Department of Information Technology

Welcomes Honorable NBA Committee, 15th July 2022

Presentation Outline

Part I: Compliance to previous NBA reports

Department Achievements/ Recognition – Criteria-wise detailing

Part II: OBE Philosophy of the Department

Compliance to Previous NBA findings - 2011,2016 & 2019

NBA Cycle	Findings (Criteria wise)	Status as on AY 2021-22 (June 22)
Cycle 1 2011-14	Decentralization and delegation of process at department level	Organogram is available at department level , Activity Chart at department level **(10.1.3)**
	Budget structure not as per normal standard	Available since 2014 (Adequacy of budget allocation) **(10.2.1,10.2.3)**
	Central facilities, medical facilities need improvement NO provision for girls hostel	Medical facility with experts are available at institute , Girl hostel facility is provided by institute, Visiting Doctor, Counsellor is appointed, Sick room available on 1st Floor, medical camp for staff - MoU with BVH**(9,9.1,9.3)**
	Senior faculty at professor, associate professor is to be recruited Faculty development Initiative , Faculty Qualification, Participation in research and Consultancy	Improvement in consistent faculty qualification, publication and interaction with outside world though contribution towards syllabus setting, question paper setting, consultancy, funded projects, etc. **(5.2,5.3,5.7)**
	Inadequate Technical supporting staff with qualifications and skills	Sufficient technical supporting staff are available in department **(6.1)**
	Self learning facility to be provided Students performance in competitive exam to be improved	Self learning slots are include in time table Students performance has improved in compititive exams viz, GRE, GATE , GMAT, TOEFL,CAT,IELTS, etc. (**9.4)**
	Alumni association should be registered	Alumni association is registered since 2017**(9.6)**
	Separate R & D lab with special software should be introduced , consultancy and sponsored research is needed	Dedicated R & D lab is available at institute with special software's , hardware equipment's, etc. **(5.7,10.1,10.2)**

Compliance to Previous NBA findings-2011,2016 & 2019

NBA Cycle	Findings (Criteria wise)	Status as on AY 2021-22 (June 22)
Cycle 2 2016-19	Process is not properly documented for VMS and PEO achievement	Available and disseminated at website, admission brochure , magazine, prominent places, etc. **(1.1)**
	PEOs Dissemination is limited & improper also should reflect carrier accomplishment	since 2016 PEOs are disseminated and reflects carrier accomplishment **(1.2)**
	Displays in Class should be more visible	Disseminated / Available since 2016 **(1.2)**
	Inadequate stakeholder involvement	stack holders are involved through Advisory meetings, BOS, leadership meets, Academic council, technical magazine, seminars , etc **(1.4)**
	Only Term test marks are considered for CO attainment	ISE, ESE, projects, practical's, FA and course survey are considered for CO attainment **(2.2, 2.3)**
	Faculty qualification, publication and interaction to outside world should be improved	Improvement in consistent faculty qualification, publication and interaction with outside world though contribution towards syllabus setting, question paper setting, consultancy, funded projects, etc. **(5.3, 5.6)**
	Inadequate faculty room	Faculty rooms size are now as per AICTE requirement **(6.3)**
Cycle 3 2019-22	Faculty student ratio in the department under consideration (Averaged over previous three academic years including Current Academic Year	SFR is maintained to 18.01 against as required by NBA is 20:1 .) **(5.1)**
	Number of available Ph.Ds. in the department are inadequate	Number of available Ph.Ds. in the department for A.Y 2021-22 is 32%. **(5.3)**

Journey of Department with Milestones

- 2002
  - Started with UG (IT) with an intake of 60
- 2003
  - UG (IT) intake increased to 120
- 2011
  - ACM Professional body formed
- 2011
  - PG (IT) started with an intake of 18
- 2011
  - **NBA accreditation (1st cycle) for 3 years**
- 2015
  - Permanent Affiliation by University of Mumbai
- 2016
  - **NBA accreditation (2nd cycle) for 3 years**
- 2017
  - Awarded 'A' Grade by NAAC for 5 years w.e.f. 30th Oct, 2017 **(Extended by 2 years)**
- 2018
  - Ph.D. (Technology) IT started with an intake of 10
- 2019
  - **NBA accreditation (3rd cycle) for 3 years**
- 2019
  - Institute conferred Autonomous Status for next 10 years
- 2020
  - Autonomy Curriculum Design & implementation
- 2021
  - Aligning Programme as per NEP 2020 guidelines
- 2022
  - Industry Design Course inclusion in autonomy curriculum: RPA

Department Growth

4th Phase (2015 -2020)

Continuous strengthening on R&D and inclusive growth

- Bloom's Taxonomy
- In race with industries to adopt new technologies
- Modes of learning to support Extra/Co-curricular Activities- ABL,PBL,TBL
- Feedback by students on Lab and project conduct
- Lab development for domain of ML & AI and Web Technology & e-commerce in tie up with IBM
- Application and design based assignment
- Agile methodology and GA mapping of projects
- Academic Autonomy for 10 years
- Curriculum Design & Development

5th Phase (2020-2025)

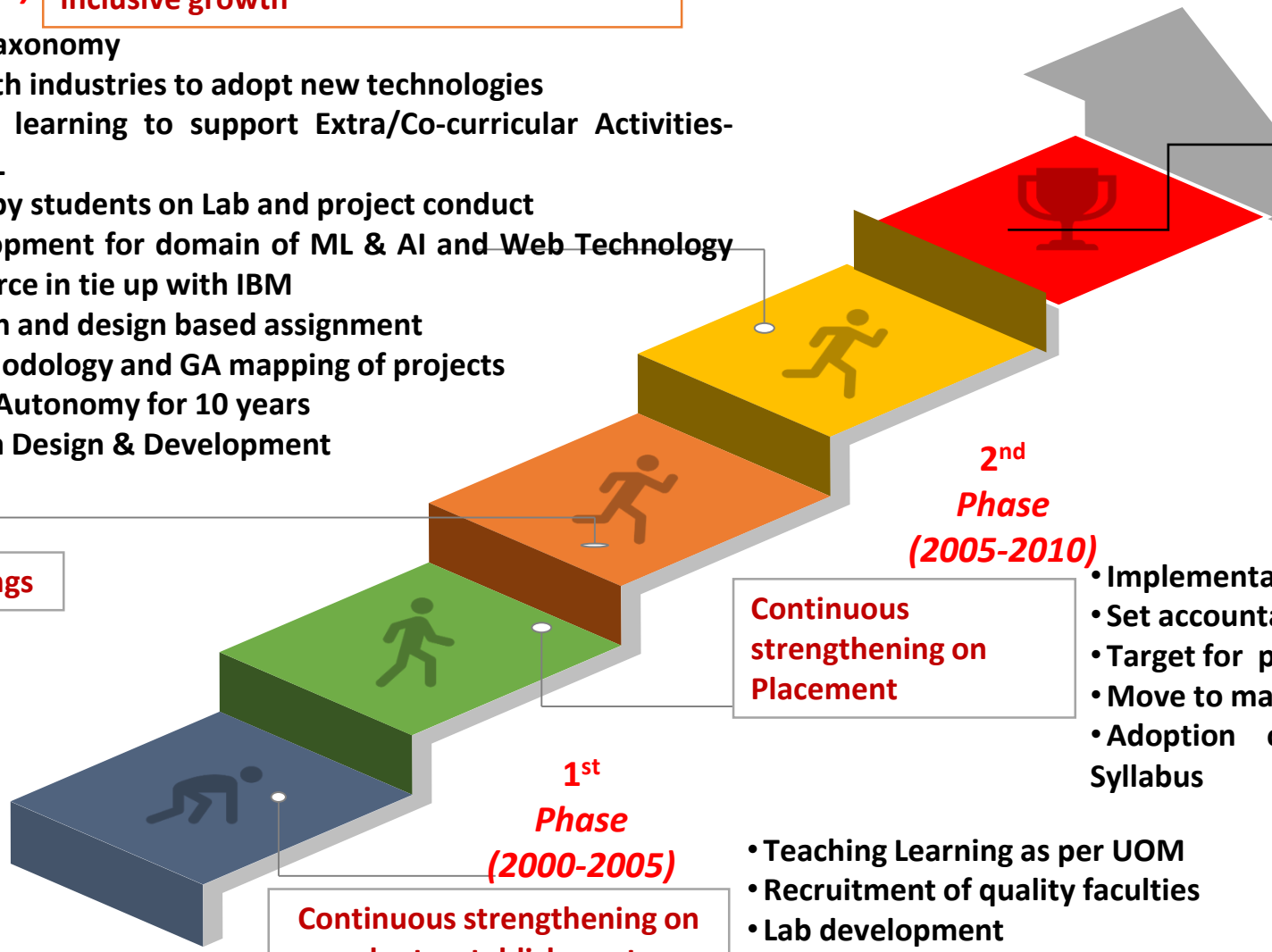
Continuous strengthening on IPR creations , Technical event Enrichments

- Autonomy Curriculum-design and implementation
- ESD, Internship
- Copyrights
- Patents
- Book chapters
- SIH , Awards

3rd Phase (2010-2015)

Continuous strengthening on Trainings

- OBE
- Research focus
- Grants
- Domain formation , Activities
- Accreditation
- Conferences



2nd Phase (2005-2010)

Continuous strengthening on Placement

- Implementation of ISO Standards
- Set accountability benchmarks
- Target for placement
- Move to maintain cadre ratio
- Adoption of learning content beyond Syllabus

1st Phase (2000-2005)

Continuous strengthening on dept. establishment

- Teaching Learning as per UOM
- Recruitment of quality faculties
- Lab development
- Infrastructure up-gradation

Department Profile

- 120 Intake +
- 12 DSE –(BE)
- 18 –(ME) 10- (Ph.D.)
- SE-138,
- TE-142, BE-135,

Faculty

- Faculty Members:26
- PG recognized:03
- PhD recognized: 04
- Visiting faculties for Employability Skill Development (ESD)/ Internship

- Professors:03 Assoc.Profs:02 Assistant Professors:21

- Ph.D. :08, Ph.D.(Pursuing): 11, M.E/M.Tech: 07

- Approved Ph.D. guides: 04 (University of Mumbai)

