment No.	Project Name	Project Guide
1	Abhishek Kumar	0177CS131006	We Care	Mr. Rakesh Verma
	Arbind Ram	0177CS131024		
	Atish Kumar	0177CS131033		
	Awadhesh Kumar	0177CS131037		
	Kingson Kumar	0177CS131065		
2	Jyoti Kumari	0177CS131062	Health & Safety	Dr. Ramakant Mohanti
	Megha Singh	0177CS131084		
	Rajnish Kumar Jha	0177CS131126		
	Shivani Singare	0177CS131156		
3	Anshukumar	0177CS131023	e-Cart	Ms. Nirmala Reddy
	Ashvini kumarsingh	0177CS131032		
	Chandan kumar	0177CS131042		
4	Ashish Kumar Pandey	0177CS131010	Dashboard	Mr. Rakesh Verma
	Arindam Sarkar	0177CS131025		
	Prabhat Ranjan	0177CS131109		

5	Manish Kumar Singh	0177CS131025	Indian Post System	Dr.A.K.Yadav
	Pankaj Kumar Malviya	0177CS131025		
	Madhu Kumari	0177CS131025		

- ***Research Laboratories***

➢ E-journals are available

➢ All other labs are open for the students and faculties for the 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:

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

Sr. No	Name of the Facilities	Mode
1	Total Security Quick Heal	Purchased
2	MSE(Microsoft)	Open Source
3	Ubantu, Red Hat Linux	Open Source
4	JAVA SE development Kit	Open Source
5	MATLAB	Purchased
6	SMULINK	Purchased
7	Microsoft window Server MCA(Microsoft Campus Agreement)	Purchased
8	Microsoft Window MCA(Microsoft Campus Agreement)	Purchased
9	Microsoft Visual Studio MCA(Microsoft Campus Agreement)	Purchased
10	Microsoft Office MCA(Microsoft Campus Agreement)	Purchased
11	Microsoft SQL Server MCA(Microsoft Campus Agreement)	Purchased
12	Oracle 11g Express Edition	Open Source

13	My Eclipse, Net beans IDE	Open Source
14	Omninet	Open Source
15	Python	Open Source
16	PHP	Open Source
17	R Language	Open Source
18	Dream Viewer	Open Source
19	C++ Borland	Purchased
20	Code Block	Open Source
21	Acrobat Reader	Open Source
22	Star UML	Open Source
23	Packet Tracer Cisco	Open Source
24	Apache Tomcat	Open Source

Instructional Materials

- Instructional Manual
- Laboratory Manuals
- Power Point Presentation
- Handouts
- Subject notes
- Video Lecturers

Working Model/charts/monogram sets

Charts displayed in all Laboratories. The department has many models created by students and has been displayed in research Laboratory. 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.

Charts

S. No.	Particular
1	Data Base Management System Model
2	IP Structure (Protocol Suit)
3	Data Types
4	Operating System
5	Cloud Architecture
6	Debugging
7	Software Development Life Cycle(SDLC)
8	Linux Operating System
9	Basic Computer Architecture
10	Network communication
11	IoT (Internet on Things)
12	Machine Learning
13	Function of AI

5.7.4 *Consultancy (5)*

2019-20 (CAYm1)

Project Title	Duration	Funding Agency	Amount in INR
Quality Test and Analysis	August 2019-March 202	HLBS	325000
Quality Assurance	JANUARY 2020-APRIL 2020	HLBS	215000

Cumulative Amount: 5,40,0000/-

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 curricular. 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).

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Faculty Appraisal Format given by the

↓

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)
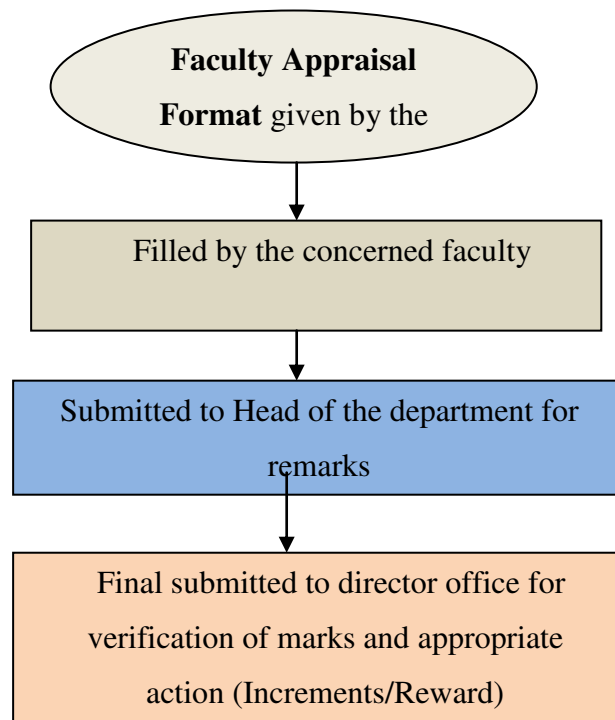
Flow chart of Faculty Appraisal Process

➢ **Faculty Appraisal Performa**

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)

Monthly Performance Appraisal of faculty

Faculty Appraisal Performa 2018-2019
(Information Sheet)
1	Name of the Faculty Member		**Mr. Anshul Sarawagi**
2	Designation		**Assistant Professor**
3	Department		**Computer Science &Engg. Department**
4	Institute		**IES College of Technology Bhopal(0177)**
5	Qualification		**M. Tech**
6		**Subjects taught in last Session: 2018-2019**

S.No.	Name of Subject	Branch	Sem	Sub. code	No. of Students	Aggregate % Attendance	% of result	Result			Student Feedback %	HOD Verification
								No. of students passed with A+	No. of students passed with A	No. of students passed withB+/B		
a	Data Structure	CS-I	III	CS-303	60	85%	95	0	0	24	68.07	
b	Data Structure	CS--II	III	CS-303	60	85%	96	0	1	31	65.49	
c	Analysis Design Algorithm	CS-I	IV	CS-402	60	85%	95	0	0	18	72.3	

d	Analysis Design Algorithm	CS-II	IV	CS-402	60	85%	96	0	0	12	71.04	
	TOTAL											
	Research Papers/ Book Published/ICT Tool uses											
	1	Anonymous Packet Format (APF) based Secure and Effective Routing Protocol in MANET										
	2	A Novel Approach forColor ImageWatermarking usingMulti Channel SVD										
8	Grant received from AICTE/UGC/MAPCOST/Other Government bodies/Consultancy											
9	Extra-Curricular involvement/FDP /Conferences /Seminar (Attended / Organized)											

	S.N	Name of Event	Title	Detail of Organizer	Sponsored By	Date/Duration	Certificate No.
9	a.	Workshop	C and C++	ICT at IIT Bombay	MHRD, GOI	29-02-2020	-
	b	FDP	Internet of Things	MANIT Bhopal	ATAL Academy, New Delhi	09-12-2019 to 13-12-2019	ATAL/2019/706195
	c	Workshop	Linux	ICT at IIT Bombay	MHRD, GOI	23-08-2019	-

10	**Students Projects Guided/Product made by faculty**	**B.E.**	Yes	**No. of Project**	03	**No. of Product made by faculty**	
		M. Tech	Yes	**No. of Thesis**	03		

11	**Extra Curricular Duties Performed:**				
		1	Worked as Committee Member of the departmental Techfest		
		2	Worked as Committee Member of the event Sports in departmental Tech fest		
2	Administration Duties of Mentor/Anti Ragging/Monitoring Duties: (Excuding Counselling)	1	Performed the duties of Mentor		
		2	Member of anti Ragging Committee		
		3	Member of attendance monitoring and maintaining the discipline of the department.		
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**

S.No	Title	Verification Authority	Marking Scheme	Obtained Marks	Signature of Verified Authority
			Faculty Appraisal Evaluation Rubrics		
1	Students Aggregate Attendance (20Marks)	HOD & Principal	< 40% = 0 < 40 to 50% = 5 < 50 to 65% = 10 < 65 to 75% = 15 > 75 = 20		
2	Results of Previous Sem Subjects Taught(15Marks)	HOD & Principal	No. of students withrespct to grade A+/A/B+/B 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/MAPCOST/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 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/	If YES = 5		
		Principal	NO = 0		
9	Ph.D. /M. Tech Thesis Guided (5Marks)	HOD/	1 Mark/Thesis if completed within time Maximum mark = 05		
		Principal			
10	Responsibility (5Marks)	HOD/	If doing with full cooperation then 05		
11	(Exam Control Room/TG/Anti Ragging/ Monitoring 5Marks	Principal	doing without co operation then 3		
			Refusing = 0		
Forwarded by HOD			Signature of Faculty		Principal
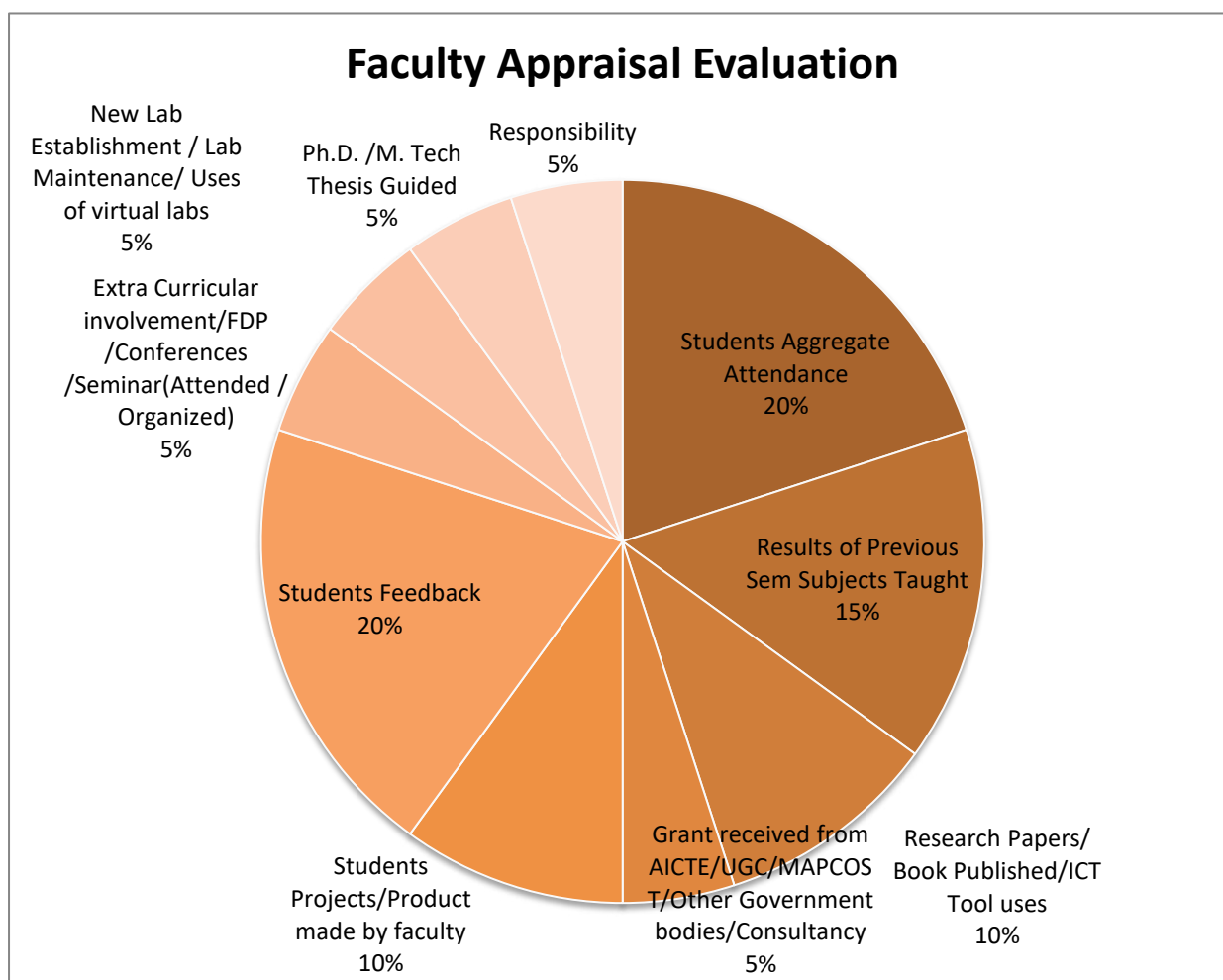
Fig: Faculty Appraisal Evaluation

5.9 Visiting/Adjunct/Emeritus Faculties. (10): NA

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CRITERION 6	Facilities and Technical Support	80

6.1 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 specificcurriculum.

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 themachine.

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 hourstoo. Availability of adequate and qualified technical supporting staff as per norms listed below.

S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1	Data Structures (CS-303)	30	Computer Systems with software (Turbo C /C++) Virtual Lab	12 hrs.	Mr. Sandeep Raghuwanshi	Lab Assistant	B. E
2	Digital system (CS-304)	30	1. Logic Gates (6-in-1) 2. 4 Bit Adder & Subtractor 3. Digital Logic Trainer 4. Digital Full adder & subtractor 5. 4/8 line to 1 line Multiplexer 6. 1 to 4/8 Line De-multiplexer 7. Circuit Designer Board 8. Pulse/Clock Generator using NAND Gate 9. Code conversion (BCD to excess 3) 10. 16:1 line multiplexer &1:16 line de-multiplexer 11. RS, JK Flip-flop 12. Encoder/Decoder 13. Shift registers 14. Multi-meters 15. TINA-PRO Tools. 16. Virtual Lab	12 hrs.	Mr. Rishiraj Singh Thakur	Lab Assistant	B. E.
3	Object Oriented Programming and Methodology	30	Computer Systems with software (Turbo C /C++)	12 hrs.	Mr. Deepak Jaware	Lab Assistant	B. E.

S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
	(CS-305)						
4	Computer Workshop (CS-306)	30	Computer Systems with software (Java)	12 hrs.	Mr. Nilesh Dubey	Lab Assistant	B. E.
5	Analysis Design of Algorithm (CS-402)	30	Computer Systems with software (Turbo C /C++) Virtual Lab	12 hrs.	Mr. Sandeep Raghuwanshi	Lab Assistant	B. E.
6	Software Engineering (CS-403)	30	Computer Systems with required Software (Eclipse, Net Beans, and Visual Studio)	12 hrs.	Mr. Deepak Jaware	Lab Assistant	B. E
7	Computer Org. & Architecture (CS-404)	30	Assemble language programming in operating system. Computer Systems with software (Turbo C /C++)	12 hrs.	Mr. Nilesh Dubey	Lab Assistant	B. E
8	Operating System (CS-405)	30	Computer Systems with required Software (Unix/Linux/Ubuntu/ Windows) Computer Systems with software (Turbo C /C++)	12 hrs.	Ms. Rashi Nema	Lab Assistant	B. E
9	Programming Practices (CS-406)	30	Computer Systems with software (Java/dot net technologies/python/MATLAB)	12 hrs.	Mr. Jitendra Tiwari	Lab Assistant	B. E
10	Theory of Computation (CS-501)	30	Computer Systems with software (Java)	12 hrs.	Mr. Rashi Nema	Lab Assistant	B. E
11	Data Base Management System (CS-502)	30	Computer Systems with required Software (Linux/ Mysql/Sql Server/ RDBS/Oracle)	12 hrs.	Mr. Jitendra Tiwari	Lab Assistant	B. E
12	Lab (Linux) (CS-505)	30	Computer Systems with required Software (Linux)	12 hrs.	Mr. Surendra Raghuwanshi	Lab Assistant	M.C.A.
13	Lab (Python) (CS-506)	30	Computer Systems with required Software (Python)	12 hrs.	Mr. Vasudev Phate	Lab Assistant	B. E.
14	Machine Learning (CS-601)	30	Computer Systems with required Software (Python/ MATLAB)	12 hrs.	Mr. Vasudev Phate	Lab Assistant	B. E

S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
15	Computer Networks (CS-602)	30	Computer Systems with required hardware (Switch/ Router/ NIC/Omninet/ Linux)	12 hrs.	Mr. Nitin Dubey	Lab Assistant	Diploma
16	Data Analysis lab (CS-605)	30	Computer Systems with required Software (R language/ Python)	12 hrs.	Mr. Dharmendra Prajapati	Lab Assistant	DCA
17	Skill Development Lab (CS-606)	30	Computer Systems with required Software (Eclipse, Net Beans, and Visual Studio)	12 hrs.	Mr. Mr. Sandeep raghuwanshi	Lab Assistant	B. E
18	Software Architectures (CS-701)	30	Computer Systems with software (Java) Computer Systems with required Software (Linux/ Mysql/Sql Server/ RDBS/Oracle)	12 hrs.	Mr. Nitin Dubey	Lab Assistant	Diploma
19	Big Data lab (CS-702)	30	• Computer Systems with software (Python) • Computer Systems with required Software (Linux/ Mysql/Sql Server/ RDBS/Oracle)	12 hrs.	Mr. Dharmendra Prajapati	Lab Assistant	B. E
20	Data Mining and Warehousing (703(B))	30	Computer Systems with required Software (MySQL)	12 hrs.	Mr. Sandeep Raghuwanshi	Lab Assistant	B. E
21	Project lab (CS-706)	30	Computer Systems with required Software (C/C++/Java /.Net Technology/Mysql/ Linux/ windows/ Python/ Dream viewer/ Oracle/ Visual Basic/ PHP/Metlab/ R language)	12 hrs.	Mr. Deepak Jaware	Lab Assistant	B. E
22	Soft Computing (CS-801)	30	Computer Systems with required Software (C++, Turbo C++, Java)	12 hrs.	Mr. Nilesh Dubey	Lab Assistant	B. E
23	Web Engineering (CS-802)	30	HTML/ DHTML, PHP, XML, Java Script, CGI, PERL, ASP.	12 hrs.	Mr. Vasudev Phate	Lab Assistant	B. E
24	Compiler Design (CS-701)	30	• Computer Systems with software (Turbo C /C++)	12 hrs.	Mr. Vasudev Phate	Lab Assistant	B. E
25	Internet of	30	ARDUINO	12 hrs.	Mr. Vasudev Phate	Lab Assistant	B. E