- 6 Laboratory Assistants /
- Attendants

Infrastructure

- 6 UG Classrooms
- 01 ME Classroom
- 1 Tutorial, Smart Class room

- 6 UG Labs(1 AICTE MODROB virtual lab, IoT Intel s/w Lab)
- 1 ME LAB
- 1 Ph.D. Lab #

- 2 Faculty Rooms
- 3 Meeting Rooms

- Department library,

Common facilities in sharing mode

Department Achievements (2019-22)

Academic

PH.D. RESEARCH CENTER

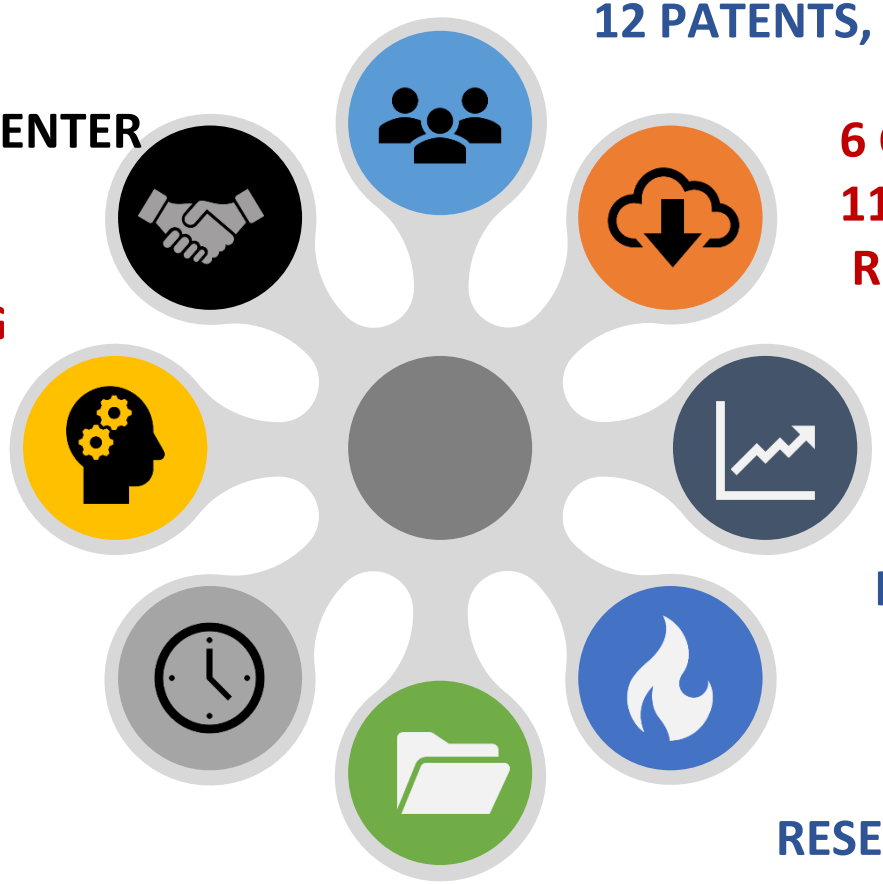
ICT SUPPORTIVE LEARNING

ADVISORY / PAQIC MEETING

STUDENT VALIDATION, EXIT, COURSE SURVEY, PO-PEO ACHIEVEMENT

BLOOMS TAXONOMY FOR QUESTION PAPER SETTING

RESOURCE BOOK CREATION



Research & Consultancy

12 PATENTS, 3 COPYRIGHTS

6 CONSULTANCIES/
11 FUNDED
RESEARCH PROJECTS

Funded research : 20,18,266/-, Consultancy : 11,80,260/-

2 CENTER OF EXCELLENCE

INDUSTRY RELEVANT TECHNOLOGY COURSES

RESEARCH GRANTS FROM AICTE, IEDC, UNIVERSITY OF MUMBAI

Faculty and Student Achievements (2019-22)

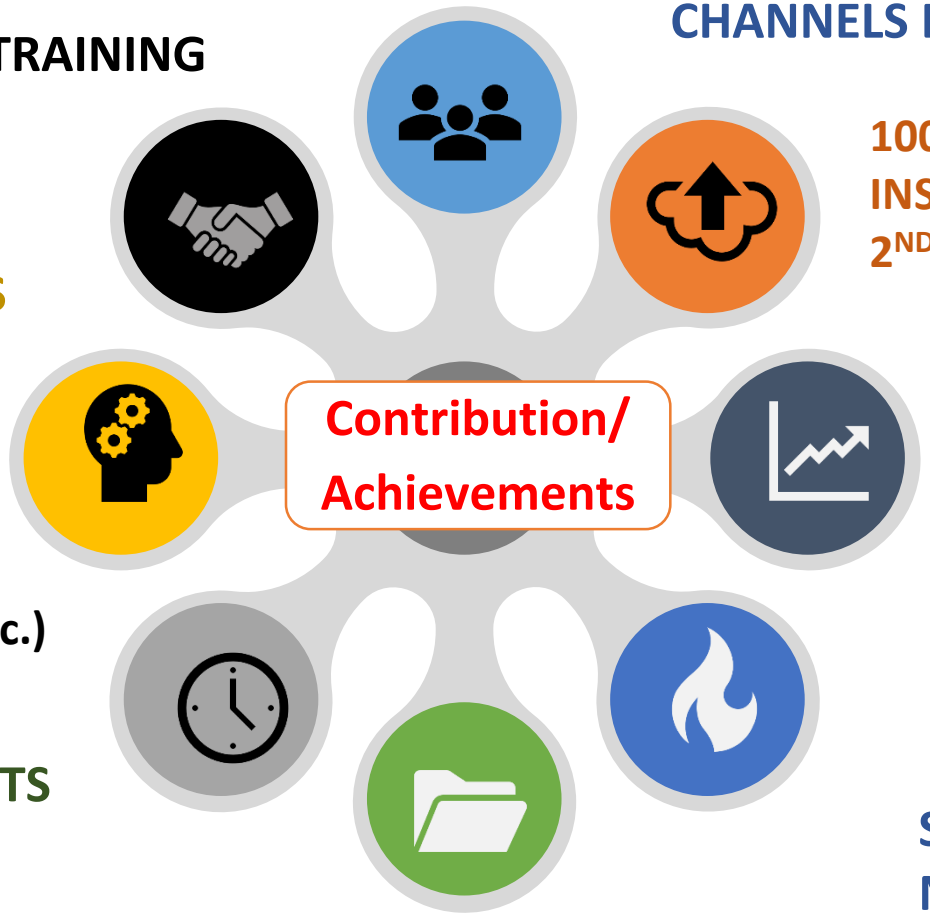
Faculty

INDUSTRIAL TRAINING
(INS Hamla, Mahindra & Mahindra, SBI, etc.)

EDITORS / REVIEWERS
(DRDO, SNCS Springer Nature journal, IJIN etc.)

RESEARCH PUBLICATIONS
(IEEE, Scopus, Springer, ESCI, SCI, etc.)

PATENTS, COPYRIGHTS



JUDGE FOR TOYKATHON & SIH OF AICTE

Students

PUBLISHED BLOGS/ CHANNELS BY STUDENTS

100% RESULT IN PAST THREE YEARS
INSTITUTE TOPPER(2022): 1ST :SHETTY NIDHI,
2ND : SHAH HITANSH , URVI SHARMA

AVERAGE 91% PLACEMENT FOR PAST 3 YEARS

WINNER CRICKET TOURNAMENT AT UNIVERSITY LEVEL

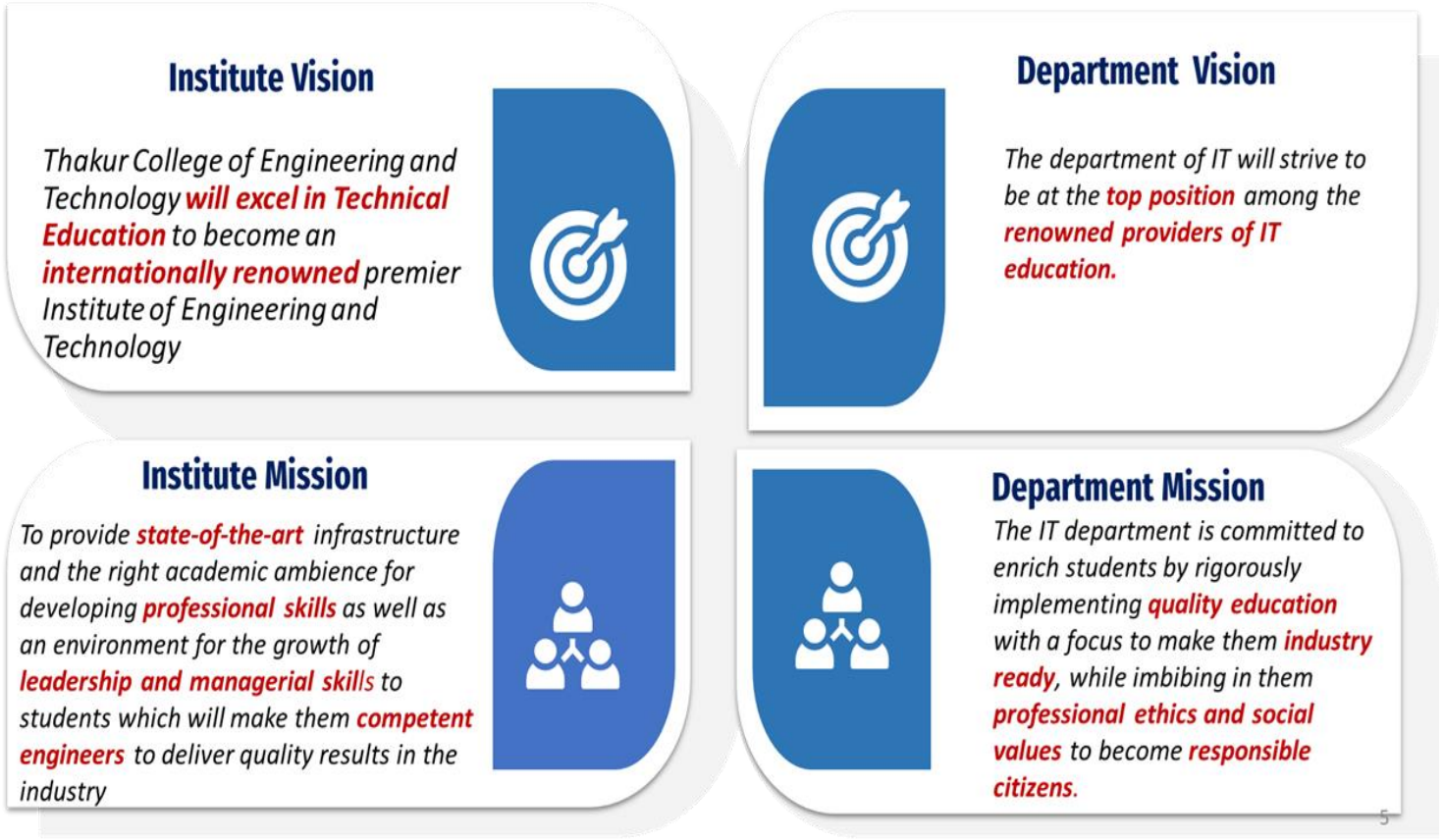
STUDENTS PARTICIPATION AT NATIONAL LEVEL HACKATHON

Criteria-1 :