S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
	Things(CS 801)						
26	Cloud Computing(CS 802)	30	AWS (VIRTUAL SERVER)	12 hrs.	Mr. Nilesh Dubey	Lab Assistant	B. E

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	• E-board & projector facility with the seating capacity of 60. • Fully equipped with furniture and teaching aids.	• Smart class room is used for animated visuals and video lectures. • These visually attractive methods of teaching are sometimes more interesting as compared to teaching in a classroom.	Throughout the semester	The graphs, design, models, simulation and fabrication of difficult subjects can be easily analyzed and visualized	PO-1, PO-2, PO-3, PO-4, PO-5, PSO-1 & PSO-3
2	Seminar Hall	Fully equipped shared seminar hall with Computer, Projector, Student Desk, White Board, Air conditioner, Fan, microphone and speaker with capacity of 400.	• To present technical talk/project seminars/research papers/workshops/ industry interaction/ presentation.	12hrs per semester	• To overcome the gap between curriculum and industries. • To improve students personality according to industry standard.	PO-1, PO2 PO-3,PO-12&PSO-1
3	Lab Manuals along with instruction materials for all the labs	Manuals are provided to students for all practical subjects of program.	• To create an understanding about the experiment and to inform need of conducting the same. • Students can understand concept	Throughout the semester	• Testing, performance and analysis of different computer science and engineering lab	PO-1, PO-2, PO-3, PO5, PSO-1,PSO2 & PSO3

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
			of the experiment better in a manner. • To maintain the practical lab record using the lab manual.		• Better usage of hardware and software tools.	
4.	Departmental Library	Departmental library has a collection of text books, reference books, project / seminar report and NPTEL lecture.	• To provide academic support to students. • To provide advanced information of the seminars and projects.	Throughout the semester	Student learning process	PO1, PO-2, PO-4, PSO-1, PSO-2 & PSO-3
5	NPTEL material available	Providing to the students through the central and departmental library.	• Understand teaching and learning about the new technology in the field of Computer Science & Engineering	Throughout the semester	To understand important concept of various subjects and modern tools used in computer science and engineering.	PO-1, PO-2, PO 5 &PSO1
6.	Internet Facility	Bandwidth of 100 Mbps and Wi-Fi of 50 Mbps	Self-learning /Seminars /Presentations /Solve assignments, documentation	Unlimited	Courses specified in Curriculum	PO1, PO2, PO3, PO4, PO5, PO8& PO12
7.	Coding classes	Software	Implementation of projects, design and software testing	As needed	Industry oriented training	PO4,PO5, PO8,PO12
8.	Training and placement classes	Training on reasoning, group discussion, and technical skill by experts.	Job oriented training and to improve logical reasoning and technical skills.	Throughout the semester	Employability and entrepreneurships	PO4, PO5, PO8 & PO12
9.	Virtual Lab	Perform online experiments as additional facility through virtual lab	Providing online practical exposure of the students	As per Required	Employability and entrepreneurships	PO1,PO2,PO3,PO5,PO12

6.3 Laboratories: Maintenance and overall ambiance (10)

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 ambience of laboratory facilities are as follows

Maintenance:

1. All the essential software used in computer labs are installed and maintained.
2. Breakdown & Maintenance register is maintained in the laboratories.
3. Stock registers are maintained in each laboratory and verified regularly.
4. Qualified technical assistants are available for maintenance of the equipments and software in labs.
5. Regular maintenance of computers is carried out.

Ambiance:

1. Ambience has been given special importance for the students to feel refreshed when they enter the campus.
2. Green lawn was developed and trees grown in the campus for good ambience and greenery.
3. To add the protection of environment and to reduce the load on conventional electrical energy, 100kW solar plant is located on the rooftop.
4. Department has enough labs which are used for all the years on timetable basis to meet the curriculum requirements.
5. Labs are equipped with sufficient hardware and licensed/ open source software to run program specific curriculum and off program curriculum.
6. Department is having four 10KVA UPS, 240V DC along with batteries are used in case of power failure in the PC system labs.
7. All laboratories are acoustics having sufficient natural light and proper ventilation
8. Cup-boards are available in each lab for students to place their belongings.
9. Each Lab is equipped with green/white board facilities, computer, Internet, and such other amenities.
10. E-Journals and magazine are available in department library.

11. Virtual labs are available for additional experimental works.

6.4. Project laboratory (5)

- Technical support for the students available throughout the day.
- All other labs (AI, machine learning, IOT Lab, Embedded System lab etc.) are open for the students to completion of their projects throughout the day.
- MOU with industries to support students.
- 100kW solar power plant.
- Project/Research lab is exclusively for the research and project work with the hardware and software facilities listed below:

Sr. No.	Name of the Facilities	Utilization
1.	Project Lab	UG/PG students and Faculty members utilize for their minor projects, major projects, and research activities.

Hardware/ Software Facilities:

Sr. No	Name of the Facilities	Mode
1	Total Security Quick Heal	Purchased
2	MSE(Microsoft)	Open Source
3	Ubantu, Red Hat Linux	Open Source
4	JAVA SE development Kit	Open Source
5	MATLAB	Purchased
6	SMULINK	Purchased
7	Microsoft window Server MCA(Microsoft Campus Agreement)	Purchased
8	Microsoft Window MCA(Microsoft Campus Agreement)	Purchased
9	Microsoft Visual Studio MCA(Microsoft Campus Agreement)	Purchased
10	Microsoft Office MCA(Microsoft Campus Agreement)	Purchased
11	Microsoft SQL Server MCA(Microsoft Campus Agreement)	Purchased
12	Oracle 11g Express Edition	Open Source
13	My Eclipse, Net beans IDE	Open Source
14	Omninet	Open Source

15	Python	Open Source
16	PHP	Open Source
17	R Language	Open Source
18	Dream Viewer	Open Source
19	C++ Borland	Purchased
20	Code Block	Open Source
21	Acrobat Reader	Open Source
22	Star UML	Open Source
23	Packet Tracer Cisco	Open Source
24	Apache Tomcat	Open Source

6.5. Safety measures in laboratories (10)

The following general rules and precautions are observed at all times in the laboratory. These rules are for the benefit of the experimenter as well as those around him/her.

The following safety measures are used in all the labs:

S.N.	Laboratory Name	Safety measure
1	Data Structures (CS-303)	1. Do's and don'ts are displayed 2. Use of cell phones is strictly prohibited. 3. First aid box is available in department. 4. A fire extinguisher is available in floor. 5. Clean and structured laboratories are maintained. 6. The switching of power supply has been handled only by authorized person.
2	Digital system (CS-304)	1. Do's and don'ts are displayed 2. Use of cell phones is strictly prohibited. 3. First aid box is available in department. 4. A fire extinguisher is available in floor. 5. The 5V supply or specified voltage level should not be exceeded since this will damage the ICs used during the experiments. 6. Properly handlings of electronic components and kits are required. 7. Equipment should be placed properly after completion of experiments. 8. Clean and structured laboratories are maintained. 9. The switching of power supply has been handled only by authorized

		person.
		10. Faulty in apparatus is identified and serviced at the earliest.
		11. Circuits are proper grounded with respect to the power source.
3	Object Oriented Programming and Methodology (CS-305)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory 7. **Avoiding the use of cell phones.**
4	Computer Workshop (CS-306)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory 7. **Avoiding the use of cell phones.**
5	Analysis Design of Algorithm (CS-402	1. Do's and don'ts are displayed 2. Use of cell phones is strictly prohibited. 3. First aid box is available in department. 4. A fire extinguisher is available in floor. 5. Clean and structured laboratories are maintained. 6. The switching of power supply has been handled only by authorized person.
6	Software Engineering (CS-403)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory

		7. Avoiding the use of cell phones.
7	Computer Org. & Architecture (CS-404)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. Specific Safety Rules for students displayed.
8	Operating System (CS-405)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. First aid box, Fire extinguisher is kept in the floor.
9	Programming Practices (CS-406)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. Well trained technical supporting staff.
10	Theory of Computation (CS-501)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. Avoiding the use of damaged equipments and provides needful equipments and components.
11	Data Base Management System (CS-502)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.

		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. Periodical servicing of the lab equipments.
12	Lab (Linux) (CS-505)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. Maintain a clean and organized laboratory
13	Lab (Python) (CS-506)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. Avoiding the use of cell phones.
14	Machine Learning (CS-601)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. General Rules of Conduct in Laboratories are displayed.
15	Computer Networks (CS-602)	1. General Rules of Conduct in Laboratories are displayed.
		2. Specific Safety Rules for students displayed.
		3. First aid box, Fire extinguisher is kept in the floor.
		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.

		8. Specific Safety Rules for students displayed.
16	Data Analysis lab (CS-605)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory 7. Avoiding the use of cell phones. 8. First aid box, Fire extinguisher is kept in the floor.
17	Skill Development Lab (CS-606)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory 7. Avoiding the use of cell phones. 8. Well trained technical supporting staff.
18	Software Architectures (CS-701)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory 7. Avoiding the use of cell phones. 8. Avoiding the use of damaged equipments and provides needful equipments and components.
19	Big Data lab (CS-702)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory 7. Avoiding the use of cell phones. 8. Periodical servicing of the lab equipments.
20	Data Mining and Warehousing (703(B))	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor.

		4. Well trained technical supporting staff.
		5. Periodical servicing of the lab equipments.
		6. Maintain a clean and organized laboratory
		7. Avoiding the use of cell phones.
		8. Maintain a clean and organized laboratory
21	Project lab (CS-706)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory, 7. Avoiding the use of cell phones.
22	Soft Computing (CS-801)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory **7.** Avoiding the use of cell phones.
23	Web Engineering (CS-802)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory **7.** Avoiding the use of cell phones.
24	Compiler Design (CS-701)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 6. Maintain a clean and organized laboratory 7. Avoiding the use of cell phones.

25	Internet of Things(CS 801)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 7.Maintain a clean and organized laboratory 8. Avoiding the use of cell phones.
26	Cloud Computing(CS 802)	1. General Rules of Conduct in Laboratories are displayed. 2. Specific Safety Rules for students displayed. 3. First aid box, Fire extinguisher is kept in the floor. 4. Well trained technical supporting staff. 5. Periodical servicing of the lab equipments. 7.Maintain a clean and organized laboratory 8. Avoiding the use of cell phones.

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CRITERION 7	CONTINUOUS IMPROVEMENT	50

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.

(2020-2021)

PO Attainment 2016-2020 Batch

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Total Attainment(16-20)	2,35	2,30	2,27	1,93	2,48	2,26	2,26	2,33	2,45	2,24	2,09	2,33
Target Level(16-20)	2,50	2,10	2,00	2,00	2,20	2,00	2,00	2,10	2,00	2,20	2,10	2,00

■ Total Attainment(16-20) ■ Target Level(16-20)

Summary PO Attainment 2016-2020 (2016-2020 Batch)

PO/PSO	Average Target Level	Average Achieved PO Attainment Level
PO	70%	72%
PSO	70%	80%

POs	Target Level	Attainment Level	Observations
(2020-2021)			
PO1: **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.5	2.35	**Observations** Target Not Attained 1. Problem in understanding of Mathematics –I & II. 2. Problem in understanding of TOC.
Actions: 1. Remedial / Revision classes and NPTEL video session were conducted to solve problems of Mathematics and TOC. 2. More problems were given for practice in mathematics subjects.			
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.			
PO2	2.10	2.30	**Observations** **Target Attained** 1. Lacking in solving Analytical Problems of Mathematics –I & II. 2. Lacking in solving Analytical Problems of Data Structure. 3. Extra Analytical classes should be conducted in Major and Minor Projects.
Actions: 1: Technical events were organized to improve the analytical skills. 2: More numerical problems were practice in class room. 3: More problems were assigned as part of assignment. 4: Remedial / Revision classes and NPTEL video session were conducted. 5: In house Training session was organized.			
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.			

PO3	2	2.27	**Observations** **Target Attained** **1.**Require improvement in Design/ Development solutions in the field of complier design and operating system. **2.**Extra session to be conducted for design and development in Major and Minor Projects.

Actions:

1. NPTEL video lectures were conducted.
2. For the technical understanding of project design technical events, seminar and workshop, webinar and course beyond syllabus session were organized.
3. Industrial training was organized.
4. Remedial / Revision classes and NPTEL video session were conducted.

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.

PO4	2	1.99	**Observations** **Target Attained** 1. Research oriented session should be organized.

Actions:

1. Emphasis given on project based learning by giving the project based assignments.
2. Guest Lectures, Webinar and seminar were conducted.
3. Virtual labs were conducted
4. Various training programs, workshops and industrial visits were organized
5. How to write an effective technical paper webinar was organized.

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.

PO5	2.2	2.48	**Observations** **Target Attained** 1. Should be more emphasis on latest tool and technology. **2.** Should be increase frequency of industrial interaction program

Actions

1. Virtual labs session were conducted
2. Practical done with help of software's (python, java, and MATLAB).

3. Guest Lectures, Webinar and seminar were conducted related to industry issues.

4. Emphasis on online certification course.

5. **Training sessions with hand's on practice of modern tools were conducted.**

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.

PO6	2	2.26	**Observation** **Target Attained** 1.Improve frequency of conducting events related to safety, legal and cultural issues

ACTION1:

1. To understand the safety concerns and social aspects, student's webinar, NPTEL video session and training has been organized to expand their practical knowledge.
2. Students were motive to participate in various technical events, social events such asClean India Campaign, NSS/NCC and outside workshop for awareness of legal and cultural issues of society.
3. Morning assembly scheduled every Monday to develop awareness about global awareness and social responsibilities.
4. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional.

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.

PO7	2	2.26	**Observation** **Target Attained** 1. The issues of global and environmentalawareness among the student should be improved.

Action

1. Students were encouraged indulging in projects related to consumption of energy and utilization of renewable energy resources and Poster presentation competitions were organized relevance to Environment and sustainable solution in which global and environmental issues are improve.
2. Students were motive to participate in various technical events, social events such asClean India Campaign, NSS/NCC and outside workshop for awareness of legal and cultural issues of society.
3. Tree plantation camps were organized at IES campus every year.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and

norms of the engineering practice.

PO8	2.1	2.33	**Observation** **Target Attained** 1.Professional ethics session should be improved

Action

1. Expert sessions and Motivational lectures on professional ethics were conducted by professional society like IEEE, IETE etc.
2. Training sessions on life skills and Professional Ethics.
3. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional ethics.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO9	2	2.45	Observations : **Target Not Attained** 1. It has been observed that some students did not perform given task individual as required.

Actions :

1. Motivate students to participate more in National/State/inter and intra college tech fest sports meet, technical and cultural activities to generate the feeling of leadership and working in teams.
2. Final year projects give in group so that to enhance team sprit to work in team collaborations
3. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional ethics

PO-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.

PO10	2.20	2.24	Observations : **Target Attained** 1.The speaking and writing skill should be improve

ACTION:

1. HR activities such as Group discursion, Personal interview, webinar and Technical interview were conducted.
2. Alumni talks were conducted.
3. Student presentations like seminar, project were organized.

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.
PO11	2.10	2.10	**Observations :** **Target Attained** 1. More activities should be organized in Project management and finance skill. 2. Events should be conducted on Intellectual Property Right

ACTION1:

1. Webinar, Seminar and guest lecturers were organized to understand the principle of project management and financial.
2. Industrial visits and industrial trainings were organized.
3. Alumni talks were conducted
4. Entrepreneurship & innovation session was organized to develop Entrepreneurship, project management and finance skills.
5. Intellectual Property Right webinar was organized.
6. Webinar was conducted on Preparation for Service Selection Board Interview and Tips.
7. Webinar was conducted on Organization Readiness to Re-skills and Up-skills Campus Talent.

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.

PO12	2	2.33	**Target Attained** 1. Improve frequency of organizing events in contemporary issues and lifelong learning.

ACTION :

1. Lecture content included new technological developmental tools and knowledge of new Products.
2. Assign projects of Computer Science and Engineering to improved lifelong learning
3. Webinar and guest lecturers were organized to learn lifelong learning
4. How to write an effective technical paper webinar was organized.
5. Guest lecture was organized in "Artificial Intelligence in Gaming And Robotics"
6. Webinar were conducted in **Global** Business and Career Opportunities for Students Arising Post COVID-19.
7. Webinar were conducted in Job Opportunities in Post COVID-19 Scenario and Challenges thereafter**.**
8. Webinar conducted on "Emerging Trends in Automotive Industry - Digital Age"
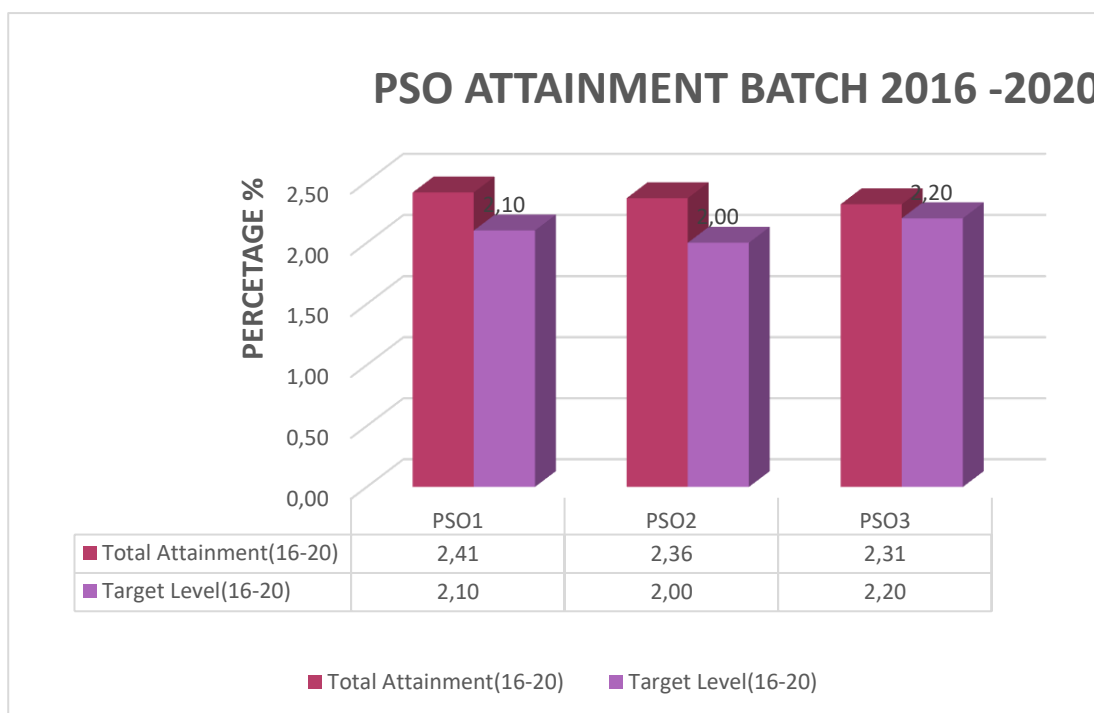
PSO ATTAINMENT BATCH 2016 -2020

	PSO1	PSO2	PSO3
Total Attainment(16-20)	2,41	2,36	2,31
Target Level(16-20)	2,10	2,00	2,20

PSO 1:

Technical Skills: Provide solution, design and development of web based software application using open source technology.
.

PSO1	2.10	2.41	**Observations :** **Target Attained** 1. Require more exposure of industry oriented problems.

ACTION1:

1. Students are motivated to take up the real life problems during their project work so that they can design, analyze and find solution which gives exposure to latest technologies.
2. Virtual labs were included in labs for understanding design and development solutions.
3. Alumni and Expert talks were organized.
4. Remedial / Revision classes and NPTEL video session were conducted.

PSO-1: Problem-Solving Skills: Solve the problem of society in relevance to security issues by applying the concept of network   and cyber security.

PSO2	2.0	2.42	**Observations :** **Target Attained** 1. Improved frequency of organizing training and

			workshop in the field of Machine Learning & Data Analytics.

ACTION

1. Various Training programs, Workshops and Industrial visits were organized
2. Emphasis onindustry oriented problems.
3. Practical pedagogy of teaching was adapted for Design and development of solutions.
4. More problems were given for practice and extra classes had been conducted.
5. Organized seminar and guest lecturers in recent technology of computer science.

PSO 3: Provide solution of hardware and software related problems to maintain the operations of a computer system.

			Observations : **Target Attained** 1. Lacking in adoption of changes in tools and technology in Artificial Intelligence and Machine Learning.
PSO3	2.2	2.39	

ACTION1:

1. Various Training programs, webinar Workshops were organized in Artificial Intelligence and Machine Learning.
2. Career awareness programs were in field of computer science and engineering.
3. Integrate technology deployment with change management.
4. Expert lectures were organized
5. Virtual labs were included in labs for understanding tools and technology.

Summary PO Attainment 2016-2020 (2016-2020 Batch)

PO/PSO	Average Target Level	Average Achieved PO Attainment Level
PO	**70%**	**72%**
PSO	**70%**	**80%**

(2019-2020)

PO Attainment 2015-2019 Batch

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
■ Total Attainment	2,20	2,19	2,37	2,65	2,31	2,46	2,62	2,65	2,34	2,55	2,61	2,24
■ Target Level	2,20	2,00	1,80	2,00	2,20	2,00	2,00	2,10	1,80	1,80	1,80	1,80

■ Total Attainment   ■ Target Level

POs	Target Level	Attainment Level	Observations
1. **PO1: Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.2	2.2	**Observations** **PO attainted** 1. Need of strong analytical skill requires in Mathematics, Discrete Structure, System programming, Data Science and Big Data. **2.** Problem in understanding of Mathematics -II like the Laplace transformation, Inverse Laplace transformation and first and second order differentiation.

Actions

3. Remedial classes and NPTEL video session were conducted to solve problems of above-mentioned subjects.

4. Pedagogy approach was adopted to understand the concept of engineering problem.

5. More problems were given for practice in mathematics subjects

6. Simulators and virtual labs were conducted for understanding the basic concepts.

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.			
PO2	**2**	**2.2**	**Observations** **PO not attainted** 1. Need of strong analytical skill requires in Mathematics -III, Discrete Structure, System programming, OOAD, Data Science Subjects.

Actions
- **1:** Technical events were organized to improve the analytical skills.
- **2:** More numerical problems were practice in class room.
- **3:** More problems were assigned as part of assignment.
- **4:** Extra lectures were conducted to solve analytical problems of Mathematics –III.

PO3: 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.			
PO3	**1.8**	**2.37**	**Observations** **PO attainted** 1. Basic knowledge of design is not well understood in System programming, Big Dataand Computer Network Subjects. 2. Lacking in fulfilment of industrial requirements in designing of minor and major projects.

Actions
1. Teaching Processes include more NPTEL video lectures and board presentation.
2. For the technical understanding of project design technical events, seminar and workshop, course beyond syllabus session were organized.
3. Industrial visits and training were organized.

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.			
PO4	**2**	**2.65**	**Observations** **Although target achieved yet few gaps were identified** 1. The problems faced by students in difficult topic related to Networks and Data Science. 2. Students were facing problem to understand the concepts of machine Learning & Big Data.

Actions

1. Emphasis given on project based learning by giving the project based assignments.
2. Guest Lectures and seminar were conducted in academic plane to develop interest into the students towards the recent technology and real life applications.
3. Conduction of Tech Fest and motivating students to prepare realistic models.
4. Questions which are related to synthesis of the system were included in tutorials.
   Various training programs, workshops and industrial visits had been organized to develop project and problem base learning.

PO5: 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.

PO5	2.2	2.31	**Observations** **Although target achieved yet few gaps were identified** 1. **RGPV Curriculum was lacking the subjects related to latest tools.**

Actions
1. Various Training programs, Workshops and Industrial visits were conducted to improve use of modern tools.
2. Practical session were organized with help software (Python, Java, IoT)
3. Training session with hand's on practice of modern tool were conducted.

PO6: 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.

PO6	2	2.46	**Observation** **Although target achieved yet few gaps were identified** The students are not able to apply reasoning contextual knowledge to assess safety, legal and cultural issues in real life.

ACTION1:
1. To understand the safety concerns and social aspects, student's industrial visits and training has been organized to expand their practical knowledge.
2. Students were motive to participate in various technical events, social events such as Clean India Campaign, NSS/NCC and outside workshop for awareness of legal and cultural issues of society.
3. Morning assembly scheduled every Monday to develop awareness about global awareness and social responsibilities.
4. Entrepreneurship & innovation session was organized to develop Entrepreneurship and

			professional.

PO7: 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.

PO7	2	2.62	**Observation** **Although target achieved yet few gaps were identified** The issues of global and environmental awareness among the student should be improved.

Action
1. Students were encouraged indulging in projects related to consumption of energy and utilization of renewable energy resources and Poster presentation competitions were organized relevance to Environment and sustainable solution in which global and environmental issues are improve.
2. Students were motivated to participate in various technical events, social events such as Clean India Campaign, NSS/NCC and outside workshop for awareness of legal and cultural issues of society.
3. Tree plantation camps were organized at IES campus every year.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO8	2.10	2.65	**Observation** **Although target achieved yet few gaps were identified** 1. Found low professional ethics& moral knowledge in industrial needs.

Action
1. Expert sessions and Motivational lectures on professional ethics were conducted by professional society like IEEE, IETE etc.
2. Training sessions on life skills and Professional Ethics.
3. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional ethics.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO9	1.80	2.34	Observations : **Target not achieved.** 2. **1.** It has been observed sometimes some students did not perform given task individual as required. 3. Lack of co-ordination among the team members during the project work has been observed sometimes.

Actions:
  1. Motivate students to participate more in National/State/inter and intra college tech fest sports meet, technical and cultural activities to generate the feeling of leadership and working in teams.
  2. Final year projects give in group so that to enhance team sprit to work in team collaborations.
  3. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional ethics.			

PO10: 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.

PO10	**1.80**	**2.55**	Observations : **Although target achieved yet few gaps were identified** 1. The communication, presentation and report writing skills are to be improved among the students.

ACTION:
1. HR activities such as Group discursion, Personal interview, and Technical interview were conducted.
2. Student presentations like seminar, project were organized.

PO11: 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.

PO11	**1.8**	**2.61**	Observations : **Although target achieved yet few gaps were identified** 1. Needed improvement in Project management and finance skill.

ACTION1:
1. The awareness created among the student regarding the management principles and managing projects.
2. Seminar and guest lecturers were organized to understand the principle of project management and financial.
3. Industrial visits and industrial training were organized.
4. Entrepreneurship & innovation session was organized to develop Entrepreneurship, project management and finance skills.

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.

PO12	1.80	2.24	Observations : **Target Attained** 1. The pre final year and final year courses of the program are demonstrating the resource for contemporary issues and lifelong learning.

ACTION :

2. Lecture content included new technological developmental tools and knowledge of new Products.
3. Assign projects of Computer Science to improved lifelong learning.
4. Students were motivated to take up the real life problems during their project work so that they can design, analyze and find solution which gives exposure to latest technologies and lifelong learning.
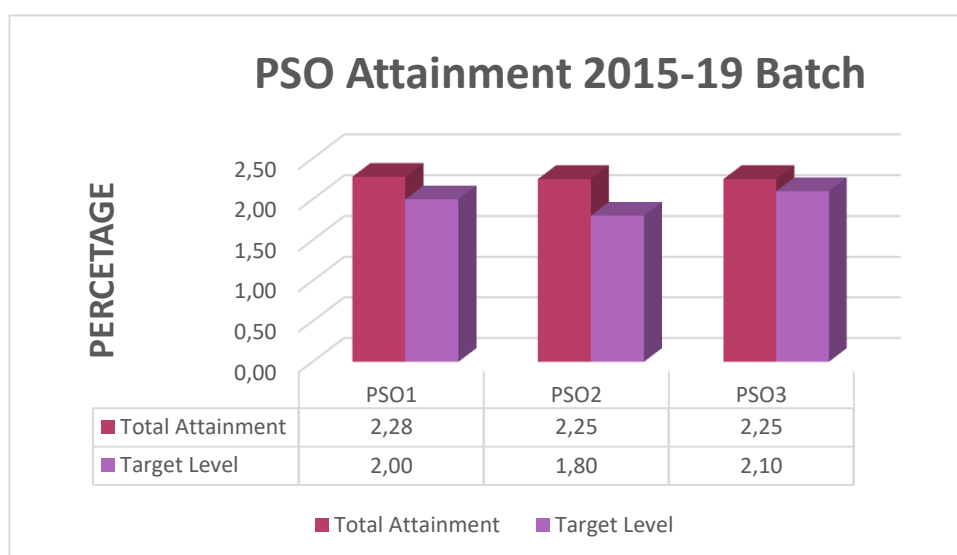
PSO Attainment 2015-19 Batch

	PSO1	PSO2	PSO3
Total Attainment	2,28	2,25	2,25
Target Level	2,00	1,80	2,10

PSO 1:
Technical Skills: Provide solution, design and development of web based software application using open source technology.

PSO1	2	2.28	Observations : **Target Attained** 1. The project titles of the final year and pre-final year students are addressing the real life problems.

ACTION1:

1. Students are motivated to take up the real life problems during their project work so that they can design, analyze and find solution which gives exposure to latest technologies.
2. Organized seminar on Entrepreneurship.
3. Organized industrial visit and training.

PSO 2: **Problem-Solving Skills**: Solve the problem of society in relevance to security issues by applying the concept of network and cyber security.			
PSO2	**1.8**	**2.25**	Observations: **Although target achieved yet few gaps were identified** 1. Enhance the usage of different tools and designs to develop/ implement to solve the problem of society in relevance to security issues.

ACTION1**:**

1. Various Training programs, Workshops and Industrial visits were organized
2. Emphasis on industry oriented problems
3. Practical pedagogy of teaching was adapted for Design and development of solutions.
4. More problems were given for practice and extra classes had been conducted.
5. Organized seminar and guest lecturers   in recent technology of Computer Science.

PSO 3: Provide solution of hardware and software related problems to maintain the operations of a computer system.			
PSO3	**2.10**	**2.25**	Observations : **Although target achieved yet few gaps were identified** 1. Enhance the usage of different tools and designs to develop / implement, test, manufacture and maintain the computer system.

ACTION1:

1. Various Training programs, Workshops and Industrial visits were organized
2. Career awareness programs and corporate lectures were organized to meet updating in field of Computer Science &Engineering.
3. Integrate technology deployment with change management.
4. Expert lectures were organized

Summary PO Attainment 2019-2020 (2015-2019 Batch)

PO/PSO	Average Target Level	Average Achieved PO Attainment Level
PO	**65%**	**81%**

PSO	65%	75%

2018-2019

POs	Target Level	Attainment Level	Observations
1. **PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	**2.2**	**2.37**	**Observations** **Target attained** 1. Enhancement in the ability to solve and analyze the numerical problems of Mathematics and Data Structure. 2. Problem in understanding concept of Digital circuit &Theory of Computation.

Actions

1. Remedial/Revision classes were conducted to solve problem of Data Structure and Mathematics.
2. Practical approach of teaching was adapted to understand the concept of measuring instruments system.
3. Workshops/ Seminars were provided to the students for the improving the practical and theoretical Knowledge.

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

PO2	2.0	2.42	**Observations** **Target attained** 1. Need of strong analytical skill in students. 2. Students were facing problem in applying the principles for understanding Mathematics, Digital Electronics, Electronics Devices and Data Structure problem.

Actions
1: Industrial visits and industrial expert lectures were organized to improve the analytical skills.
2: More analytical classes were organized to improve the analytical skill in industrial, Digital Electronics, Electronics Devices and Data Structure subjects using NPTL Video.
3: Extra lectures were organized for improving analytical skill.

PO3: 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.

PO3	1.8	1.78	**Observations** **Target Not attained** 1. Lacking in fulfillment of industrial approach in designing of minor and major projects. 2. Basic knowledge of design is not well understood by students. 3. Need improvement in solving problems of Electronic Device and circuit like mathematical analysis and designing

Actions
1. More problems designing were given in tutorials for practice.
2. Presentation was conducted in design and development techniques of communication system.
3. In-house training was organized on data structure and object oriented technology**.**

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.			
PO4	**2**	**1.12**	**Observations** **Target not attained** 1. Lacking in applying research-based approachand research-based knowledge. 2. Student were facing problem for solving the complex problem. 3. Lack of innovative ideas and real time engineering problems in projects.

Actions

1. Various Training programs, Workshops, industrial visits were organized for improving understanding concept of software industry.

2. More problems were given for practice and extra classes were conducted.

3. NPTEL video presentation was given.

4. More industrial based and real time-based projects were included.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO5	**2.2**	**2.76**	**Observations** **Target attained** 1. Need improvement in use of modern tools in Computer programming, Java, python, digital electronics and new technology.

Actions

1. Various Training programs, Workshops and Industrial visits were organized for understanding uses of modern tool in Python, Java.

2. Virtual labs were adopted in Data Structure, Software Engineering, Java to enhance uses of modern tool uses.

PO6: 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.

PO6	**2.0**	**1.04**	**Observation** **Target notattained** 1. Requirement of subjects related to solution of social issues.

ACTION:

1. Students were motivated to take a part in various social events such as, Clean India

Campaign and Blood donation camp.

2. Programs were conducted on a frequent basis to create social awareness.

3. Students are encouraged to read newspapers daily to know about societal, health, safety, legal and cultural issues and share the information among other students in morning assembly.

PO7: 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.

PO7	**2.0**	**0.88**	**Observation** **Target not attained** 1. The issues of global and environmental awareness among the student should be improved. 2. Knowledge of environment and global awareness needs to be improved.

Action
1. Students were encouraged to involve in projects related global and environmental issues.
2. Students were motivated to take a part in various social events such as, Clean India Campaign and Blood donation camp.
3. Industrial visits and training were organized for development of sustainable solution in field of Computer Science.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO8	**2.1**	**1.12**	**Observation** **Target not attained** 1. The students are doing better in improving overall expertise in field of engineering but due to lack of communication ability and professional ethics some of them are lagging in real life situations.

Action
1. Expert lectures were arranged from industry.
2. Motivational lectures on Self Realization by class coordinators were given to the students.
3. Students were motivated to take a part in various social and technical events

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO9	**1.8**	**1.50**	Observations : **Target not attained**. 1. It has been observed sometimes some students did not perform given task individual as required.

Action:
1. Emphasis was given for making students more and more work in groups such as Projects etc.
2. Students were motivated to organize various social and technical events such as, Departmental Technical fest, Clean India Campaign, and Blood donation camp.
3. Organized industrial visit.

PO10: 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.

PO10	**1.8**	**1.34**	Observations: **Target notattained.** 1. Presentation and communication skills need to be improved.

ACTION:
1. Training was conducted to enhance various aspects of communication/technical talks by group discussions, presentations and new learning outcomes**.**
2. 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.
3. More sessions of Mock tests were conducted.
4. Newspaper distributed and students were motivated for reading to enhance communication.

PO11: 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

PO11	**1.8**	**1.18**	Observations : **Target not attained** 1. Study of projects according to financial analysis was required.

ACTION:

1. The awareness created among the student regarding the management principles, managing projects and financial issues.
2. Leadership qualities will be inculcated to students by allowing them to participate in Project expo and other events in technical symposiums.
3. Expert lectures were arranged from industry.