Vision, Mission,

Programme Educational Objectives & Programme Specific Outcomes

Institute/ Department Vision Mission statements



PEO 1	To prepare learners with a strong foundation in the area of information technology required to solve real life problems arising through software technology. **(Knowledge)**
PEO 2	To prepare learners to be knowledgeable of the ethics, professionalism and cultural diversity in the work environment to meet applicable standards with continued motivation for research and development. **(Skill & Professionalism)**
PEO 3	To prepare learners to understand the need for lifelong learning with effective written and oral communication skills and to be able to readily adapt to new software engineering environments. **(Attitude, Presentation and Growth)**

Mapping of the Mission Keywords , PEOs with POs

Programme Outcomes (PO's)	PO1 (Engineering knowledge)	PO2 (Problem Analysis)	PO3 (Design/Development of Solutions)	PO4 (Conduct investigations of complex problems)	PO5 (Modern tool usage)	PO6 (The engineer & society)	PO7 (Environment & sustainability)	PO8 (Ethics)	PO9 (Individual & Team work)	PO10 (Communication)	PO11 (Life-long learning)	PO12 (Project management and finance)
Mission 1 (Quality Education)	√	√	√		√	√		√	√			√
Mission 2 (Industry Ready)		√	√	√	√	√			√	√		√
Mission 3 (Professional ethics and social values)	√	√	√	√	√	√		√				√
Mission 4 (Responsible citizens)	√					√	√	√	√	√	√	√
PEO 1 (Foundation)	√	√	√	√	√				√	√		√
PEO 2 (Professionalism, Quality, R&D)		√	√	√		√	√	√	√			√
PEO 3 (Presentation & Growth)			√	√	√	√		√	√	√	√	√

Correlation = **Common attributes mapped to respective PEO and Mission** / **Maximum of the total count of attributes mapping with PEO / Mission**

Level-3: 6/8 > 70%, Level-2: 5/8 = 50-70% , Level-1: 2/8 <50%

Let us consider PEO1 and Mission1

- PEO1 maps with PO's- 1,2,3,4,5,9,10,12 (Total count:8)
- Mission 1 map with PO's- 1,2,3,5,6,8,9,12 (Total count: (8)
- common attributes mapped to respective PEO and Mission – (1,2,3,5,9,12) i.e. 6
- Maximum of the total count of attributes mapping with PEO / Mission- max (8,8) i.e. 8

Establish consistency between PEOs and Mission of the Department

PEO Statements	Mission statements			
	M1- rigorously implementing Quality education	M2- focus to make learners industry ready	M3- imbibing in learners professional ethics and social values	M4- making learners responsible citizens
PEO 1: To prepare learners with a strong foundation in the area of Information Technology required solving real life problems arising from software technology. (Knowledge) [CURRICULAR]	3	3	3	2
PEO 2: To prepare learners to be knowledgeable of the ethics, professionalism and cultural diversity in the work environment to meet applicable standards with continued motivation for research and development. (Skills & Professionalism) [CO-CURRICULAR]	3	3	3	2
PEO 3: To prepare learners to understand the need for lifelong learning with effective written and oral communication skills and to be able to readily adapt to new software engineering environments (Attitude, Presentation and Growth) [EXTRA CURRICULAR]	3	3	3	3

Co-relation between the PEO and Mission with justification

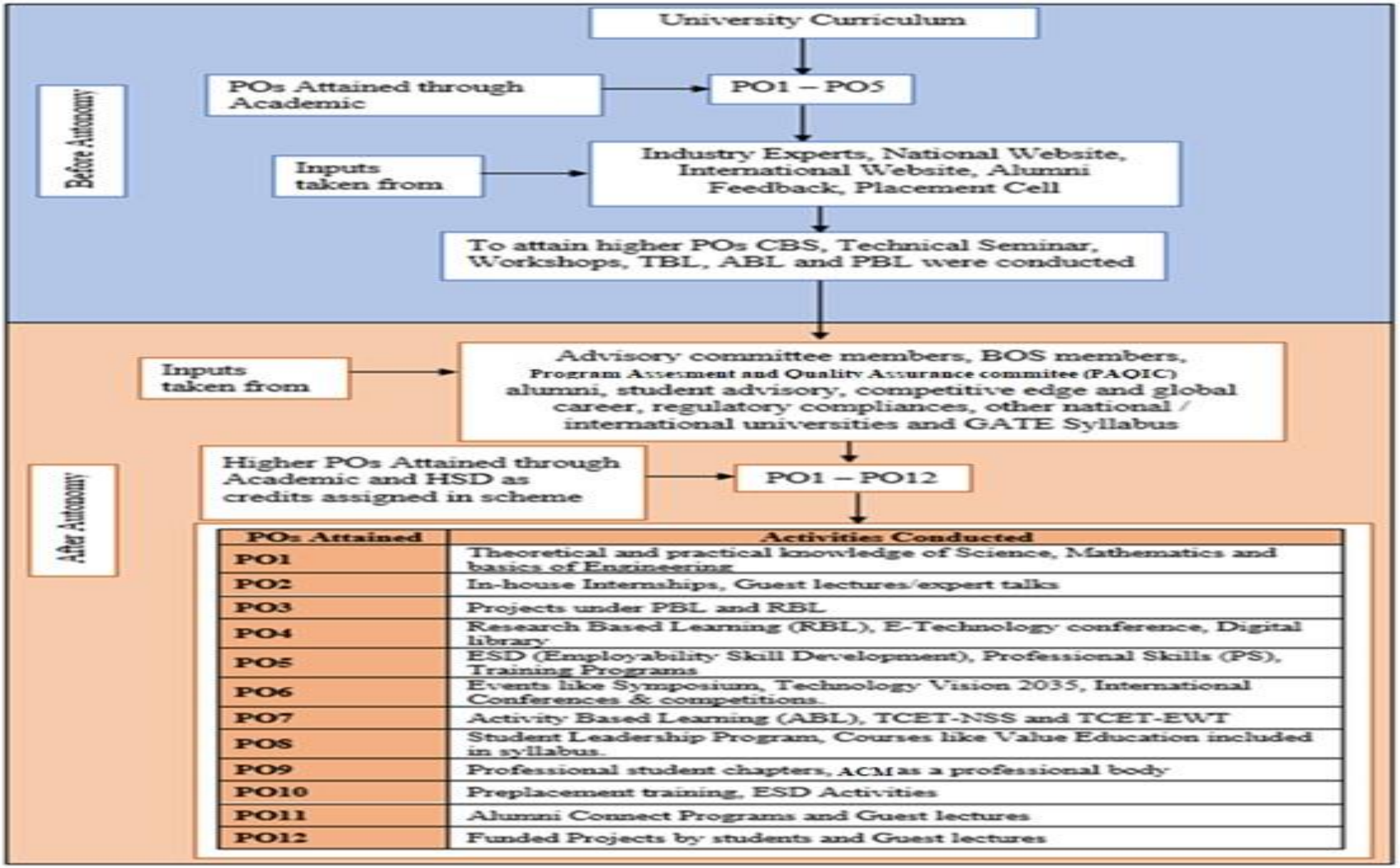
Criteria-2:

Program Curriculum & Teaching Learning Process

Program Curriculum

Category	AICTE Credits	2019-20	2020-21	2021-22
Humanities and Social ,Sciences including, Management courses	12	9	9	9
Basic Science courses	25	27	27	27
Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	24	28	28	28
Professional Core Courses	48	57	57	57
Professional Elective courses relevant to chosen specialization/branch	18	20	20	20
Open subjects – Electives from other technical and /or emerging subjects	18	12	12	12
Project work, seminar and internship in industry or elsewhere	15	12	23	23
Total Academic Credits	**160**	**165**	**176**	**176**
HSD credits				
Employability Skill Development		-	4	4
Professional Skills		12	14	14
Research Based learning		4	4	4
Project Based Learning		4	4	4
Activity Based Learning		4	4	4
Total Holistic Student Development Credits		**24**	**30**	**30**
Sub Total Credits	**160**	**189**	**206**	**206**
Additional Credits(major/minor)		20	18	18
Sub Total	160	209	224	224
Extraordinary Achievement Credits(optional credits)		8	8	8
Grand Total		217	232	232
AICTE Activity Points				100

The process to identify extent of compliance of the curriculum for attaining the POs and PSOs



POs Attained	Activities Conducted
PO1	Theoretical and practical knowledge of Science, Mathematics and basics of Engineering
PO2	In-house Internships, Guest lectures/expert talks
PO3	Projects under PBL and RBL
PO4	Research Based Learning (RBL), E-Technology conference, Digital library
PO5	ESD (Employability Skill Development), Professional Skills (PS), Training Programs
PO6	Events like Symposium, Technology Vision 2035, International Conferences & competitions.
PO7	Activity Based Learning (ABL), TCET-NSS and TCET-EWT
PO8	Student Leadership Program, Courses like Value Education included in syllabus.
PO9	Professional student chapters, ACM as a professional body
PO10	Preplacement training, ESD Activities
PO11	Alumni Connect Programs and Guest lectures
PO12	Funded Projects by students and Guest lectures

[Curriculum Gaps Identification Process and activity alignment]

Gaps Identification and Action Taken

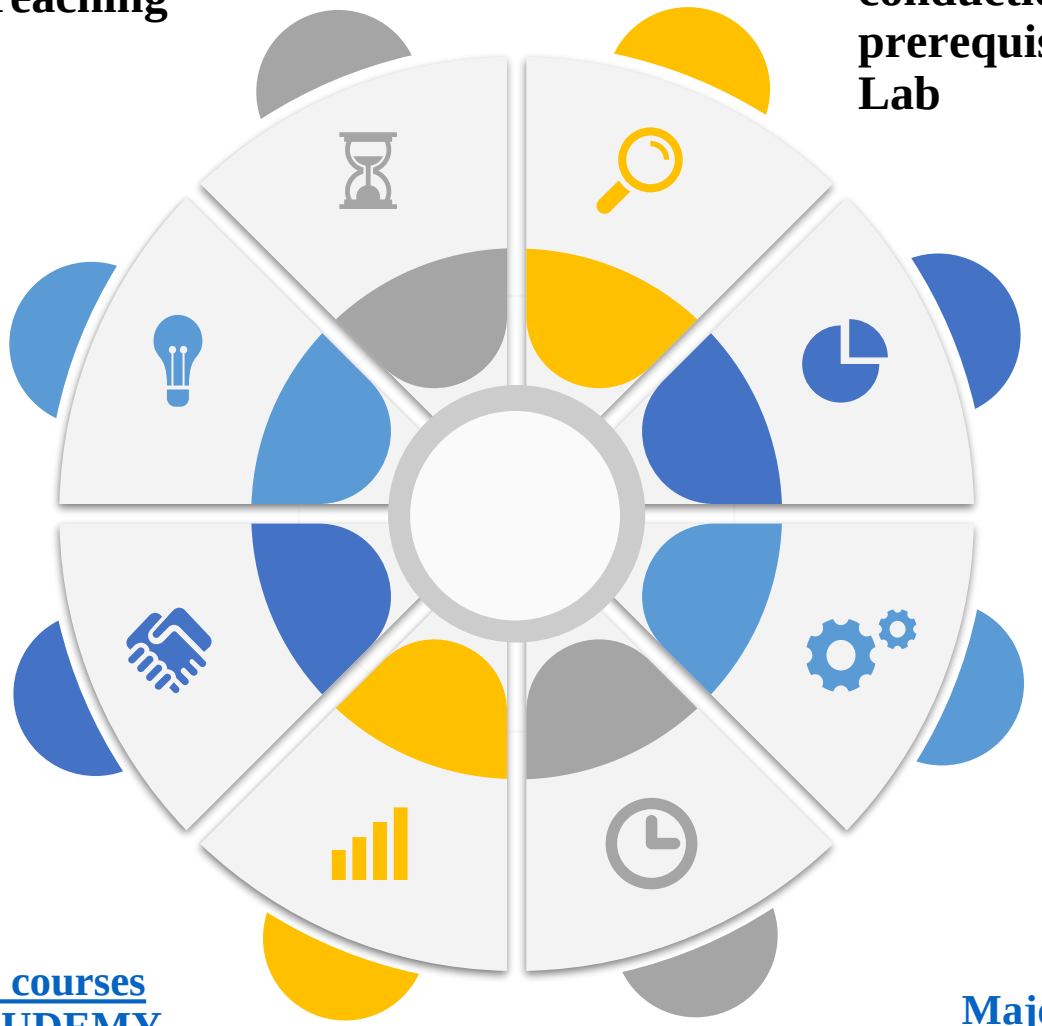
- AY 2019-20
  - **Gaps:** Solutions in societal and environmental context, Entrepreneurship, higher studies & modern tool usage , identification and support for Slow, Medium , fast learners
  - **Action Taken** :Social internship, Audit / Mandatory/ /Holistic Student Development – **HME courses with credit, Activity Points in curriculum, case study based on Slow, Medium , fast learners**
- AY 2020-21
  - **Gaps :** Courses related the Engineer and Society, professional ethics, modern tool usage
  - **Action Taken:** Social internship, Audit / Mandatory/ /Holistic Student Development **– HSD courses with credit in curriculum**
- AY 2021-22
  - **Gaps:** Value based and environmental context courses, modern tool usage
  - **Action Taken:** Audit / Mandatory/ Holistic Student Development **– HME courses with credit in curriculum, Activity points in curriculum**

State the delivery details of the content beyond the syllabus for the attainment of POs and PSOs: Course Delivery Methods

Seminars, Workshops
ACM, Non-Teaching

Gap analysis and conduction of prerequisite lectures, Lab

Expert talks –
SQL Training
ASP .NET Training



Mini Minor and Major project developments

Value addition courses activities
INNOVATIVE EXAMINATION

Curricular and Co-curricular activities,

Industrial Visits

Certification courses
COURSERA, UDEMY, UDACITY, SPOKEN TUTORIAL, NPTEL

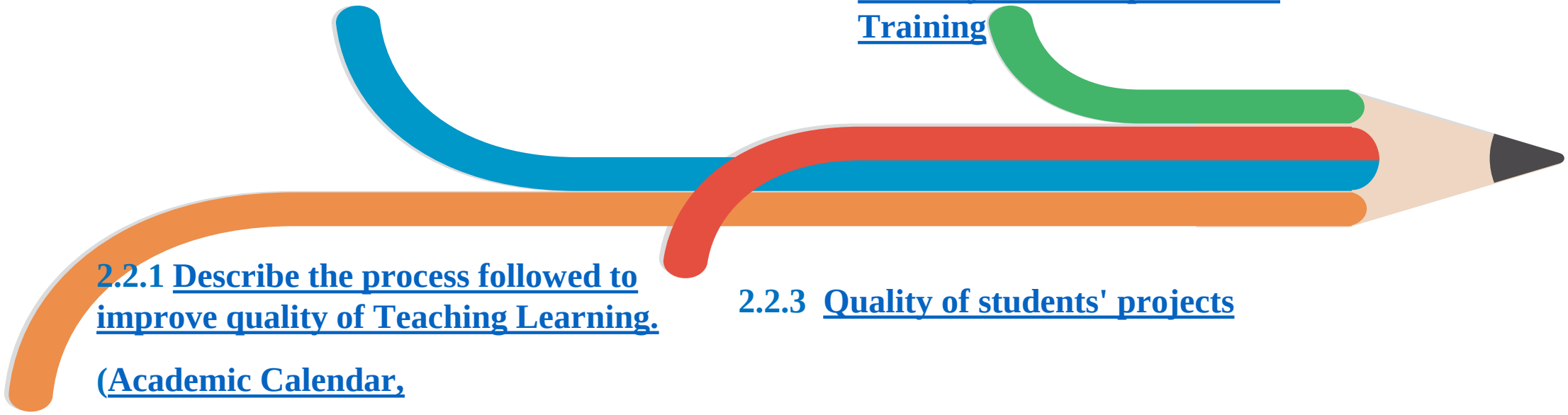
Major or additional Minor degree through Specialization

Teaching Learning Process

2.2.4 Initiatives related to industry interactions

2.2.2 Quality of Internal semester Question papers, Assignments and Evaluation.

2.2.5 Initiatives related to Industry Internship/Summer Training



2.2.1 Describe the process followed to improve quality of Teaching Learning.

(Academic Calendar,

Pedagogy,

Weak students)

2.2.3 Quality of students' projects

Criteria-3:
Course Outcomes & Program Outcomes

Listing of Course Outcomes (2017-21 Batch)

Course Code with CO no.	Course Outcomes (DBMS)
C234.1	Define & Explain the features & functions of Database Management Systems and Relational Database
C234.2	Analyze database models & entity relationship models.
C234.3	Construct queries in Relational Algebra and create a RDBMS for a real life application, with constraints and keys, using SQL.
C234.4	Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
C234.5	Explain and understand the concept of a transaction and how ACID properties are maintained when concurrent transaction occurs in a database
C234.6	Measure query costs and design alternate efficient paths for query execution.

Course Code	Course Outcomes (CNS)
C354.1	Apply classical encryption techniques and acquire fundamental knowledge on the concepts of Symmetric cipher models.
C354.2	Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
C354.3	Apply the knowledge of cryptographic checksums and different digital signature algorithms to achieve authentication and create secure applications
C354.4	Understand and analyze various security threats in Secure Programs, Program Errors and Other Malicious Code and identify Objects to be protected. Use of Passwords for – Additional Authentication Information.
C354.5	Apply network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPsec, and PGP and authentication mechanism for secure application.
C354.6	Identify information security goals, Understand the knowledge of cryptographic utilities.

Course Code	Course Outcomes (Soft Computing)
C473.1	List the facts and outline the different process carried out in fuzzy logic, ANN and Genetic Algorithms.
C473.2	Determine the concepts and meta-cognitive of soft computing
C473.3	Apply soft computing techniques the solve character recognition, pattern Classification, regression and similar problems
C473.4	Outline facts to identify process/procedures to handle real world problems using soft computing.
C473.5	Evaluate various techniques of soft computing to defend the best working solutions
C473.6	Design hybrid system to revise the principles of soft computing in various applications.