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.			
PO12	1.8	2.36	Observations: **Target attained** 1. Needed resources to enhance lifelong learning

ACTION:
1. Library hours are properly utilized by monitoring the students to ensure the effective use of journals, Magazines, Reference Books and internet facilities to browse and update the latest technological developments and current happenings in the industries and society
2. Value added courses are conducted to equip themselves to enhance their curriculum
3. Content beyond syllabus is incorporated to generate self-learning facilities.
4. Industrial visits, seminar and workshop were conducted.
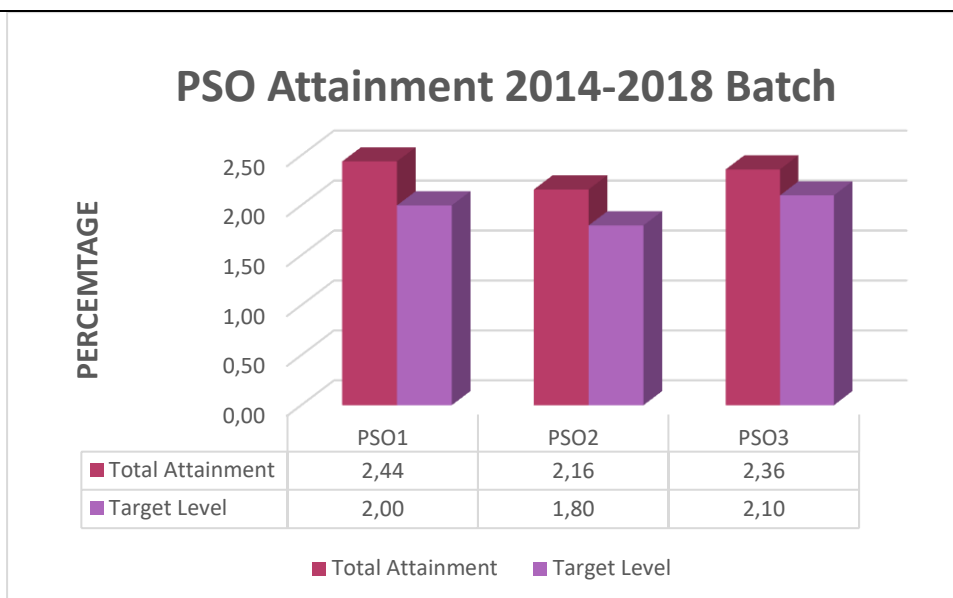
PSO Attainment 2014-2018 Batch

	PSO1	PSO2	PSO3
Total Attainment	2,44	2,16	2,36
Target Level	2,00	1,80	2,10

PSO 1:Provide solution, design and development of web based software application using open source technology**.**

PSO1	2	2.44	Observations: **Target attained** 1. Need improvement in Programming Skill of design and development using open source technology.

ACTION:
1. Students were motivated to take up the industrial oriented problems in project work so that they can design, analyze and find solution which gives exposure to latest technologies.

2. More problems were given for practice and extra classes were conducted.			

PSO 2: Problem-Solving Skills: Solve the problem of society in relevance to security issues by applying the concept of network and cyber security.

			Observations:
PSO2	**1.8**	**2.16**	**Target** attained 1. Improvement requires in solve and adopt rapid changes in tools and technology with appropriate consideration of social issues.

ACTION

1. Various training programs, workshops and industrial visits were organized in recent technologies.
2. Emphasis on industry-oriented problems
3. Industrial visits, workshop and training were organized.

PSO3: Provide solution of hardware and software related problems to maintain the operations of a computer system.

			Observations:
PSO3	**2.1**	**2.36**	**Target not attained.** 1. Lacking in applying hardware and software related problem to maintain computer system. 2. Lacking in analysis and interpretation of data.

ACTION:
1. Corporate lectures and seminars were arranged to meet required expertise in field of engineering.
2. Various Training programs, Workshops and Industrial visits were organized.
3. Project Based Learning is introduced in all semester to familiarize students with design concepts.

Summary PO Attainment 2018-2019 (2014-2018 Batch)

Average Target Level	Average Achieved PO Attainment Level
65%	**63%**

Summary PSO Attainment 2018-2019 (2014-2018 Batch)

Average Target Level	Average Achieved PSO Attainment Level
65%	**77%**

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.

```
            IQAC

  Composition of Internal Academic Audit team

            2-3 senior teachers

  Self-Assessment Report prepared by the Department
            and verification by auditor

  The internal audit team submit observation and
            recommendation to IQAC

  The IQAC will review the audit report and forward the recommendations to concerned
  authority for compliance with direction to submit the compliance report
```

Figure 7.1 Academic audit flow chart

B. Academic Audit committee:

In the department of Computer Science & 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, practical.
4. Student feedback
5. Action taken against feedback
6. PO, PSO and CO mapping; and attainments
7. Gaps 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.
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 classes/Revision classes , mentoring and counselling, programmes and activities
- Research (including Major and Minor 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 Barat, 'Interdepartmental competition', 'Interdepartmental cooperation', etc.
- Minutes of the department meetings, Staff and students welfare activities
- Industry interactions activity
- Alumni Association programmes, activities and interaction and the Resource mobilization through the Alumni.
- 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

Write this part for your department on the basis of action plans

Following are the findings during Academic Audit Process by IQAC team in CAY (2020-21):

AUDIT: 01

- Require to add more online practices in teaching learning process.

- Remedial classes are scheduled in reference to academic progress of the student.

- Awareness programme for impact of COVID-19 should be organized.

- How to write an effective technical paper webinar should be organized

- Start-up and Entrepreneurial activities should be improved

- Intellectual Property Right awareness activity should be organized.

- Job Oriented training and webinar should be improve

- Activity related to Automotive Industry should be organized.

- The uses of Virtual labs classes should be enhance.

- More emphasis is needed on the seminars, expert lecture and industrial visits.

Table 7.2.1 Action Taken and Improvement

Description of Activity
• Included in the departmental activity calendar.
• Virtual labs were conducted.
• Remedial classes were conducted.
• Organized expert lecture and workshop.
• Started model base study.
• Organized seminar, expert lecture and industrial visits.
• Innovative idea submitted by students.
• Students aware about real life problems.
• Different COVID-19 awareness programme organized.
• Seminar, guest lectures and workshop were organized
• Alumni webinars are organized
• Faculty members attended Seminars/ Workshops/ FDPs conducted by various institutions.
• Social events were organized.
• Speaking and writing communication classes were conducted
• Co-Curricular activity and department events were organized.
• Course Beyond syllabus lectures were conducted

Following are the findings during Academic Audit Process by IQAC team in CAY (2019-20):

AUDIT: 01

- The university syllabus does not include Practical training of Machine learning so practical approach must be conducted.
- More technical activities are required to add in departmental co-curricular/ activity calendar.
- Suggestion is given to include content beyond the syllabus in few theoretical subjects (Computer Programming like Java and Python, Data Science & R Programming).
- For the understanding of subjects, project-based learning is needed.
- The quality of the question paper should be improved.
- Require to give more emphasis on skills development programs.
- More industrial visits and Expert lectures recommended
- Measures to be taken to improve communication

AUDIT: 02

- Suggestion given to include interactive teaching modes such as PPT and video lectures for the delivery of lectures
- More emphasis is needed on the training, workshop and industrial visits.
- Faculty development program is needed to improve faculty member's skills.
- More encouragement is required to motivate students towards the project base learning.
- Required to give more assignments on mathematical and numerical based
- Suggestion is given to include virtual labs in some courses.

Table 7.2.1 Action Taken and Improvement

Description of Activity
• In Departmental Activity calendar some activities were added.
• Virtual labs were included in minor project, DBMS, Linux and other subjects.
• Interactive lecture methods such as Video lectures, Power point presentations were included
• Industrial visits were organized.
• Remedial classes were conducted.
• Class Tests are taken after every unit completion
• Assignment based on COs is given to the students after completion of each unit
• The various technical events were conducted.
• MoU with some industries for mutual exchange of expertise, to provide more exposure to the student regarding Industrial practices were taken up
• Seminar, guest lectures and workshop were organized
• Alumni meets/ get together are organized

•	Faculty members attended Seminars/ Workshops/ FDPs conducted by various institutions.
•	Social events were organized.
•	Speaking and writing communication classes were conducted
•	Co-Curricular activity and department events were organized.
•	Course Beyond syllabus lectures were conducted

7.3 Improvement in Placement, Higher Studies and Entrepreneurship (10)

Item	CAY$m1$	CAY$m2$	CAY$m2$
	(2015-2016)	(2014-2015)	(2013-2014)
Total No. of Final Year Students (N)	188	150	94
No. of students placed in companies or Government Sector (x)	153	122	79
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	2	4	2
No. of students turned entrepreneur in engineering/technology (z)	-	-	-
x + y + z =	155	61	62
Placement Index : (x + y + z)/N	0.82	0.816	0.792
Average placement= (P1 + P2 + P3)/3	0.81		

Placement details of three assessment year

Placement Summary:

S.NO	Academic Year	No of Selection	Average Package
1	2020-2021	188	3.46
2	2019-2020	150	3.3
3	2018-2019	94	2.94
4	2017-2018	71	3.12

Average Package

	2020-2021	2019-2020	2018-2019	2017-2018
■ Average Package	3,46	3,3	2,94	3,12

■ Average Package
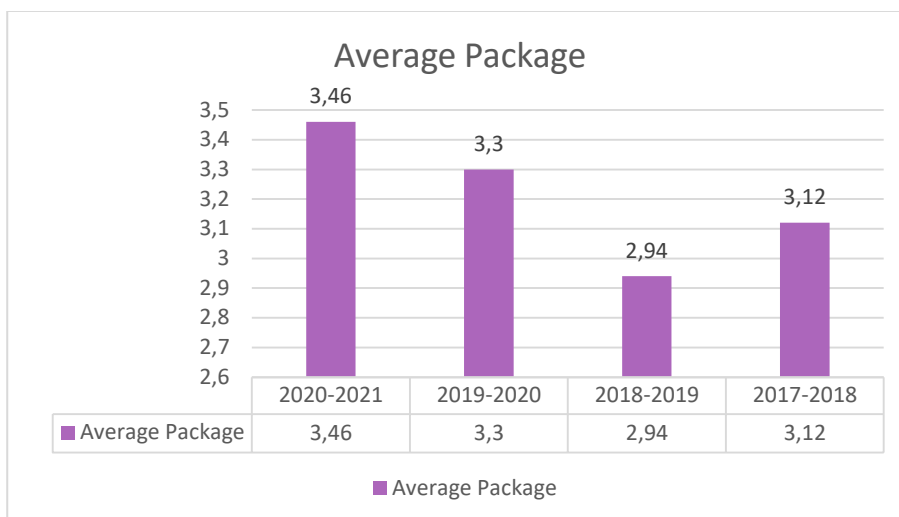
Placement details in the academic year 2020-2021 (Company Wise)

S.No	Company	No of Selection	Package
1	Adonai	2	2.75
2	Artech	7	2.3
3	Capgemini	8	3.8
4	Ceasefire	10	4.5
5	CTS	2	4.55
6	DXC technology	7	4
7	HCL	1	3.5
8	Hexaware	7	3
9	Infosys	1	3
10	Innoeye Technologies	20	3
11	IT Solutions	12	2.75
12	Jade Global	6	3.6
13	Kreativen Technologies	2	2.4
14	Mphasis	5	3.25
15	Netlink	1	2.7
16	Pyramid IT	11	3
17	Rave Technology	1	3.8
18	Repro India	11	2.5
19	TCS	6	3.36
20	Tech Mahindra	1	3.25
21	Tek Systems	2	6
22	T-Systems	4	3.5
23	Virtusa	1	4
24	Wipro	4	3.5

25	XL Dynamics	6	3.5
26	Xoriant Solutions	1	4.5
27	Yash Technologies	1	4
28	Zensar Technologies	13	3
29	Higher Studies	2	

Placement details in the academic year 2019-2020 (Company Wise)

S.No	Company	No of Selection	Package
1	Accelevis Venture	2	2.4
2	Accenture	2	3.75
3	Adonai	3	2.75
4	Artech	7	2.3
5	Bhilwara Infotechnology Ltd	5	1.8
6	CALSOFT	1	4
7	Capgemini	8	3.8
8	Ceasefire	10	4
9	Hexaware	8	3
10	Innoeye Technologies	17	3
11	IT Solutions	5	2.4
12	L&T Infotech	1	3.5
13	Mind tree	2	3.5
14	Netlink	6	2.7
15	Persistent Systems	2	4.41
16	Pyramid IT	11	3
17	Repro India	7	2.5
18	SAP Labs	1	5
19	TCS	4	3.36
20	Topper Technologies	1	6
21	UEI Pvt. Ltd.	1	3.15
22	Wipro	2	3.5
23	XL Dynamics	7	3.5
24	Zensar Technologies	9	3

Placement details in the academic year 2018-2019 (Company Wise)

S.No	Company	No of Selection	Package
1	Accelevis Venture	3	2.4
2	Accenture	1	3.5
3	Adonai	3	2.75
4	Artech	2	2.3
5	Authbridge	3	2
6	Ceasefire	10	4
7	CMS	1	3

8	DXCTechnology	1	3.6
9	Genpact	1	1.8
10	Global Space	1	1.8
11	HCL	1	2.6
12	HDB financial service	1	2.75
13	IBM	1	3.6
14	Infosys	2	2.25
15	InnoEye Technologies	9	3
16	IT Solutions	5	2.4
17	Mphasis	1	2.5
18	Nintec	1	2.4
19	Niyo solution	1	4
20	Syntel	3	3.1
21	Symentic Technology	1	2.3
22	TCS	3	3.36
23	Teleperformance DIBS	1	3
24	Topper Technology	8	6
25	UNISYS	1	3.75
26	YASH Technology	1	2.4
27	Zensar Technology	13	3

Placement details in the academic year 2017-2018 (Company Wise)

S.No	Company	No of Selection	Package
1	Accenture	1	3.4
2	AGS	1	1.4
3	Amazon India	1	4.5
4	ASM Technology Ltd.	1	3.24
5	Authbridge	7	2
6	Capgemini	1	3.5
7	Ceasefire	8	3.04
8	eClerx	7	2.3
9	Epic Research	1	2.53
10	GS Labs	2	4.5
11	Hexaware Technologies	1	2
12	IBM	10	3.05
13	IT Solutions	6	2.4
14	Mind Teck	1	2.4
15	OpenText	2	4
16	Tata Steel	1	2.75
17	TCS	1	3.36
18	Topper Technology	2	6
19	Zensar Technology	17	3

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

Action taken:

- Faculty members incorporate changes suggested by the academic committee, in case of any gaps are found, to ensure quality deliverables.

- Remedial classes are scheduled in reference to academic progress of the student.

- Students are encouraged to enroll with AMCAT and Co-cube portal for taking up N number of online tests.

- Mock interviews will be conducted by the faculty members.

- Special classes were conducted for slow learners regarding placement training.

- Technical FDP, expert lectures, seminars were organized.

- Soft skills trainings (Aptitude training, Group discussions, etc) are conducted by institute.

- Career guidance programmes were conducted.

- Students were motivated to go for higher studies.

- Students were guided to prepare for competitive exams like GRE, GMAT and GATE.

- Industrial visits were arranged to enhanced entrepreneurship

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)	CAYm1 (2019-20)	CAYm2 (2018-19)
National Level Entrance Examination (JEE MAIN)	No. of Students admitted	21	74	56
	Opening Score/Rank	119616	87335	144755
	Closing Score/Rank	985847	1118799	968002
Lateral entry details (DIPLOMA PERCENTAGE)	No. of Students admitted	-	18	12
	Opening Score/Rank	-	1966	374
	Closing Score/Rank	-	4071	3565
Average CBSE/Any other Board Result of admitted Students (Physics, Chemistry & Mathematics)		159	106	124

****

CRITERION 8	First Year Academics	50

8.1. First Year Student-Faculty Ratio (FYSFR) (5)

Assessment = (5 × 20)/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 FY-SFR:

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

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

Year	X (No of Regular Faculty with PhD)	Y (No of Regular Faculty with PG Qualification)	RF (No of Faculty as per SFR of 20:1)	Assessment of faculty qualification (5X + 3Y)/RF
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

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	AEJPJ5862Q	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	-	-

9.	Dr. RASHMI SHRIVASTAVA	DHZPS7626R	PH.D.	CHEMISTRY	ASSISTANT PROFESSSOR	14/08/15	-	Y	Regular	-	-
10.	Ms. SAVITRI SINGH	CMNPS4192J	M.SC.	CHEMISTRY	ASSISTANT PROFESSSOR	07/01/12	-	Y	Regular	-	-
11.	DR. TAJINDER MAJITHIA	ATBPM1885H	PH.D.	CHEMISTRY	ASSISTANT PROFESSSOR	01/07/19	-	Y	Regular	-	30.4.21
12.	MR. PRAMOD KUMAR SAKET	EZKPS4252P	M.SC.	PHYSICS	ASSISTANT PROFESSSOR	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 ROFESSOR	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	-	-
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	-	-
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
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	-	-

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

Academic Performance	2019-2020(CAYm1)	2018-2019 (CAYm2)	2017-2018 (CAYm3)
Mean of CGPA or mean percentage of all successful students(X)	8.05	6.74	6.96
Total Number of successful students(Y)	175	174	185
Total Number of students appeared in the examination(Z)	177	186	191
API (x*(y/z))	**7.95**	**6.31**	**6.74**

Total Average API: 7

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.

- ✓ 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:8.1Evaluation Components (Grading System)*

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

Table: 8.2 Evaluation Components Practicals (Grading System)*

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

B. 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 examination. 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.