CO-PO Matrix (DBMS course)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C234.1	3	-	3	-	-	-	-	-	-	-	-	-	2	-	-
C234.2	-	2	3	-	2	-	-	-	2	1	-	-	-	-	-
C234.3	-	-	3	-	2	-	-	-	2	1	-	-	2	-	-
C234.4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
C234.5	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
C234.6	-	-	-	-	2	-	-	-	2	1	-	-	-	-	-

Attainment Levels – 3 above 70%, 2 – between 50 -70%, 1 – Below 50%

Attainment of Course Outcomes - Assessment Processes

CO Attainment Tools:

- Course Outcome Assessment
  - Direct Assessment
    - Formative Assessment
    - Practical Assessment
    - Internal Assessment Test
    - End Semester Examination
    - BE Project
  - Indirect Assessment
    - Course Survey

Course Attainment of DBMS

SEM III : Database Management System (C234)							
	Direct Assessment Tools				Average Attainment (Direct)	Indirect Assessment (Course Survey)	Overall Attainment
COs	ISA	FA	PRAC	ESE			
C234.1	2.43	2.52	2.68	2.6	2.64	2.93	2.66
C234.2	2.44	2.54	2.83	2.68	2.69	2.94	2.74
C234.3	1.89	2.89	3.00	2.8	2.66	2.87	2.70
C234.4	2.92	2.65	2.83	2.7	2.83	2.93	2.85
C234.5	1.95	3	3.00	2.47	2.72	2.91	2.75
C234.6	2.1	3	2.87	2.5	2.72	2.9	2.75

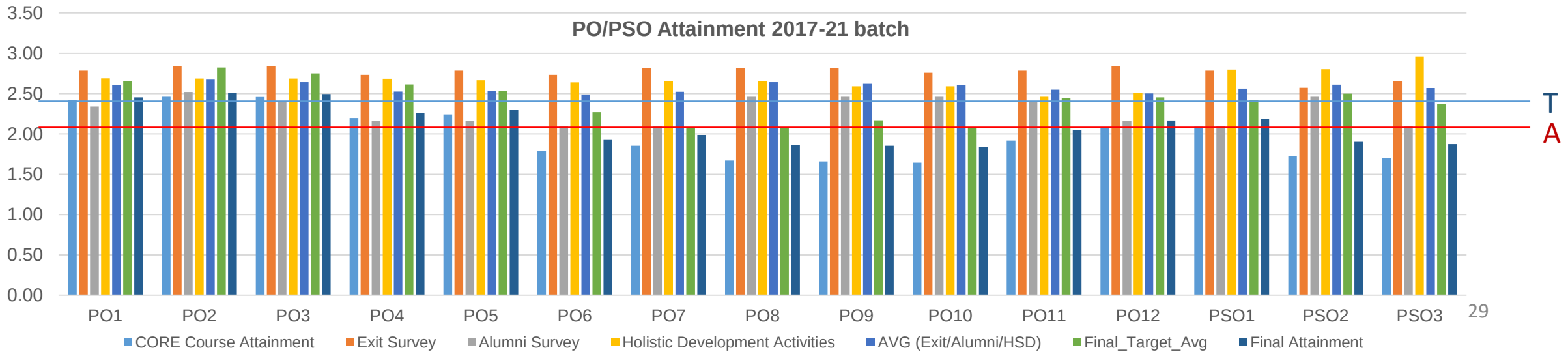
Attainment of Program Outcomes & Program Specific Outcomes

PO/PSO Attainment Tools

- PO/PSO Assessment
  - PO/PSO Attainment through Direct methods
    - CO Attainment through Direct methods
      - Formative Assessment
      - In Semester Assessment
      - Practical Assessment
      - End Semester Assessment
  - PO/PSO Attainment through Indirect methods
    - Course Outcome Attainment through Indirect methods
      - Course Survey
      - Programme Exit Survey
      - Alumni Survey

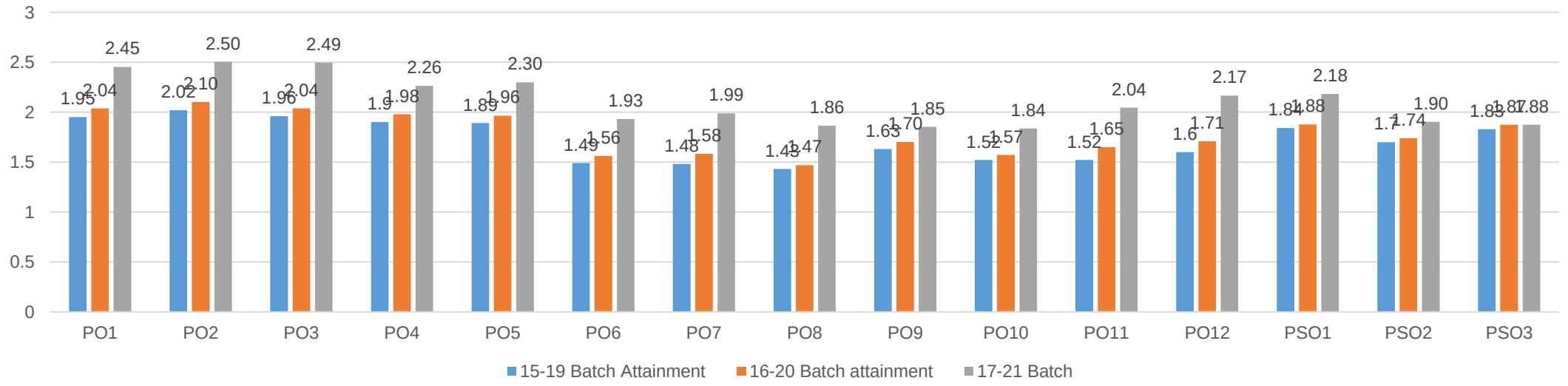
PO/PSO Attainment 2017-21 batch

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CORE Course Attainment	2.42	2.46	2.46	2.20	2.24	1.79	1.85	1.67	1.66	1.64	1.92	2.08	2.09	1.73	1.70
Exit Survey	2.79	2.84	2.84	2.73	2.79	2.73	2.81	2.81	2.81	2.76	2.79	2.84	2.79	2.57	2.65
Alumni Survey	2.34	2.52	2.40	2.16	2.16	2.10	2.10	2.46	2.46	2.46	2.40	2.16	2.10	2.46	2.10
Holistic Development Activities	2.69	2.69	2.69	2.68	2.67	2.64	2.66	2.65	2.59	2.59	2.46	2.51	2.80	2.80	2.96
AVG (Exit/Alumni/ HSD)	2.60	2.68	2.64	2.53	2.54	2.49	2.52	2.64	2.62	2.60	2.55	2.50	2.56	2.61	2.57
Final_Target_ Avg	2.66	2.82	2.75	2.61	2.53	2.27	2.07	2.08	2.17	2.08	2.45	2.45	2.42	2.50	2.38
Final Attainment	2.45	2.50	2.49	2.26	2.30	1.93	1.99	1.86	1.85	1.84	2.04	2.17	2.18	1.90	1.88



Comparative PO-PSO Attainment for last 3 Pass out Batches

PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Avg.
2015-19 Batch	1.95	2.02	1.96	1.9	1.89	1.49	1.48	1.43	1.63	1.52	1.52	1.6	1.84	1.7	1.83	1.72
2016-20 Batch	2.04	2.10	2.04	1.98	1.96	1.56	1.58	1.47	1.70	1.57	1.65	1.71	1.88	1.74	1.87	1.79
2017-21 Batch	2.45	2.50	2.49	2.26	2.30	1.93	1.99	1.86	1.85	1.84	2.04	2.17	2.18	1.90	1.88	2.11



Final attainment comprises of 80% attainment from direct tools & 20% from indirect tools

Improvement in PO/PSO Attainment Values

- Course articulation matrix is introduced for CO-PO mapping and attainment calculation process.
- New CO-PO attainment tools are introduced like Formative Assessment, Practical Evaluation and Informal Formative Assessment.
- Holistic development activities are introduced like Project based learning(PBL), Activity based learning(ABL), Research based learning (RBL), Internship etc.
- Inclusion of MCQs in the evaluation process of ISA (In-semester Assessment) & ESE (End sem Exam)