Table 8.3: Direct Assessment Methods

Direct Assessment Methods		
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) Presentationii) Viva-voce

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

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                    ┌─────────────────────────────────┐
          ┌────────▶│  Question papers are planned    │
          │         │       according to COs          │
          │         └─────────────────────────────────┘
          │                         │
          │                         ▼
          │         ┌─────────────────────────────────┐
          │         │    Mapping Questions with COs    │
          │         └─────────────────────────────────┘
          │                         │
          │                         ▼
          │     ┌─────────────────────────────────────────┐
          │     │ Weightage calculation of COs are decided │
          │     │      as per require class session,       │
          │     │     completion and complexity of COs     │
          │     └─────────────────────────────────────────┘
          │                         │
          │                         ▼
          │         ┌─────────────────────────────────┐
          │         │   Drafting of Question Paper(s)  │
          │         └─────────────────────────────────┘
          │                         │
          │                         ▼
          │         ┌─────────────────────────────────┐
          │         │  Examination Co-ordinator review │
          │         │        the question paper        │
          │         └─────────────────────────────────┘
          │                         │
          │                         ▼
          │    ┌──────┐          ◇ If Satisfactory ◇
          └────│  NO  │◀─────────
               └──────┘
                                    │
                                   YES
                                    │
                                    ▼
                          ┌──────────────────────────────┐
                          │ Setup Final Question Paper(s) │
                          └──────────────────────────────┘
```
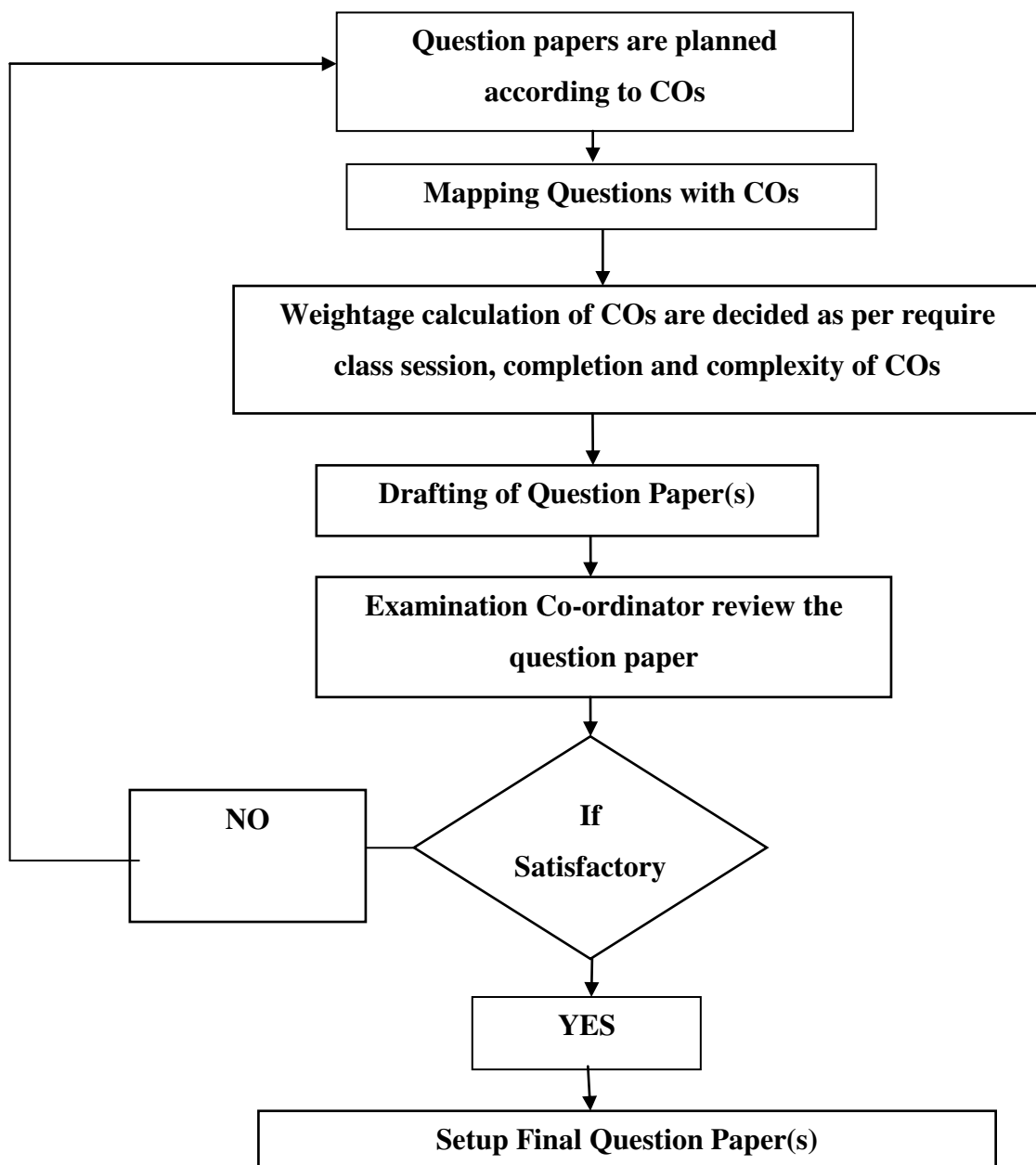
Figure 8.1 Evaluation Process

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.

Figure 8.3 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.

- 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 8.4: Internal & External Evaluation Rubrics (Theory Subject)

Rubrics		
External Evaluation	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	
Internal Evaluation	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	

Lab Performance Evaluation Rubric

Student Name: ------------------   **Enrolment 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	Student needed guidance to make	Student was unable to make correct	

			connections as per standard circuit diagrams.	correct equipment/component connections as per standard circuit diagrams.	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 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 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		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	Team Work	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.	
					Total Marks	

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**
Organization of presentation	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	
Background content	Material not clearly related to topic **or** background dominated seminar	Material sufficient for clear understanding **but** not clearly presented	Material sufficient for clear understanding **and** effectively presented	Material sufficient for clear understanding **and** exceptionally presented	

Methods	Methods too brief or insufficient for adequate understanding **or** too detailed	Sufficient for understanding **but** not clearly presented	Sufficient for understanding **and** effectively presented	Sufficient for understanding andexceptionally presented	
Results (Figures, graphs, tables, etc.)	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	
Contribution of work	Significance not mentioned or just hinted	Significance mentioned	Significance explained	Significance exceptionally well explained	
Knowledge of subject	Does not have grasp of information; answered only rudimentary questions	At ease with information; answered most questions	At ease; answered all questions **but** failed to elaborate	Demonstrated full knowledge; answered all questions with elaboration	
Presentation Skills					
Graphics (use of PowerPoint)	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	

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 been decided as per

- Average end semester marks
- Subject internal Assessment Average Marks
- Class session require for completion of course outcome
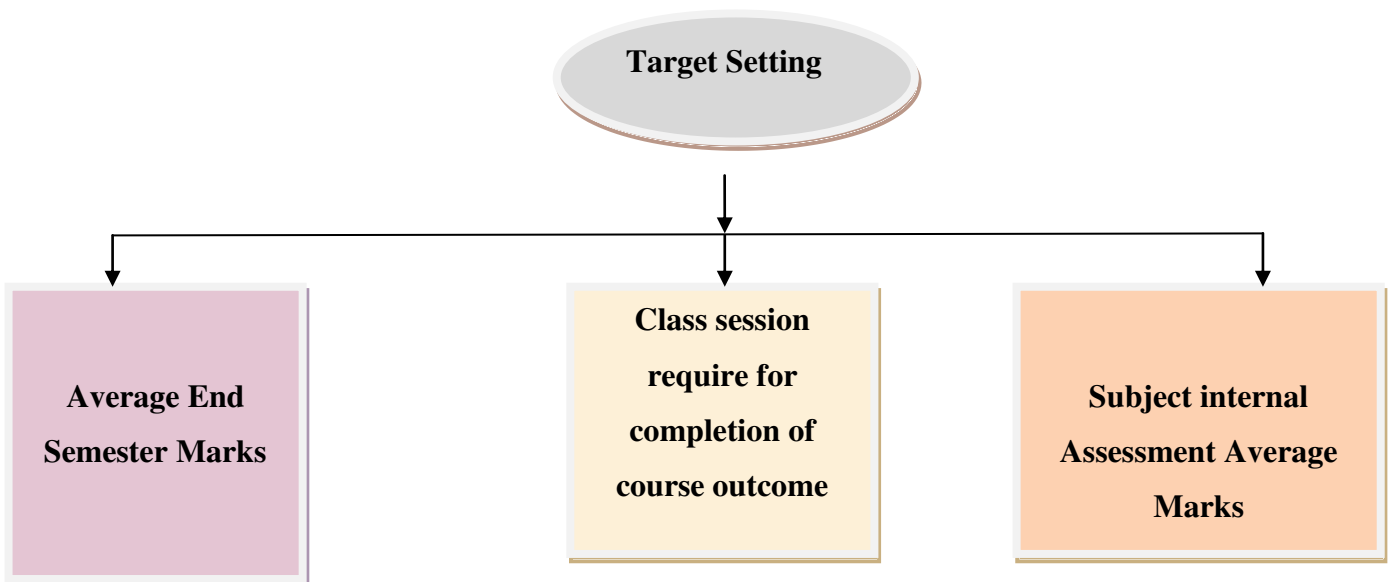
Fig. 3.2 Process of target setting

Table 8.5 CO Attainment

Semester	Subject	Course Outcome	Target	Achieved CO Attainment	Status
I	BT101	C101.1	1.7	1.7	0.0
		C101.2	1.9	1.8	-0.1
		C101.3	1.9	1.7	-0.2
		C101.4	1.8	1.7	0.0
		C101.5	1.8	1.6	-0.2
	BT102	C102.1	1.3	0.8	-0.5
		C102.2	1.2	0.6	-0.6
		C102.3	1.4	0.9	-0.5
		C102.4	1.2	0.8	-0.4
		C102.5	1.3	0.7	-0.6
	BT103	C103.1	1.9	1.9	0.1
		C103.2	1.8	1.8	0.1
		C103.3	1.7	2.0	0.3
		C103.4	1.8	1.9	0.1
		C103.5	1.8	1.7	-0.1
	BT104	C104.1	1.9	1.9	0.1
		C104.2	2.0	1.8	-0.2
		C104.3	1.9	2.0	0.0
		C104.4	1.8	1.9	0.1
		C104.5	1.9	1.8	0.0
	BT105	C105.1	1.8	1.9	0.2
		C105.2	1.7	1.8	0.2
		C105.3	1.8	2.0	0.2
		C105.4	1.8	1.9	0.2
		C105.5	1.8	1.7	-0.1
	BT106P	CL106.1	2.4	2.8	-0.4
		CL106.2	2.4	3.0	-0.6
		CL106.3	2.4	3.0	-0.6
		CL106.4	2.2	3.0	-0.8
		CL106.5	2.1	2.6	-0.5
	BT108P	CL108.1	2.0	2.6	-0.6
		CL108.2	2.3	3.0	-0.7
		CL108.3	2.4	3.0	-0.6
		CL108.4	2.3	3.0	-0.8
		CL108.5	2.3	3.0	-0.7
II	BT201	C201.1	1.7	2.4	0.6
		C201.2	1.9	2.8	1.0

		C201.3	1.9	3.0	1.0
		C201.4	1.8	3.0	1.2
		C201.5	1.8	3.0	1.1
	BT202	C202.1	1.3	2.3	1.0
		C202.2	1.2	2.6	1.4
		C202.3	1.4	2.7	1.4
		C202.4	1.2	2.7	1.5
		C202.5	1.3	3.0	1.7
	BT203	C203.1	1.9	2.6	0.7
		C203.2	1.8	2.9	1.2
		C203.3	1.7	3.0	1.3
		C203.4	1.8	3.0	1.2
		C203.5	1.8	3.0	1.2
	BT204	C204.1	1.9	2.2	0.3
		C204.2	2.0	2.7	0.7
		C204.3	1.9	3.0	1.1
		C204.4	1.8	3.0	1.2
		C204.5	1.9	3.0	1.1
	BT205	C205.1	1.8	2.5	0.7
		C205.2	1.7	2.8	1.2
		C205.3	1.8	3.0	1.2
		C205.4	1.8	3.0	1.2
		C205.5	1.8	3.0	1.1
	BT206P	CL206.1	2.4	1.8	-0.6
		CL206.2	2.4	2.2	-0.2
		CL206.3	2.4	3.0	0.7
		CL206.4	2.2	3.0	0.8
		CL206.5	2.1	3.0	0.9
		C201.1	1.7	2.4	0.7
		C201.2	1.7	2.8	1.1
		C201.3	1.7	3.0	1.3
		C201.4	1.7	3.0	1.3
		C201.5	1.7	3.0	1.3
		C202.1	1.3	2.3	1.0
		C202.2	1.3	2.6	1.3
		C202.3	1.3	2.7	1.4
		C202.4	1.3	2.7	1.4
		C202.5	1.3	3.0	1.7
		C203.1	1.9	2.6	0.7

		C203.2	1.9	2.9	1.0
		C203.3	1.9	3.0	1.1
		C203.4	1.9	3.0	1.1
		C203.5	1.9	3.0	1.1
		C204.1	2.0	2.2	0.2
		C204.2	2.0	2.7	0.7
		C204.3	2.0	3.0	1.0
		C204.4	2.0	3.0	1.0
		C204.5	2.0	3.0	1.0
		C205.1	2.0	2.5	0.5
		C205.2	2.0	2.8	0.8
		C205.3	2.0	3.0	1.0
		C205.4	2.0	3.0	1.0
		C205.5	2.0	3.0	1.0
		CL206.1	2.8	1.8	-1.0
		CL206.2	2.8	2.2	-0.6
		CL206.3	2.8	3.0	0.2
		CL206.4	2.8	3.0	0.2
		CL206.5	2.8	3.0	0.2
		First year attainment	**2.8**	**2.3**	0.4

Table 8.6 Average of CO Attainment

2019-2020 Computer Science and Engineering: CO Attainment				
Semester	**Target%**	**Target Level**	**Achieved %**	**Achieved Level**
I	50	1.9	66.67	2
II	50	1.8	93.33	2.8

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)

Academic Year 2019-2020

Computer Science and Engineering Attainment Summary

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
BT101	1.48	1.06	-	-	-	0.58	0.50	0.80	-	-	-	1.78
BT102	0.57	0.39	-	-	-	0.55	0.47	0.80	-	-	-	0.54
BT103	1.41	1.11	-	-	2.25	0.55	0.47	0.80	1.00	1.71	-	0.99
BT104	1.41	1.01	-	-	-	1.40	1.23	1.90	-	-	-	1.47
BT105	1.37	1.08	-	-	3.00	0.55	0.47	0.80	-	-	-	1.31
BT106	2.14	1.61	1.44	-	2.76	-	-	-	1.43	-	-	1.63
BT108	3.00	1.88	-	-	-	-	-	-	-	-	-	1.50
BT201	2.82	2.77	-	-	-	2.61	-	-	2.92	-	-	2.78
BT202	2.72	2.66	-	-	-	2.66	-	-	0.00	-	-	2.68
BT203	2.87	2.85	-	-	-	-	-	-	2.92	-	-	2.85
BT204	2.71	2.76	-	-	-	2.70	2.73	-	2.90	-	-	2.74
BT205	2.82	2.86	2.91	-	3.00	-	-	-	2.92	-	-	2.79
BT206	2.57	2.57	-	-	2.60	2.20	-	-	2.69	2.67	-	2.60

PO Attainment level												
Direct Attainment	2.14	1.89	2.18	-	2.72	1.53	0.98	1.02	2.10	2.19	-	1.97
Target	2.1	2	1.8	1.5	2.1	2	2.2	1.5	2.1	2.1	1.5	2.1

PO Attainment of CSE (2019-2020)
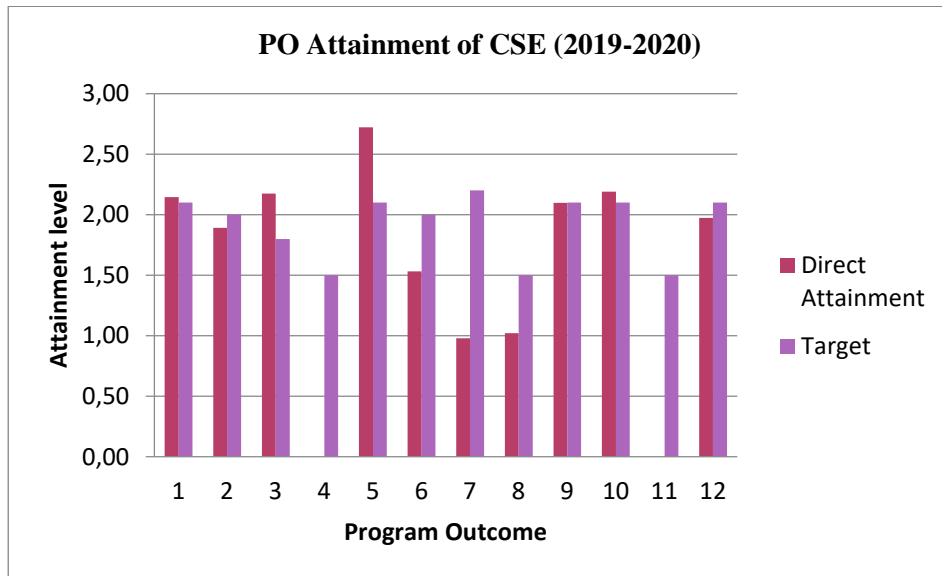
Table 8.7 PSO ATTAINMENT

CSE (2019-2020)

Subject Code	PSO1	PSO2	PSO3
BT101	-	-	1.60
BT102	0.50	-	0.00
BT103	0.70	-	0.80
BT104	0.50	-	1.50
BT105	0.70	-	1.90
BT106	-	-	2.90
BT108	-	-	2.96
BT201	-	-	2.79
BT202	-	-	2.66
BT203	-	-	2.92
BT204	-	-	2.78
BT205	2.82	-	2.75
BT206	2.53	-	2.47
Direct Attainment	1.29	-	2.15
Target	2.1	2	1.8

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
PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.1	2.14	**Observations** 1. Student's not acquainted with the Fundamental concepts in the mathematics /Problem- Oriented subjects. 2. BEEE, BME, engineering chemistry, Basic Computer engineering Subjects
Actions 1. Remedial/Revision classes were conducted through NPTEL classes. 2. Numerical problems in BEEE were solved and given for practice in tutorial classes. 3. More numerical based problems on nodal & Mesh analysis and theorems were solved in tutorials. 4. Numerical on, e.m.f. equation, EDTA method and LS-process were conducted in tutorial classes along with extra assignments.			
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.			
PO2	2.0	1.89	**Observations** 1. Need understanding of analytical skill in M-I, Electronics, Thevenin's theorem, spectroscopic techniques. In BME fluids module was difficult to understand. 2. Students were facing problem in applying the basic principles
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.

			Observations
PO3	1.8	2.18	1. Students find it difficult to solve engineering problems in BCE &EM. 2. Basic knowledge of design in EG is not well understood. 3. Needs improvement in Programming

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.

			Observations
PO4	1.5	-	1. Students find difficulty in solving the engineering problems. 2. Subject involving both analysis and design as in EG, BME needs more understanding of the concepts.

Actions

1. Practical approach of teaching of topics in casting, carpentry and welding had been adapted.

2. More practical problems and exercises were given for practice.

3. Motivated students to participate in activities organized by MPCST & inter-collegiate.

PO5: 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.

			Observations
PO5	2.1	2.72	Students are unfamiliar with the use of modern tools.

Actions

1**.** Training/workshop were conducted to enhance the usage of modern tool.
2. More English spoken & written classes were conducted for practice
3. Use of Projector was more beneficial for acquiring presentation skill as well as development of familiarity of ICT Tool.

PO6: 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.
PO6	2.0	1.53	**Observation** The students are not able to apply reasoning contextual knowledge to assess safety, legal and cultural issues in real life.

Actions

1. Awareness about environmental change was provided by video lecture.

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.

PO7: 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.

PO7	2.2	0.98	**Observation** Awareness of global and environmental issues was observed among the student that needs to be improved

Action

1. Students were encouraged to participate in programs on global and environmental issues (Tree Plantation Program).
2. Video Lecture on environmental awareness and pollution - cause, effect and control were conducted for better understanding of the subject.
3. Students were motivated to take a part in various social events such as, "Swaccha Bharat Abhiyan" of the subject.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO8	1.5	1.02	**Observation** 1. Need more Professional Ethics & Moral values. 2. Personality of students needs to be upgraded

Action

1**.** Alumni and Campus selected students of final year interaction sessions with fresher, induction programs, T&P classes, activity on human values.
2. Motivationaltalks,personalitydevelopmentsessionsandactivitieswerearrangedtoovercomeshortcomingsAmongstthestudents.
3."Thoughtoftheday"isimpartedinpracticetoimprovetheethics&moralvalues.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO9	2.1	2.10	**Observation** 1. Some students are not able to work as individual while some do not work in team.

			2. Self –centeredness amongst Students.
Actions			
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..			
PO10: Communication: Communicate effectively on complex engineering activities			
PO10	2.1	2.19	**Observation** 1. Fluency in communication is lacking. 2. The communication, presentation and report writing skills are to be further improved by the students.
Actions			
1. More writing exercise was provided for practice to improve presentation and report writing skills 2. Vocabulary building task were provided.			
PO11: 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.			
PO11	1.5	-	**Observation** 1. Lack of team spirit, leadership qualities 2. Lacking awareness in financial management. 3. Difficulty in deriving conclusions through observations
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.			
PO12	2.1	1.97	**Observation** 1. Awareness concerned to independent learning is lacking. 2. Awareness of current trends and development in engineering is lacking
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.			

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PSOs Attainment Levels and Actions for Improvement (2019-2020)

PSOs	Target Level	Attainment Level	Observations
PSO1: **Solve, design and develop web based software application using open source technology**			
PSO1	**2.1**	**1.29**	**Observations** Need improvement Programming Skills
Actions : **1.** More hands-on practice sessions were conducted			
PSO2: **Solve the problems in relevance to security issues by applying the concept of network and cyber security.**			
PO2	**2**	**-**	**Observations** Improvement required in solving and adopting rapid changes in tools and technology with appropriate consideration of social issues.
Actions : 1. Various training programs, workshops and industrial visits were organized in recent technologies.			
PSO3: **Provide solutions of hardware and software related problems to maintain the operations of a computer system**			
PO3	**1.8**	**2.15**	**Observations** 1.Lacking in applying hardware and software related problem to maintain computer system 2. Lacking in analysis and interpretation of data.
Actions : **1.** Project Based Learning is introduced in all semester to familiarize students with design concepts			

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CRITERION 9	Student Support Systems	50

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 departmenthas 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 lifeto 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 systemto 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 challengestime to time. The parents are also informed about the progress report likeresult, 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,

SELF ASSESSMENT REPORT

competitions etc and this helps to improve academic performance also. Mentors meet with the mentees in the weekly meeting and prepare report.

The report is as shown below in Fig 9.1:

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

IES COLLEGE OF TECHNOLOGY BHOPAL

DEPARTMENT OF _____

Academic Year :		Semester :	

IMPROVEMENT STATUS OF MENTEES

Class:		Batch:	Name of Mentor:	
Roll No.	Name of the Student	Active Participation in Mentor Program (Yes/No)	Areas of Improvements Seen in Student	Remark

Fig.9.1 Mentor Formats

Mentor's Role and Responsibilities:

1. Mentors serve as positive role model, encourage and motivate students to achieve theirtarget/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 isupdated on regular basis.
6. Mentors submit a report to HOD and after approval by the Principal seek/ remedial actionstakenforimprovement
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..

Assistance for weak/slow learner students:
- Mentors follow their progress and counsel them from time to time 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 specialassembly 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 communicationskills.

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 Accenture Innovation Challenge, TCS Codevita, KPIT-Sparkle 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.

Table 9.1: List of Mentors including number of students.

S.No	Name of the mentor	No. of student	S.No	Name of the mentor	No. of student
	II year (2020-2021)			III year (2020-2021)	
1	Mr. Anubhav Sharma	30	1	Mrs. Aishwarya Mishra	30
2	Mr. Hemant Sharma	30	2	Ms. Mona Shukla	30
3	Ms. KamiyaPithode	30	3	Mr. Rahul Yogi	30
4	Mr. Mayank Nagar	30	4	Mr. Rakesh Verma	30
5	Mr. Sudeep Kr. Gupta	30	5	Mrs. Nirmala Reddy	30

6	Mr. Pradeep Pandey	30	6	Mr. Anshul Sarawagi	30
	IV year (2020-2021)				
1	Ms. Dipti Upadhyay	30			
2	Mr. RaghavendraTomer	30			
3	Ms. Sandhya Vishwakarma	30			
4	Mr. AkshayVarkale	30			
5	Mr. Shailendra Tiwari	30			
6	Mr. Vikalp Sharma	30			

S.No	Name of the mentor	No. of student	S.No	Name of the mentor	No. of student
	II year (2019-2020)			**III year (2019-2020)**	
1	Mrs. Aishwarya Mishra	30	1	Ms. Dipti Upadhyay	30
2	Ms. Mona Shukla	30	2	Mr. RaghavendraTomer	30
3	Mr. Rahul Yogi	30	3	Ms. Sandhya Vishwakarma	30
4	Mr. Rakesh Verma	30	4	Mr. AkshayVarkale	30
5	Mrs. Nirmala Reddy	30	5	Mr. Shailendra Tiwari	30
6	Mrs. Shraddha Pandit	30	6	Mrs. Priya Chandani	30
	IV year (2019-20)				
1	Ms. Khushbu Kriplani	30			
2	Mr. Anubhav Sharma	30			
3	Mr. Anshul Sarawagi	30			
4	Mr. Vijay Kr. Rai	30			
5	Ms. Akanksha Agrawal	30			
6	Mr. Vijay Dhote	30			

S.No	Name of the mentor	No. of student	S.No	Name of the mentor	No. of student
	II year (2018-2019)			**III year (2018-2019)**	
1	Ms. Dipti Dave	30	1	Ms. Khushbu Kriplani	30
2	Mr. RaghavendraTomer	30	2	Mr. Anubhav Sharma	30
3	Ms. Sandhya Vishwakarma	30	3	Mr. Anshul Sarawagi	30

4	Mr. AkshayVarkale	30	4	Mr. Vijay Kr. Rai	30
5	Mr. Shailendra Tiwari	30	5	Ms. Akanksha Agrawal	30
6	Mrs. Priya Chandani	30	6	Mr. Vijay Dhote	30
	IV year (2018-19)				
1	Mrs. Aishwarya Mishra	30			
2	Ms. Mona Shukla	30			
3	Mrs. Nirmala Reddy	30			
4	Mr. Rakesh Kr. Verma	30			
5	Mr. Rahul Yogi	30			
6	Mrs. Shraddha Pandit	30			

Impact of Mentor Teaching-Learning system

1. Reducedabsenteeism.
2. Improvement in overall performance.
3. Improvement in personality.
4. Increased participation in co-curricularactivities.
5. Improvement inbehaviour 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.
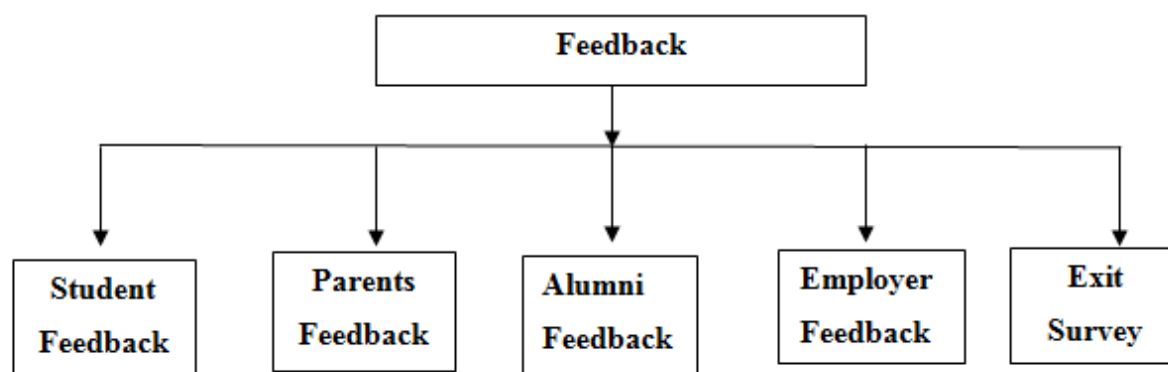
Fig.9.2 Feedback system

Feedback system is well-established in the learning system with a reason to:

- Enhance the studentslearning 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 collectedoffline 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 departments. Feedback from Alumni and employers are collected by TNP cell. Exit surveys are collected by the departments from final year students. These feedbacks are evaluated and assessed for corrective actions on the basis of certain parameters

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 classby 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 isgiven 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