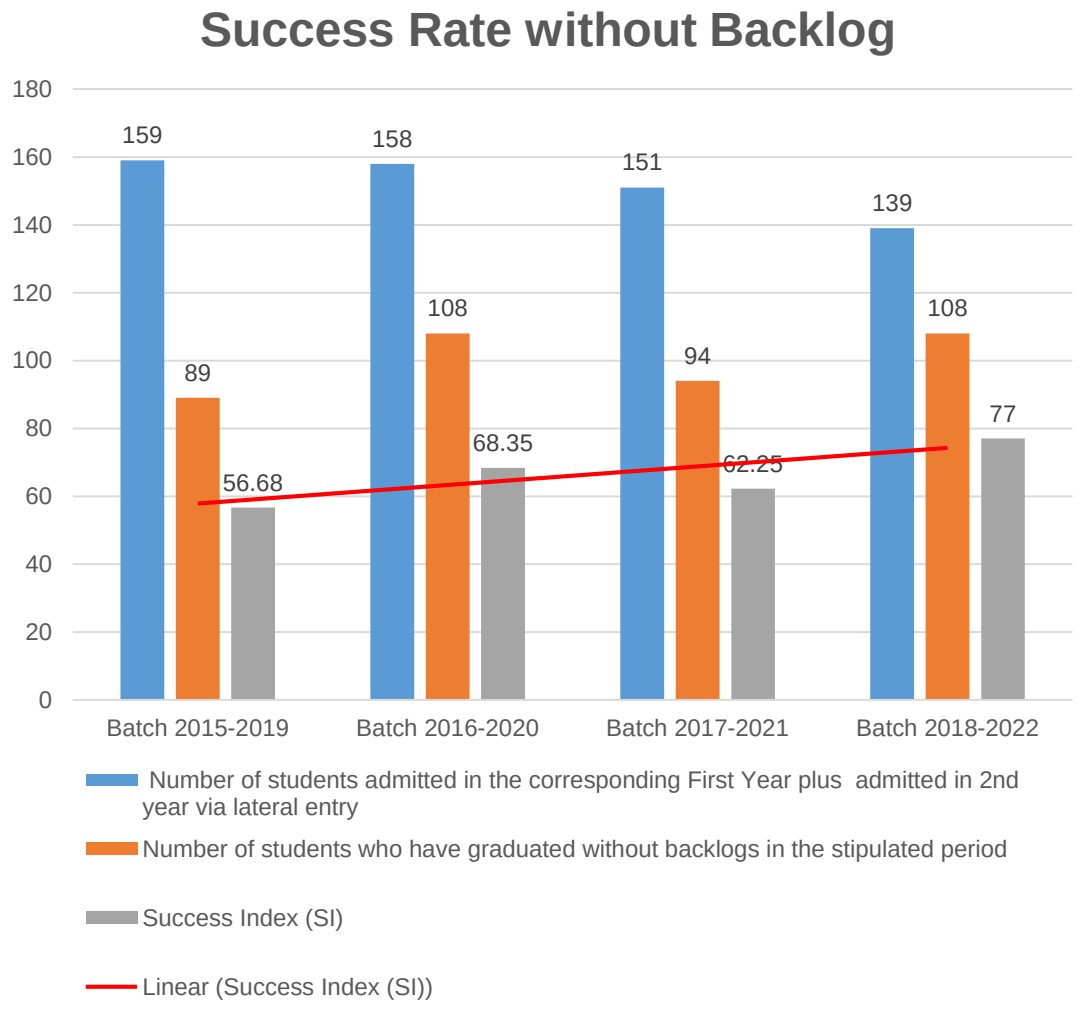
Criteria-4:
Student’s Performance

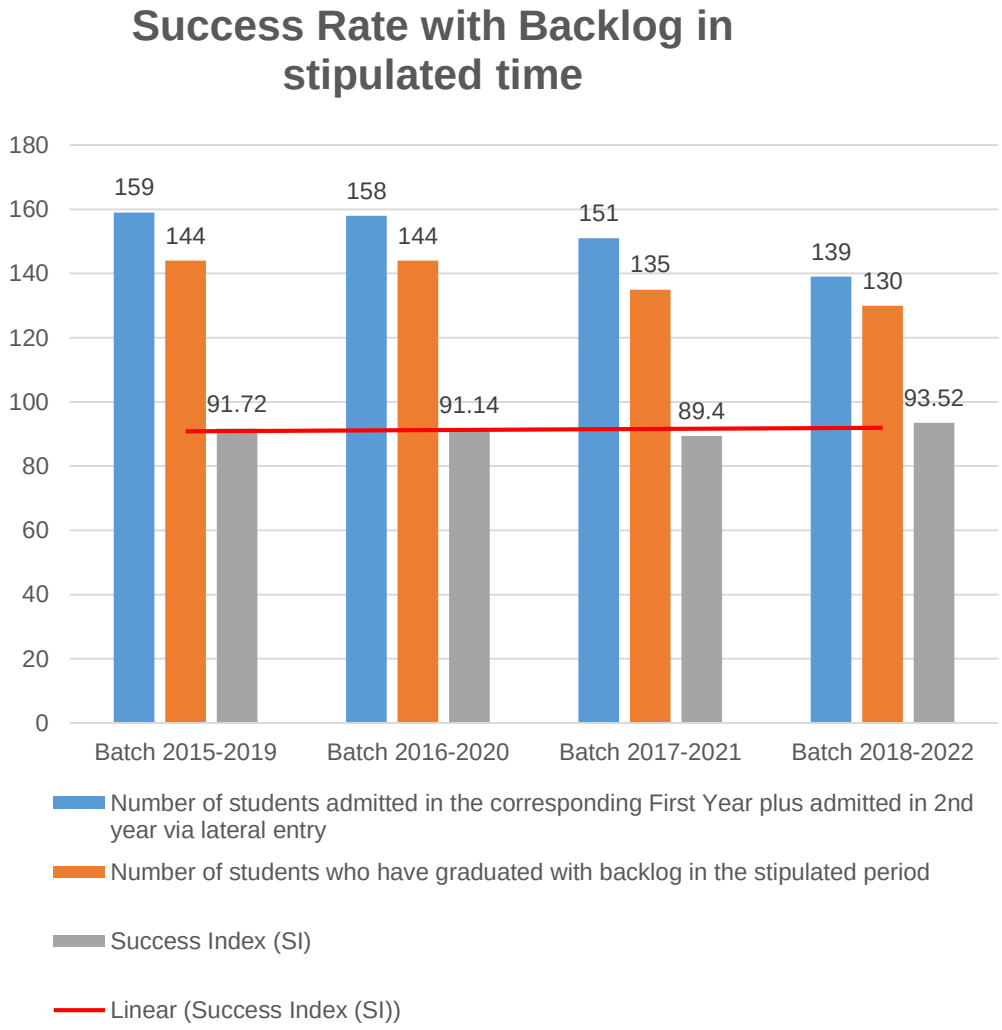
Enrolment Details

(Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	CAY 21-22	CAYm1 20-21	CAYm2 19-20	CAYm3 18-19	CAYm4 17-18	CAYm5 16-17	CAYm6 15-16
Sanctioned intake of the program (N)	120	120	120	120	120	120	120
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)	129	127	126	127	126	133	134
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	In process	12	13	12	25	25	25
Separate division students, if applicable (N3)		-	-	-	-	-	-
Total number of students admitted in the Program (N1 + N2 + N3)	129	139	139	139	151	158	159

- From A.Y. 2018-19 onwards lateral entry was **10%** of sanctioned intake.
- From A.Y.2015-16 till AY 17-18 lateral entry was **20%** of sanctioned intake

Success rate with backlog and stipulated time

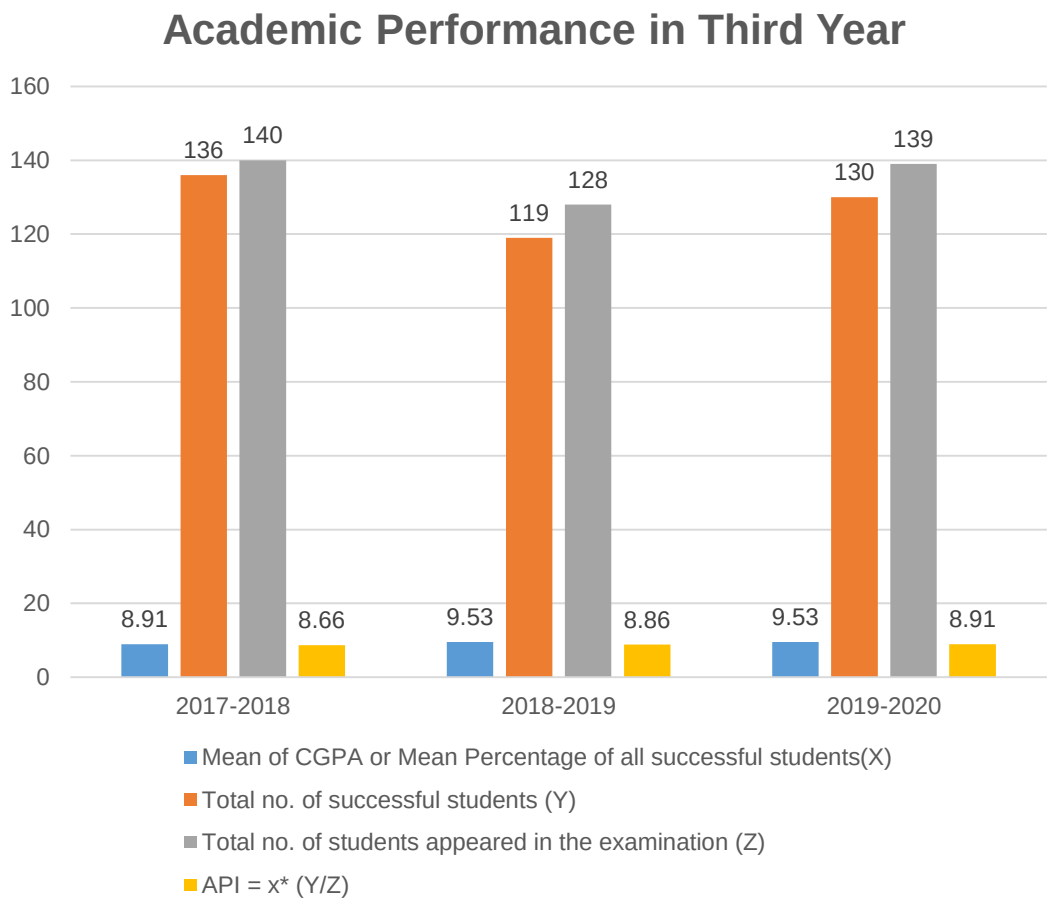




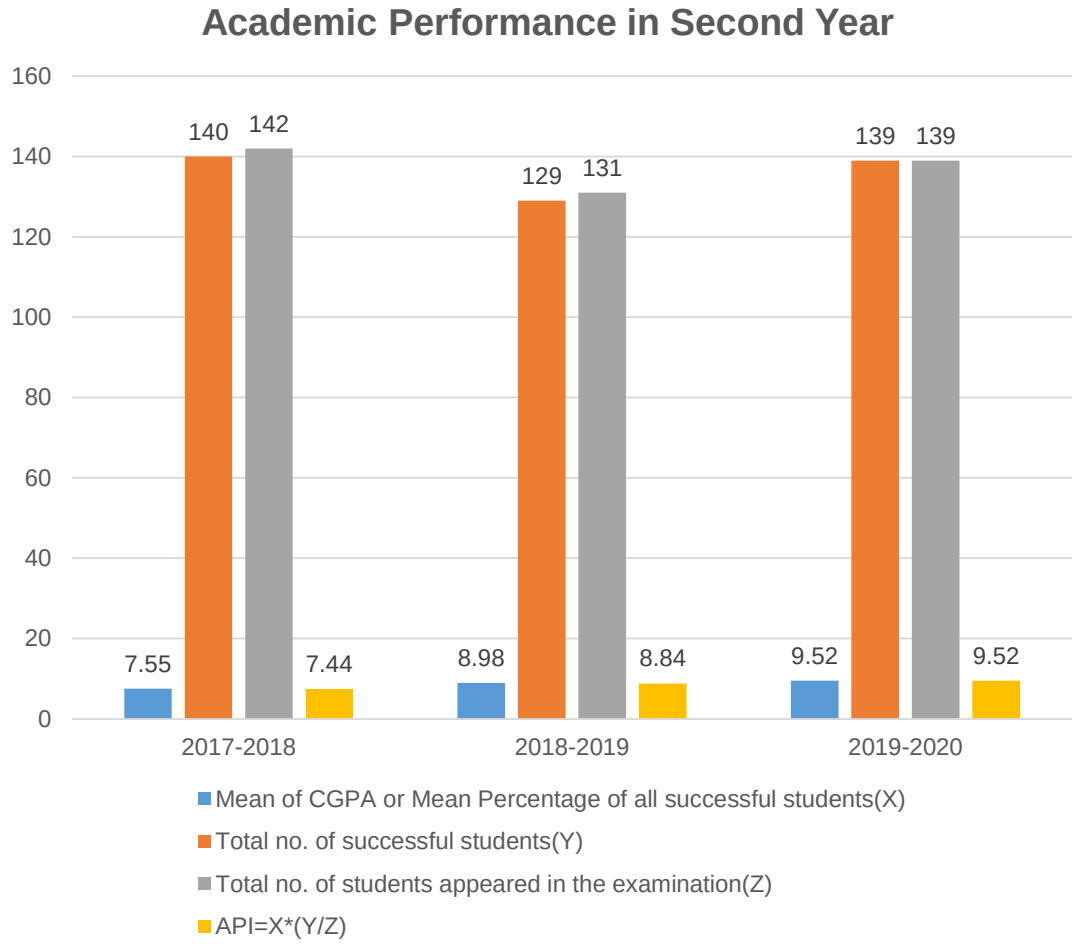
Average SI=66 (for 3rd cycle average SI=58)