```
┌─────────────────────────────────────────────────┐
│          Feedback forms filled by                 │
│  students/parents/alumni/employers/passing  out  │◄─┐
│  students online/offline are collected            │  │
└─────────────────────────────────────────────────┘  │
                      │                                │
                      ▼                                │
            ┌──────────────────┐                       │
            │  Summary/report   │                       │
            │   is prepared     │                       │
            └──────────────────┘                       │
                      │                                │
                      ▼                                │
            ┌──────────────────┐                       │
            │ Report submitted to │                     │
            │   authorities for  │                      │
            │  corrective action │                      │
            └──────────────────┘                       │
                      │                                │
                      ▼                                │
            ┌──────────────────┐                       │
            │ Rewards/ corrective │─────────────────────┘
            │     actions       │
            └──────────────────┘
```
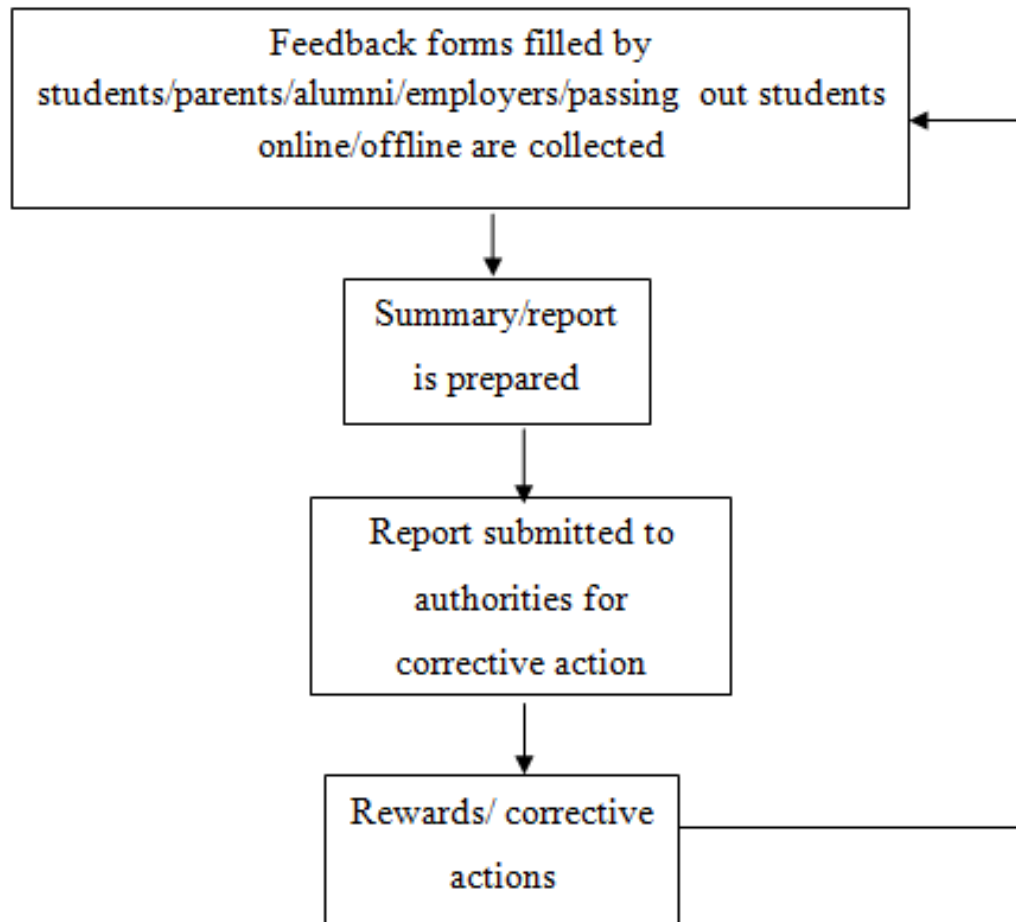
Figure 9.3 Feedback process

SELF ASSESSMENT REPORT

Sample of student feedback form:

IES COLLEGE OF TECHNOLOGY, BHOPAL

DEPARTMENT OF --

Student Feedback Form

Name of Faculty --

Class/Semester-------------------------- Session: ---------------------------

S No	Question					
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?**	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

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 inthe 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?
- 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,

Q7. 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):

…………………………………………………………………………………………….

Signature of the Student

SELF ASSESSMENT REPORT

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.N.	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				
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

SELF ASSESSMENT REPORT

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

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 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:

How satisfied are you with the employee working in your organization / Industry, graduated from IES College of Technology	1	2	3	4	5
1. Technical knowledge/skill					
2. Developing practical solutions to work place problems					
3. Creative in response to workplace challenges					
4. Innovativeness, creativity					
5. Ability to contribute to the goal of the organization					

6.	Involvement in social activities					
7.	Ability to contribute in sustainable solutions					
8.	Ability to manage professional skills					
9.	Working as part of a team					
10.	General communication skills					
11.	Their planning and organization skills					
12.	Self-motivated and taking on appropriate level of responsibility					

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

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 ☐	No ☐
Would you refer us to other organization(s)?	Yes ☐	No ☐

Q.13.Opinion about Institute's Vision & Mission:

……………………………………………………………………………….
……………………………………………………………………………….
……………………………………………………………………………….

Q.14 Suggestions (if any):

....
....

Signature of the Employer   Date

SELF ASSESSMENT REPORT

Feedback in the form of Exit Survey:

Feedback from the passing out students is filled in the final semester by mentor in the form of

Exit Survey. The report is submitted to the Head of the Department for necessary action.

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 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 mentor 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
- 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 monitory 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.

- Thefeedback is considered part of Annual Performance Appraisal of the faculty member.

- Faculty members will be rewarded by motivating them in weekly meetingsor 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 aluminise.

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	• Facility of Medical room, Nurse Facility, doctor visits as per need. • Availability of Ambulance in the campus and Tie-up with hospital (Sharda Hospital, Kotra, Bhopal)
6.	Organizing additional classes for professional improvement of students	• The additional classes are regularly conducted by Training & Placement Cell for the campus Placement. • Study material providing towards students, whenever is required.
7.	Support for "slow learners"	• Remedial classes for slow learners. • Mentoring facility is providing.
8.	Support for "Bright learners"	• To organised expert lectures. • To provide study material. • To organised trainings, seminars and industrial visits.
9.	Skill development (spoken English, computer literacy, etc.,)	• Spoken English classes offered to the students for improvement in the communication skill. • For improvement of technical skill, offering the various online courses such as NPTEL, SWAYAM, IITBombay remote centre and value-added courses such as Machine Learning, Python, Artificial Intelligence,MATLAB, R-Language etc.
10.	Exposure of students to other institution for higher learning and internship	• Industrial training provided to the sixth semester students. • Interaction with the corporate world by interaction with guest lecturers from reputed institutions and industries. • Different training programs organised in the various reputed institutions.
11.	Anti-Ragging Committee	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:

		• 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.
12.	Library Facility	Central and Departmental libraries provide 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 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. 1. In-House Pantry/Dining Halls. 2. Supervised with residential warden. 3. Recreational and Entertainment facilities. 4. Medical Aid. 5. Round the clock security
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	1. Institute providesAuditorium Hall of 400 seating capacity & an open-air theatre for the departmental activities. 2. The conference/Seminar Halls available for organising expert lectures &other programmes. 3. A well-furnished fully Air-conditioned meeting room with equipped available for conducting of mock test, GD, industrial instruction and other T&P activities for students.
19.	NPTEL Local Chapter and IIT Bombay remote centre (RC ID 1200)	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. 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.
20.	Women's Grievance Cell	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: 1. Create social awareness about gender discrimination. 2. Motivate and improve confidence level amongst women staff members 3. Organize workshops and seminars for women development. 4. To promote personality development, leadership quality and role of women in the society.
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 (CS)	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

Figure. 4 Central Library   Figure. 5 Solar Plant Inauguration on 05-04-2018

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	1. Entry in the register 2. Discussion with warden 3. Written application	Evaluation by students. 1-Unsatisfactory 2- satisfactory 3- Excellent	1. Entry/Exit Timing are fixed but on demand as per permission is provided. 2. Maintenance Entry in register and corrective action will take. 3. Medical facility is provided.
2	Lab Maintenance	1. Lab records 2. safety guidelines and instructions 3. sign the manual /rough record 4. Cleaning and repairing of equipment's	Evaluation by faculty and students. 1-Unsatisfactory 2- satisfactory 3- Excellent	1. It is checked before being put back to use. 2. Proper cleaning of equipment's has been done two times in a week.
3	Transportation	1. Written application 2. Meeting with Bus In charge. 3. Committee for monitoring	Evaluation by faculty and students. 1-Unsatisfactory 2- satisfactory 3- Excellent	1. Recorded with bus in charge and appropriate action is Taken. 2. Collect the report from committee and corrective

		discipline and ragging in buses		actions is taken.
4	Library	1. Time Management 2. Manage Entry register 3. Departmental feedback	Evaluation by departmental faculty and students. 1-Unsatisfactory 2- satisfactory 3- Excellent	1. Appropriate action taken by Library in-charge. 2. Schedule of library is incorporated with departmental time table.
5	Sports	1.Assigned co-ordinators 2. Requirements of kits 3. Sports incharge	Evaluation by students and management. 1-Unsatisfactory 2- satisfactory 3- Excellent	1. Sports incharge takes appropriation decision 2.Repairing and replacements of kits
6	Medical assistance	1. Maintain files 2. Appoint CAO 3. Tie-up with hospital	Evaluation by management. 1-Unsatisfactory 2- Satisfactory 3- Excellent	1. Medical OPD First aid Box 2. CAO is responsible
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)

10 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

- 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
2	Books, magazines, journals, newspaper clippings	Central and departmental Library
3	Online Courses	NPTEL/ SWAYAM etc./uploaded lectures material 1. Swayam- https://swayam.gov.in/ 2. NPTEL- List of Websites which offers online certification courses. https://onlinecourses.nptel.ac.in/
4	Lectures, instructional materials by faculties	Online through links on websites, Google classrooms
5	Activities though 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

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 Year (2020-2021)

S.No	Students Name	Course Name	SCORE	Relevance with POs and PSOs
01	Jahida Khanam	Programming Data Structure &Algorithm using Python	76 %	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
02	Shubham Kumar	Python For Data Science	46%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
03	Anas zubair	Introduction to blockchain tech. & application	85%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
04	Shashank Kumar	Programming in Java	89%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
05	Sanjit Kumar	Programming in Java	97%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
06	Rohit Sahu	Programming in Java	96%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
07	Shivam Kumar	Programming in Java	99%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
08	Satyam	Programming in Java	94%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
09	Deepak Kr Verma	Programming in Java	97%	PO1,PO2,PO3,PO5,PO12

				,PSO1,PSO3
10	Pratik kumar	Programming in Java	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
11	Sujeet kumar	software testing	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
12	Aditya Sourabh	cloud computing	96%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
13	Shubham singh	cloud computing	66%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
14	Bhaskar singh	programming, data structure & algorithm, using python	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
15	Bicky Kr Jha	Python For Data Science	100%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
16	Sujeet kumar	Google cloud computing foundation course	64%	PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3
17	Sujeet kumar	Introduction to ML		PO1,PO2,PO3,PO5,PO12 ,PSO1,PSO3

B. Institutional level facilities for improvement of learning skills of the students

1Newspaper Distribution: 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 ownlibrary. 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 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:

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.N	Date	Name of Activity	Event detail/speaker	No. of students	Mapping
1	03rd July 2020	Scenario of Education Sector in Post Covid Era - Challenges and Opportunities	Shri Krishna Agnihotri, Senior HR Manager, TCS, UK Shri Pranab Jyoti Chetia, Director, HR, Asia Pacific Region, Volvo Group Trucks Operations, Service Market Logistics.	86	PO1, PO2, PO6, PO7, PO12, all PSOs
2	8th July2020	Emerging Trends in Automotive Industry - Digital Age"	Ms. Preeti Sakhre, HR Professional, Pune	80	PO8,PO7, PO6, PSO1,PSO2,PSO3
3	8th Nov 2020	Organization Readiness to	Mr. Amol Gupta, People Leader	82	PO8, PO11,PO12,PSO1

		Reskills and Upskills Campus Talent	India and Philippines-FIS, Mr. Dolphy Goveas Global Head of HR Operations-Goodhop Asia Holdings Jakarta Indonesia, Mr. Vikas Singh Baghel DGM Talent Supply Chain,Centre of Excellence-HCL Tech, Mr. Raamann Ahuja SVP HR- CK Birla		,PSO2,PSO3
4	07th Nov 2020	PREPARATION FOR SERVICE SELECTION BOARD INTERVIEW AND TIPS	CAPT ARUN KUMAR SRIVASTVA EX-Group Captain- IAF Faculty of Psychology, Maharaja Ranjit Armed Force preparatory institute (Punab Govt undertaking), Mohali EX. Psychlogist DIPR, at various Air Force Selection, boards.	92	PO1, PO2, PO6, PO7, PO11, PO12, all PSOs
5	23rd Jan 2021	Effective ways of writing Research Articles Live National Webinar	Dr. Mukta Martolia Assistant Professor School of Media, Film & Entertainment Sharda University(UP)	80	PO8, PO10,PO12,PSO1 ,PSO2
6	23rd Jan 2021	Virtual Visit of FABLAB AIC RNTU Bhopal	Dr. Deepak Motwani DGM- Corporate relations &enterpreneurship , Vice president IIC RNTU, Shri Ronald Fernandez CEO AIC-RNTU Incubator	75	PO1,PO2, PO7,PO8,PO11,P O12

7	31st May 2020	Career Opportunities and Challenges in hiring post COVID ERA	Ms. Anuradha Singh (Head-HR & Admin NICHROME, Pune)	75	PO1, PO2, PO6, PO7, PO12, all PSOs
8	17th June 2020	Global Business and Career Opportunities for Students Arising Post COVID-19	Dr. Malay Nayak (Fellow Royal Society of Art UK & Executive Director, IT Buzz Ltd. London)	90	PO1, PO2, PO6, PO7, PO12, all PSOs
9	20th June 2020	Job Opportunities in Post COVID-19 Scenario and Challenges thereafter	Mr. Venka Reddy (Global HR Partner Infosys Ltd.), Mr. Praveen Kamath K., General manager & HR Head Global Delivery Enablement Wipro	85	PO1, PO2, PO6, PO7, PO12, all PSOs
10	11th Feb 2019	Monday Special Assembly	Youth Parliament	52	PO7, PO11
11	18th Feb 2019	Monday Special Assembly	Incredible India	46	PO12
12	25Feb 2019	Monday Special Assembly	Surgical Strike	43	PO6, PO11
13	12th March 2018	Special Assembly	About mobile addiction &Social media	45	PO7, PO12
14	04th May 2019	Motivational Program	Mr. Rajeev Agrawal	65	PO7, PO12
15	16th Feb 2019	Expert Lecture on Start-ups	Prof. Thillai Rajan, IIT Madras	78	PO7, PO12
16	21stApril to 22st April 2018	Bhopal Smart City Hackathon	Bhopal Smart City Development Corporation Limited	34	PO1, PO5, PO7

17	27th Feb 2018	BMA Student Chapter	Shree Pradeep Karambelkar, MD, Vision Advisory Services Pvt. Ltd, Bhopal, Sh. Arun Gurtoo Former, Director General of Pplice, MP State, Sh. Rajeev Agrawal, Industrialist and Motivational Speaker	40	PO6, PO7, PO12
18	10Jan 2018	Open Invitation Motivational	Mr. Tanmay Bakshi, E-cell, RGPV, Bhopal	35	PO1, PO6

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 guidance for various competitions. 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, and general knowledge.

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.N	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
1	8th July 2020	Emerging Trends in Automotive	Ms. Preeti Sakhre,	HR Professional, Pune	2020	1	PO1,PO2,PO5,PSO1

S.No	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
							Industry - Digital Age"
2	7th Nov 2020	Preparation For Service Selection Board Interview And Tips	CAPT ARUN KUMAR SRIVASTVA	EX-Group Captain-IAF Faculty of Psychology, Maharaja Ranjit Armed Force preparatory institute (Punab Govt undertaking), Mohali EX. Psychlogist DIPR, at various Air Force Selection, boards.	2020	1	PO10, PO12, ,PSO1,PSO2
3	8th Nov 2020	Organization Readiness to Reskills and Upskills Campus Talent	Mr. Amol Gupta, Mr. Dolphy Goveas, Mr. Vikas Singh Baghel, Raamann Ahuja	People Leader India and Philippines-FIS, Head of HR Operations-Goodhop Asia Holdings Jakarta Indonesia, DGM Talent Supply Chain,Centre of Excellence-HCL Tech, SVP HR-CK Birla	2020	1	PO10, PO12, ,PSO1,PSO2
4	17th June 2021	Coding Competition.	Mrs. Aishwarya Mishra	Dept. of Computer Science &Egg. IES College of Technology Bhopal.	2021	1 day	PO1, PO2, PO4,PO5, PO7,PO9, PO12, all PSOs
5	23rd Jun 2021	Debugging	Mr. Vijay Dhote	Dept. of Computer Science &Engg. IES College of Technology Bhopal	2021	1 day	PO1, PO2, PO4,PO5, PO7,PO9, PO12, all PSOs

Activity list of T&P Cell 2019-2020							
S.No	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
01	01st Oct 2019	Apache Pig and Hive	Dr. Akhtar Rasool	Assistant Professor, MANIT Bhopal	2019	1 Day	PO1, PO2, PO3, PO11

02	21St Dec 2018 to 03 Jan 2019	C Language training	Mr. Ajeet Pal	IndEyes Infotech Pvt Ltd.	2019	13 Days	PO2, PO4, PO7, PO12
03	22 July to 29th July 2019	AWS Training	Mr. Sourabh Kumar, Technical Consultant	WebTek Labs Pvt. Ltd.	2019	8 Days	PO1, PO2, P03, PO10, PO12
04	21Jan to 22 Jan 2020	Industry 4.0 future skills	Dr. Rajeev Kumar, Member secretary, AICTE India Mr. Manav Prasad Head HR, Recruitment & People Development Taviska Solution Pvt Ltd, Mr. Subodh Sahu Senior Manager HR, Parle	TEQIP-III RGPV	2020	2 Day	PO2, PO6, PO11, PO12
05	30th March 2019	TCS-Enginx: Digital Eminence: Making things smart	NA	TCS Company	2019	1 Day	PO2, PO3, PO10

IES Team CHANAKYA...is one of the Top Teams at "SMART INDIA HACKATHON'17" in Grand Finale and presenting the
Project to Hon'ble Prakash Javadekar MHRD Minister @ College of Engg., Pune on 1st April,2017

Motivational-cum-Awareness Talk
About University Entry Scheme by Caption J.K. Choudhary, Command Recruitment Officer,
Western Naval Command Mumbai @ IES Campus on 24th April 2018

S.No.	Date	Name of Activity	Resource Person	Designation	Company /Designation	duration	Mapping
		Activity list of T&P Cell 2018-2019					
1	28th April 2018	TCS-Enginx	NA	TCS Company	2018	1 Day	PO7, PO9
2	12th Jan 2018	Capgemini Tech-Challenge	NA	Capgemini	2018	1 Day	PO1, PO2, PO9
3	15th Dec 2018	Atos IT Challenge	NA	Atos company	2018	1 Day	PO1, PO2, PO11
4	26th March 2018	Google crowd-source campaign	NA	Google	2018	1 Day	PO2, PO7, PO11
5	27th Jan to 28th Jan 2018	E-Summit: Azenith of Innovation	NA	E-cell IIT Bombay	2018	2 Days	PO1, PO2, PO12
6	25 Feb to 27 Feb 2018	TRYST: Ethical Hacking	NA	IIT Delhi	2018	4 Days	PO1, PO2, PO12

						Mapping
S.No.	**Date**	**Name of Activity**	**Resource Person**	**Designation**	**Company/Designation**	
		Activity list of T&P Cell 2017-2018				
1	29Sep to 20 Oct 2017	Capgemini Tech-Challenge	NA	Capgemini	Capgemini	3 levels	PO1, PO7, PO9
2	27 Nov to 28 Nov 2017	Accenture Innovation Challenge	NA	Accenture	Accenture	2 Days	PO1, PO2, PO7
3	21 April 2018	Campus to Corporate Program	Mr. Ajit Singh, Ms. Bharti Urala, Mr. Nilesh Indulkar, Ms. Juhi Shah	HR Professionals	HR Enlight	1 Days	PO 3, PO5, PO7
4	1 Sep 16 Oct 2017	KPIT Sparkle	NA	NA	KPIT Technologies	1 Day	PO2, PO7, PO12
5	2017	TESTimony Contest	NA	TCS Company	TCS Company	1 Day	PO1, PO2, PO7

Table 9.9 Achievements:

National Level Competition						
COMPANY NAME	**CONTEST NAME**	**VENUE**	**PARTICIPANTS DETAILS**	**BRANCH/ BATCH**	**PROJECT NAME**	**RESULT**
AICTE	AICTE Chhatra Vishwakarma Award 2020	Online	Arshad Hussain Happy kumarsharma	CSE/2021	Suicide defender	2ND Round
AICTE & MHRD	Smart India Hackathon'17	Pune	Adarsh Jyotishi	CSE/2017	My_ Social_ Audit	Finale
			Pooja Chouhan			
			Mukul			
			Faiz			
			Sardar Suryakant			
			Rohit Pandey			
Accenture	Innovation Challenge 2K17	Bangalore	Atul kumar	CSE/2020	Child Labour	Finale
			Aditya Kumar			
			Azhar Ali			
			Dhiraj Kumar			
Living Talent FZ LLC	Masterpiece -2017	Dubai	Amit Singh	CSE/2018		Finale
			Akash Kumar			
Falling Walls Lab India	Falling Walls Lab India 2018	Kolkata	AMIT KUMAR	CSE/2018	Business Idea	Finale
MANIT Bhopal	Version Beta	Bhopal	Atul kumar	CSE/2020	SAVERA	Finale
			Azahar Ali			
			Avinash Kumar			
Hackathon	B-Nest	Bhopal	Atul kumar	CSE/2020		Finale
			Azhar Ali			
ISEC (Innovation Contest)	IIITDM	Jabalpur	Atul Verma	CSE/2021	Smart Driving	3rd Position
			Atul Anand			
			Anas Zubair			
			Vicky Kumar			

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 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. TheTraining 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. 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 (5)

- 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.

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	8/1/2021(1 Day)	Entrepreneurship Activity: fund Supports Available for Incubates	Shri Kishor Kumar Tolani Financial Literacy Counsellor, Bank of India, Bhopal	PO6,PO7,PO8,PO11,PO12
2	20/01/2021(1 Day)	Expert talk on: "Things should know by innovators about IP".	Mr. Parag M More, IPR Consultant and advisor	PO1,PO2,PO8,PO11,PO12
3	23/1/2021(1 Day)	Orientation session For Students and Faculty members by Innovation Ambassador	Shri Ankit Chourasia Workshop/Studio Assistant School of Planning & Architecture, Bhopal	PO6,PO7,PO8,PO11,PO12
4	23/1/2021(1 Day)	Virtual Visit of fablab AIC RNTU Bhopal	Dr. Deepak Motwani DGM-Corporate relations &enterpreneurship, Vice president IIC RNTU, **Shri Ronald Fernandez,CEO AIC-RNTU Incubator**	PO1,PO2, PO7,PO8,PO11,PO12
5	25th June(1 Day)	Startup and Entrepreneurial Opportunities Post COVID	Mr. Praveen Kamath K.	PO1,PO2,PO3,PO6, PO7, PO12,PSO1,PSO2,PSO3
6	3 Days (02-03 to 04-03-2020)	EAC Program on Innovative Business Model	NSTEDB(National)	PO1, PO6, PO12
7	3 Days (29-01 to 31-01-2020)	EAC Program	DST-NIMAT	PO6, PO7, PO12
8	1 Day (17-12-2019)	AIDS Awareness program	NA	PO1, PO11
9	2 Weeks (18-11 to 30-11-2019)	FDP on Entrepreneurship Program	NSTEDB	PO1, PO6, PO8, PO12
10	3 Days (11-03 to 13-03-2019)	Entrepreneurship Awareness Camp	NSTEDB, DST GOI	PO6, PO7, PO9, PO11
11	1 Day (16-02-2019)	Session on Entrepreneurship and start-ups By ThillaiRajan, IIT	Self	PO1, PO8, PO12

		Madras		
12	3 Days(27-09 to 29-09-2018)	EAC Program	NSTEDB	PO6, PO12
13	3 Days(13-03 to 15-03-2018)	EAC Program	NSTEDB	PO7, PO11
14	3 Days(26-01 to 28-01-2018)	E-summit IIT Bombay	e-Cell IIT Bombay	PO8, PO 12
15	3 Days(11-01 to 13-01-2018)	EAC Program	NSTEDB	PO1, PO6, PO8, PO12
16	1 Day (20-06-2017)	National convention on Entrepreneurship	Bhopal smart city corporation	PO1, PO5, PO7, PO9

Fig. 9.6 Entrepreneurship Awareness Camp@ IES College of Technology, Bhopal

B. Data on students benefitted

Table 9.11:

S.No.	Name of Student	Branch	Start up Project
01	Mr. Avin Pawar	CSE	Llates Company Pvt. Ltd.
02	Mr. NiketChadrawanshi	CSE	Innovative Business Solution
03	Mr. Adarsh Kumar	CSE	Maa Rewa Enterprises Pvt. Ltd.

9.7 Co-Curricular and Extra-Curricular Activities (10)

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 whichteaches 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. 9.7:Sports Facility@ IES College of Technology, Bhopal

Sports Facility:

To ensure Physical fitness of studentssports 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

Fig 9.8:Indoor sports @ IES College of Technology, Bhopal

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 9.12: 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	Indoor	Table tennis	
10		Badminton	
11		Chess	
12		Carom	
13		Judo	
14		Gymnasium	

Table 9.13: Detail of Sport Events by Students

S.No.	Name of Students	Tournament	Level Played	Result/Participation
1.	Kumar Satyam	Football	Nodal	Participated
2.	Sanjit Kumar Singh	Netball	Nodal	Participated
3.	VenuSahadeva	Table Tennis	Nodal	Participated

S.No.	Name of Students	Tournament	Level Played	Result/Participation
4.	Lucky Rathore	Netball	State	Participated
5.	Divya sahu	Netball	State	Participated
6.	Beena dubey	Netball	State	Participated
7.	Sumit Kumar Singh	Netball	State	Participated
8.	Ashish Swarnkar	Netball	State	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 9.9: Cultural Events @ IES College of Technology, Bhopal

Fig 9.10: Cultural Events Prize Distribution@ IES College of Technology, Bhopal

IES Mega Decade Celebration 2K17
Open Band Stage Program @ IES Campus on 21st April 2K17
Fig 9.10:Cultural Events @ IES College of Technology, Bhopal

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 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 include:

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 programms also organised.

Table 9.15: The various NCC activities include during assessment year

Detail of NCC activities (CS 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 militory 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	3
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	3

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)	3
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 Squadron	2
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	SwachhtaPakh wada	Under Swachhta Bharat Mission NCC Celebrated SwachhtaPakhwada 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.	1
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	4
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	0
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	AkshayVarkale (NCC Incharge) & PI Staff	1
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 BerkhediVzyaft	16-Sep-19	Akhilesh Dwivedi (NCC Caretaker), Prof. R C Maheshwari	6
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
13	SwachhtaPakh wada	Under Swachhta Bharat Mission NCC Celebrated SwachhtaPakhwada 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.	8

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 SukhiSevaniya 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)	2
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	6
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	3
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)	5
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 Rijiju (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	Akhilesh Dwivedi (Associate NCC Officer) & Senior Faculty Member of IES College of Technology	6

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.N	Date	Activity	Contribution	Mapping
1	06-02-2020	Blood Donation Camp by Gandhi Medical College Bhopal	5 students are participated from	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 9.11Blood **Donation Camp organized by Gandhi Medical College Bhopal @ IES College of Technology, Bhopal**

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 generateprogramme in the civil society through youth awareness all levels of the society.
09	Mehendi	Itis 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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CRITERION 10	Governance, Institutional Support and Financial Resources	120

INDEX

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.

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.
- 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

S. No.	Academic Year	No. of meetings conducted
1	2020-21	2
2	2019-20	3
3	2018-19	2
4	2017-18	3

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:

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 8th semester

Resolution: Dr G.K. Pandey, Principal presented the results of B.Tech. 8th 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

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-11

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

Administrative Set up
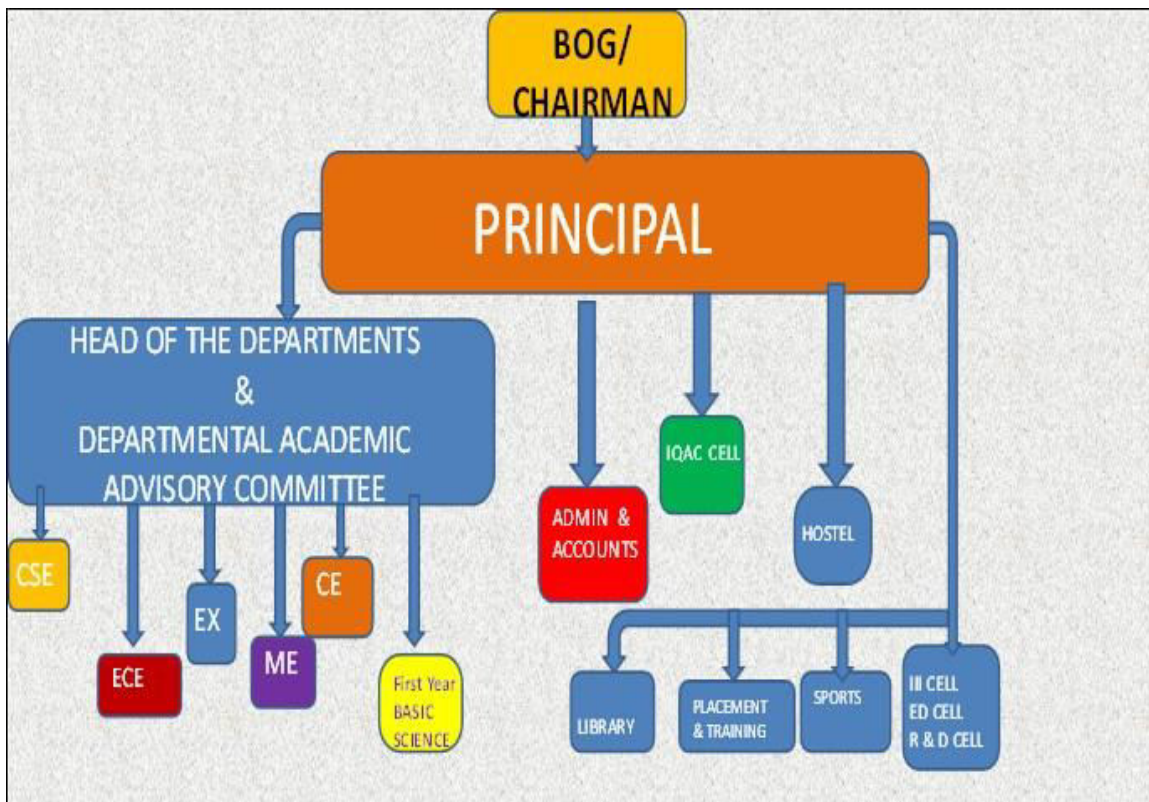
Roles and Responsibilities:

Position	Functions
Chairman, Governing Body	• Chairman is the Chief Mentor of the Institution, and heads the Governing Body (GB). • He is the final authority to approve all policy matters on expansions, collaborations, financial outlays, budgetary allocations and admin related decision. • He approves the recruitment of senior management staff.
Principal	The Principal is the head of the Institution and responsible for: • Planning of the establishment of various departments and the various administrative units of the college. • Coordination of various activities connected with admissions, teaching, conduct of examinations, collection of fees, publishing course files and manuals.

	- Identification and recruitment of suitable persons to man the various departments and administrative units. - Development of various laboratories, Computer centre and library of an educational Institution. - Maintaining cordial relationship with the university authorities, Directorate of technical education, AICTE and such other policy making bodies who matter. - Preparation of the minutes of meetings - Preparation of the budget for approval of management - Regularly apprising the management about the various activities. - Planning of functions like Annual Day, Fresher's Day - Steering organization of seminars, symposia, short-term training programme and Faculty Developments Programmes.

Head of Departments	The Head of departments is responsible for: • Administration of the department in respect of regularity, punctuality, distribution of teaching work and laboratory work among the staff. • 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. • Preparation of class-wise timetables. • Maintain laboratory-wise stock registers • Organizing special lectures by experts, technical staff, seminars & conferences and refresher courses. • Encourage the faculty and staff to improve their academic qualifications without effecting normal curriculum. • Encourage students to develop communication skills, report writing, debating and group discussions etc. • Maintaining cordial relations with local industries and also develop contacts in general with industry. • Extend all possible help to students of the department for training/project work/professional employment. • Efforts are to be put in to enhance the computing skills of the students of the department.
Account & Admin	• Recording and reporting the cash flows. • Accounts receivable &Accounts payable • Payroll & Financial controls
Industry Institute Interaction Cell	• To create a platform for industry institute interaction. • To establish inter-relationship between Institute

	&Industry through know-how and MOU's. • To facilitate student/faculty internships at industries. • To organize industrial visits for the students. • To organize technical talks for the students from the industry experts.
Entrepreneurship Development Cell	• 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 programmes. • To encourage & establish start-up companies.

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
3	Dr. Meera Bansal	Principal,	Member

		IES College of Education (Local Society Representative)	
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 Department of Basic Science, IES College of Technology Bhopal	Member
12	Mr. Niket Chandrawanshi	Entrepreneur, IBS Bhopal	Member

	(Senior Cloud Automation Engineer-FIS Global)		
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.

- 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

S. No.	Name	Designation	Role in Departmental Academic Advisory Committee
1	Dr. Nikhat Raza Khan	Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Chairman
2	Dr. Anil Kumar Yadav	Associate Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
3	Mr. Akshay Varkale	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
4	Ms. Khushbu Kriplani	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
5	Mr. Anubhav Sharma	Assistant Professor, Department of Computer Science &Engineering, IES College of Technology, Bhopal	Member
6	Dr. Atul Gupta	Professor & Head, Department of Computer Science	External Academic Advisor

		&Engineering, IIITDM, Jabalpur	

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

S.No.	Name	Designation	Designation in IIC Cell
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	President
2	Mr. Sonu Lal	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Vice-president
3	Mr. Anubhav Sharma	Assistant Professor,	Convener

		Department of Computer Science & Engineering, IES College of Technology, Bhopal	
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 Raghuwanshi	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, Department of Management, IES College of Technology, Bhopal	NIRF Coordinator
11.	Mr. Vijay Dhote	Assistant Professor, Department of Computer Science &	Member

		Engineering, IES College of Technology, Bhopal	
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

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

S.No.	Name	Designation	Designation in Research & Development Committee
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, IES College of Technology Bhopal	Member

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

S.No.	Name	Designation	Designation in Training & Placement Committee
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 Banoriya	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
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

S.No.	Name	Designation	Designation in Entrepreneurship Development Cell
1	Er. Kishor Purswani	Sr. Assistant Professor, Department of Mechanical Engineering, IES College of Technology Bhopal	Chairman
2	Mr. Anubhav Sharma	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Convener
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 Computer Science & Engineering, IES College of Technology, Bhopal	Member
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 presubscribed by AICTE for various cadres as for G.R. No. F-37-3/legal 2010 dt. 22/01/10.

S.N.	Cadres	Qualification & Experience	Remark
1	Principal	As per AICTE Norms in force from time to time.	Qualifications as presented in paragraph I and as applicable for the post of Principal. Post PhD publications and guiding PhD students is highly desirable. 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. 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 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.
2	Professor	do	Qualifications as prescribed in paragraph I and as applicable for the post of Professor. Post PhD publications and guiding PhD students is highly desirable. 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. 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.

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 behavior 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:

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.

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
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):

    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.

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.

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.

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:

S. No.	Name	Designation	Administrative powers delegated
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	• Academic operations. • Resource requirements. • Responsible for meeting Statutory and Regulatory requirements of the Government, AICTE and university(RGPV)
2	Dr. Nikhat Raza	Associate Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	• Assigning duties and monitor faculty performance. • Decide on departmental needs, propose yearly budget and arrange for compliance. • Planning academic activities and training programs. • Monitoring R&D and project activities of the department.
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	
7	Er. Kishor Purswani	Director, Training & Placement, IES College of Technology, Bhopal	• Organizing Training and Placement activities for students.
8	Dr. G.K. Pandey	Chairman – Industry Institute Interaction cell, IES College of Technology, Bhopal	• Explore and identify common avenues of interaction with industry as per the requirements
9	Dr. G. K. Pandey	Head –Entrepreneurship Development cell, IES College of Technology, Bhopal	• To nurture the student ideas and to develop innovative products.
10	Ms. Preeti Pandey	Student welfare officer, IES College of Technology, Bhopal	• To address student welfare issues.

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.

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	M r. 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.
- 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 coodinator, 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 Raghuwanshi	Student Representative	Internal Member
9	Mr. Dipesh Singh Parmar	Secretary, Shri Ram Janki Rudra Shiksha Samiti, Bilkishganj, District, Sehore	Outside member

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.

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.

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.
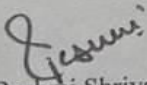
Agenda 5. Discussion on the proceedings of program on "Power of Women"
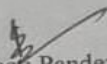
Resolution: Ms. Preeti Pandey informed that a two days' program on "Power of Women" was conducted on 4th & 5th March 2020 at IES Seminar Hall. The invitees for the programme were: Prof. Reeni Malik, Head Dept. of Pathology, Gandhi Medical College; Prof. S B Geeta Narhari, Acadmician and Psychologist; 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.
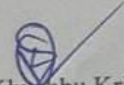
Agenda 6: Any other matter with the permission of the chair.
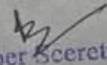
Resolution: Member Secretary Ms. Preeti Pandey further shared that discipline committee of the college had conducted surprise visits in the college bus, class rooms, and canteen time to time to keep vigil on any unwanted incident and ensure smooth functioning in campus.

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.
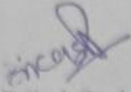
Dr. Rashmi Shrivastav
Presiding Officer

Ms. Preeti Pandey
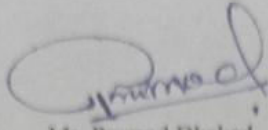Member Secretary

Ms. Khushbu Kriplani
Member

Member Sceretary
Internal Complaints Committee
(Prevention Sexual Harassment of Women at Workplace)
IES College of Technology, Bhopal

Mr. Brijesh Soni,

Member
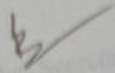
Mr. Pramod Dhakad

Member

Mr. Dipesh Singh Parmar

NGO External Member

Member Secretary

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.

Anti-Ragging Committee headed by Dr. G. K. Pandey shall meet Bi-annualy 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. Dhirendra 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
9	Mr. Rakesh Singh Gurjar	SHO Thana Ratibad, Bhopal	Member

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. Dhirendra 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

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/-

Infrastructure development & maintenance (Recurring):

S.N.	Levels	Authority
1	Secretary, Infotech Education	Full but not exceeding budget limit as approved by

	Society	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 departmental activities (like stationary, industrial visits expenditures, cultural	To Spend for different departmental activities (like stationary, industrial visits expenditures, cultural	To Spend for different departmental activities (like stationary, industrial visits expenditures, cultural

		events, models, projects, sports, lab manuals, charts etc.)	events, models, projects, sports, lab manuals, charts etc.)	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

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 Consumables	850000	762600	1000000	950525	850000	825000	800000	729050
Teaching and non	41000000	40430630	38000000	37261930	28500000	28438628	26500000	26098142

teaching staff salary							
Mainte nance and spares	425000	359961	400000	313010	650000	600391	1050000	1025055
R & D	1150000	1023275	1000000	930250	800000	770250	600000	570260
Trainin g & Travel	1000000	776945	2500000	2134619	3600000	3500191	3700000	3662105
Miscell aneous	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/

 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	35700000	35700000	Adequate
2	2019-20	36173000	36173000	Adequate
3	2018-19	40777000	40777000	Adequate
4	2017-18	37568000	37568000	Adequate

10.3.2 Utilization of allocated funds(20)

S.No.	Financial Year	Approved Budget	Actual Expenditure	Percentage Utilization
1	2020-21	35700000	36861840	103.25%
2	2019-20	36173000	35776807	98.90%
3	2018-19	40777000	39875404	97.79%
4	2017-18	37568000	37749482	100.48%

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	4180000	31520000	3624374	33237466	742	49679
2019-20	3526000	32647000	3268407	32508400	738	48478
2018-19	7106000	33671000	7077494	32797910	703	56722
2017-18	6364000	31204000	6167810	31581672	629	60015

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	700000	648938	984000	951907	760000	741249	592000	571533
Software	250000	234800	280000	254508	275000	258023	200000	117142
Laboratory Consumables	340000	305040	410000	389715	323000	313500	296000	269749
Maintenance and spares	170000	143984	164000	128334	247000	228149	389000	379270

R & D	460000	409310	410000	381403	304000	292695	222000	210996
Training & Travel	400000	310778	1025000	875194	1368000	1330073	1369000	1354979
Miscellaneous expenses	33380000	34808990	32900000	32795747	37500000	36711716	34500000	34845813
Total	**35700000**	**36861840**	**36173000**	**35776807**	**40777000**	**39875404**	**37568000**	**37749482**

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.
Institutional Repository	Access provided to open source e-Books, e-Journals , previous year question papers, faculty publications etc.

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

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

- 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

- 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

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)
- I IT 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:

- 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

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**

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 guidelinesinforceasondateandtheinstituteshallfullyabidebythem.Itissubmittedthat informationprovidedinthisSelf-AssessmentReportisfactuallycorrect.Iunderstandandagree thatanappropriatedisciplinaryactionagainsttheInstitutewillbeinitiatedbytheNBAincase anyfalsestatement/informationisobservedduringpre-visit,visit,postvisitandsubsequentto   grant ofaccreditation.

(Dr. Gyanendra Kumar Pandey)

Signature & Name

PRlNClPAL
IES College of Technology
BHOPAL

Date: **23/09/2021**

Head of the Institution with seal

Place: Bhopal