Average SI=91.44 (for 3rd cycle average

Academic Performance In Third Year and second year

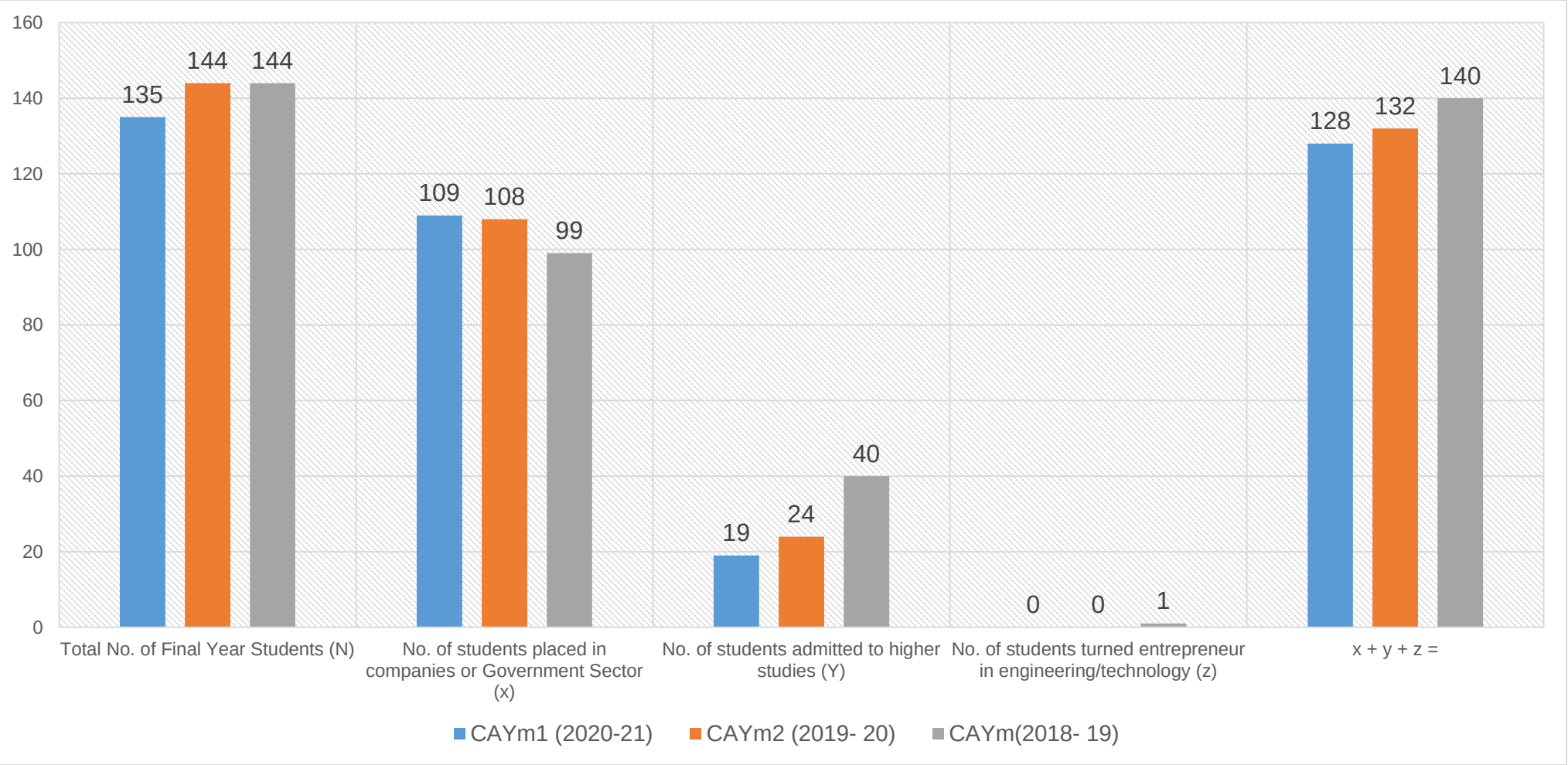


Average API in Third Year=8.81



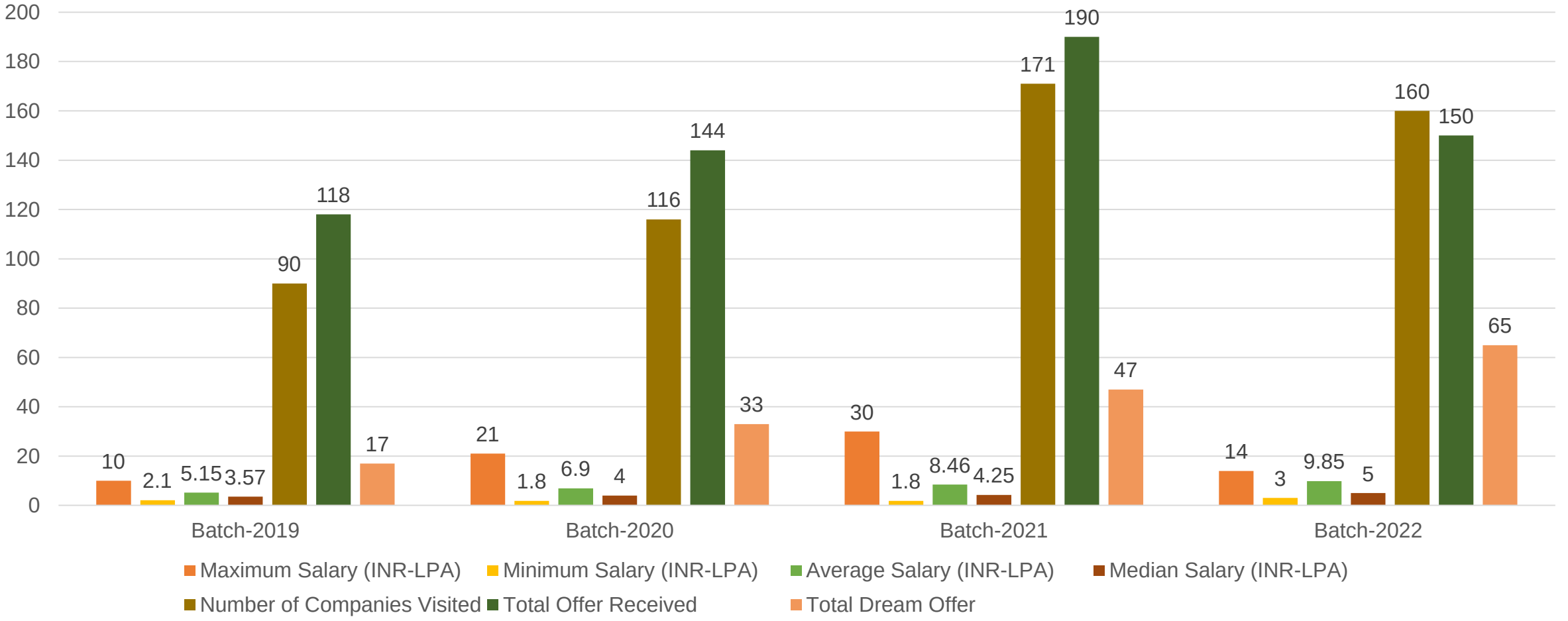
Average API in Second

Placement, Higher Studies and Entrepreneurship Statistics



Assessment Point=40*Average placement= (40 X 0.974= **37.87**)

Quality Placement Statistics



Professional Activities

Chapter ID
92366

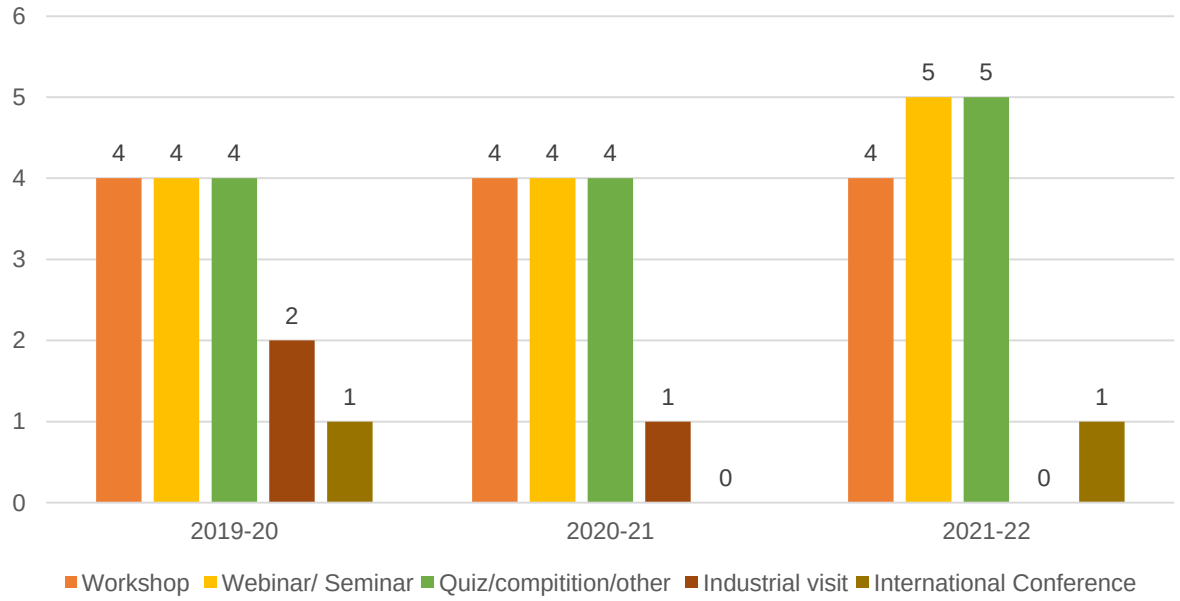
Membership Count for AY 2021-22	74 students

Faculty Members
Dr Sangeeta Vhatkar – Branch Counselor
Mr Rahul Neve – Process Incharge
Mr Sandip Banker – Faculty In-charge
Mrs Mary Margarat – Faculty In-charge

Student Core Committee For AY 2021-22		
Name	Designation	Class
Aaryan Dixit	Chairperson	TE -IT- A
Jhanvi Pandya	Vice- Chairperson	TE-IT- B
Kiran Kishor Maharana	Secretary	TE-IT- A
Parth Dharod	Treasurer	TE -IT-A
Jeevesh Singale	Event Manager	TE-IT- B
Krish Gulati	Sponsorship Head	TE-IT- A
Prashali Srivastava	Publication Head	SE-IT-B
Jwala Chorasiya	Webmaster	SE-AI&ML
Atul Pal	Design Director	SE-IT-A

Activity Calendar

Event conducted



64 IT students are also ISTE members

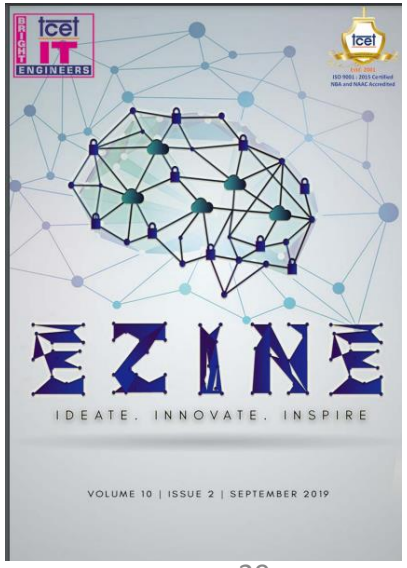
Technical magazines, newsletters

Technical Articles : Students/ faculties

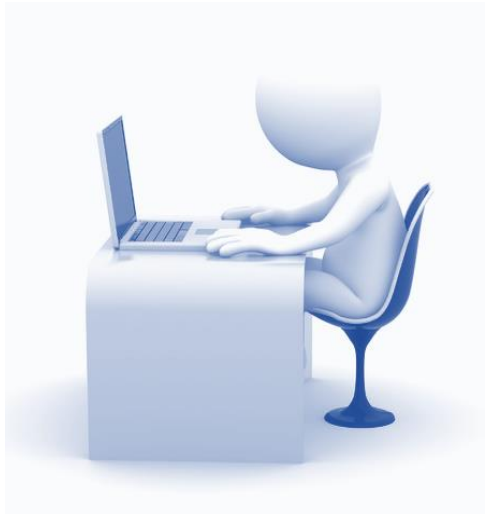
Articles: Alumni/ Industry experts

Technical Articles: Students/ faculties

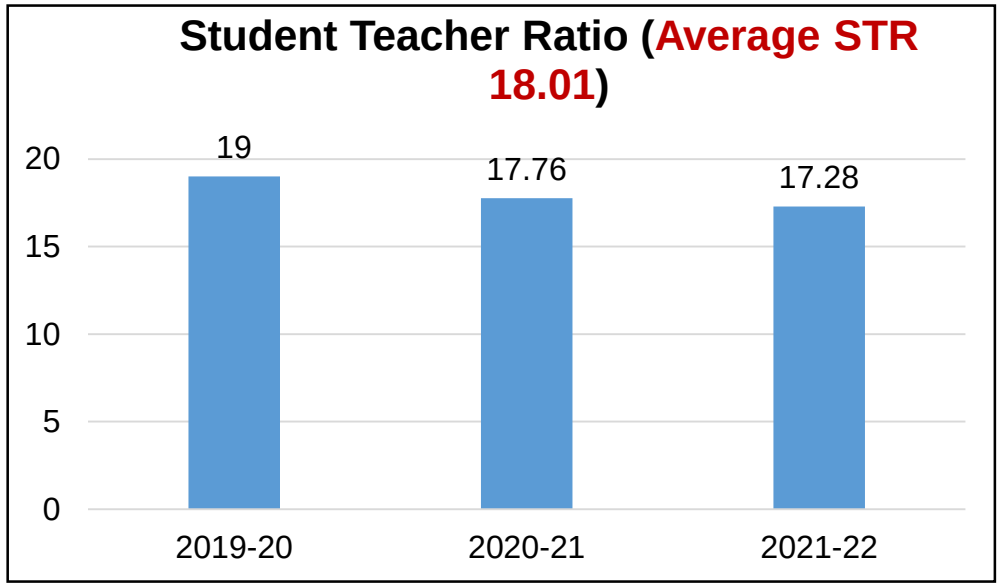
Interviews



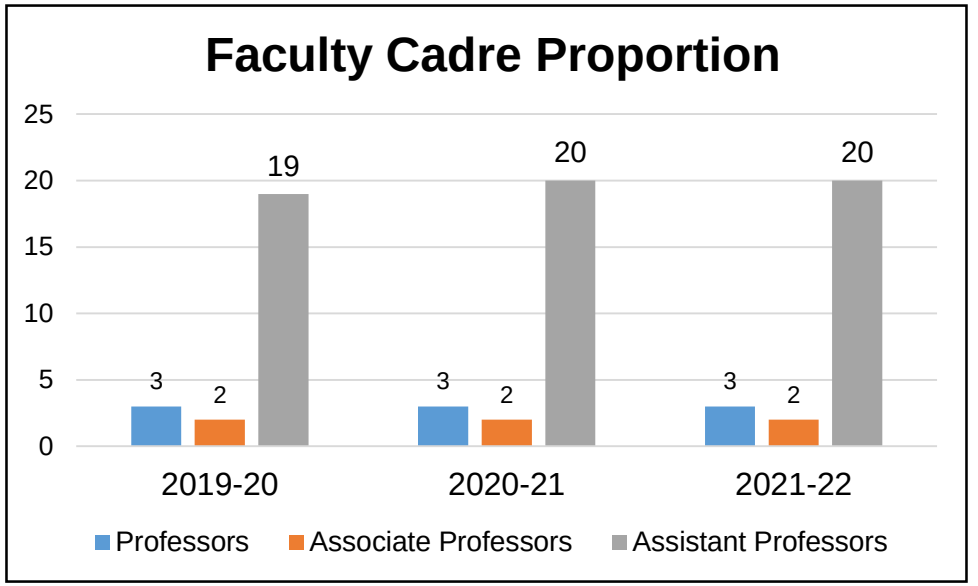
Criteria 5:
Faculty Information & Contributions

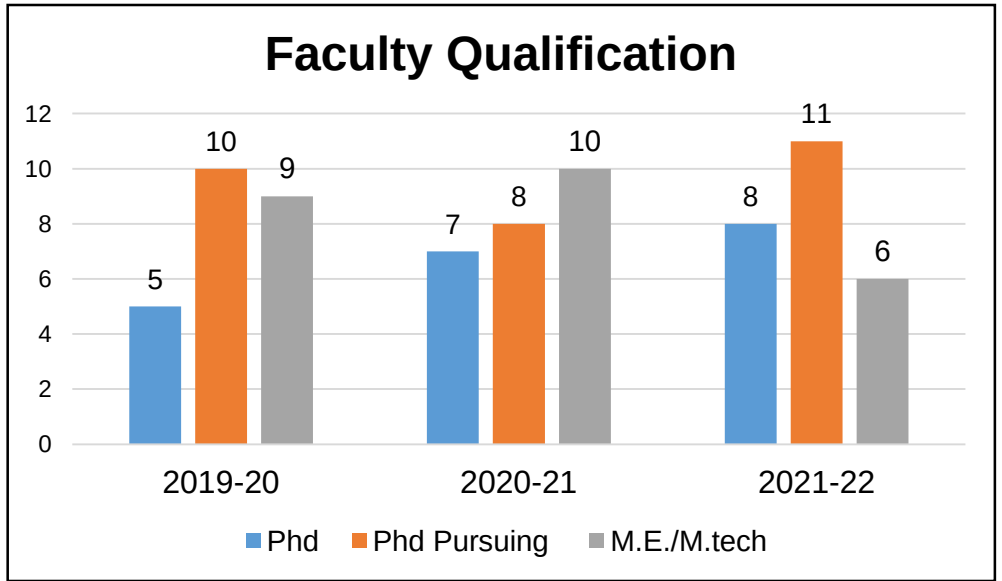


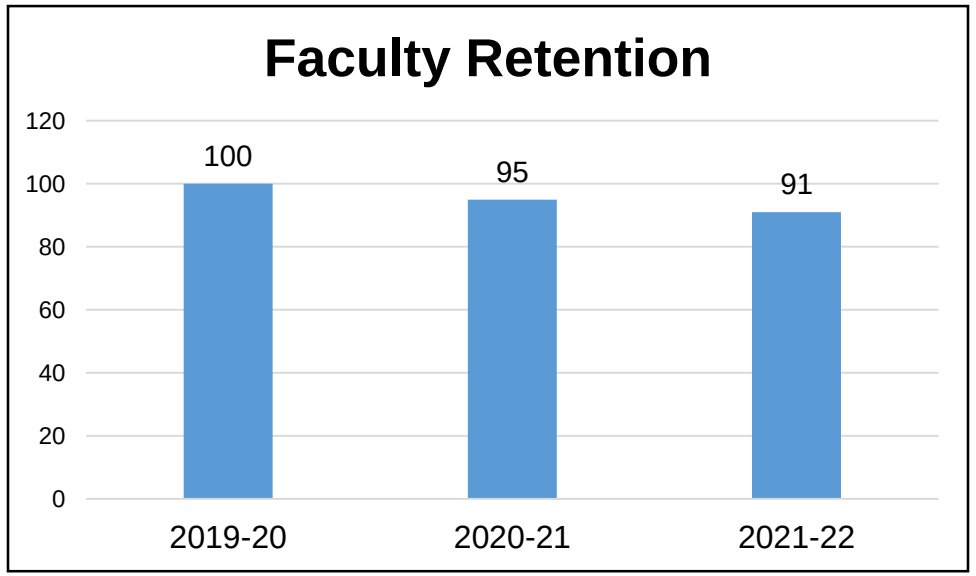
Faculty Information



As per AICTE(APH 2022-23) STR required is 20:1, NBA 20:1 for 6 years







Faculty List from AY 2019-20 to 2021-22

Innovations by faculty in Teaching Learning

Use of ICT

Licenced zoom, MS Team,
Pen tablet G-suit e-resources

Instruction delivery & methods

Blended learning,
Flipped class room,
Think pair share

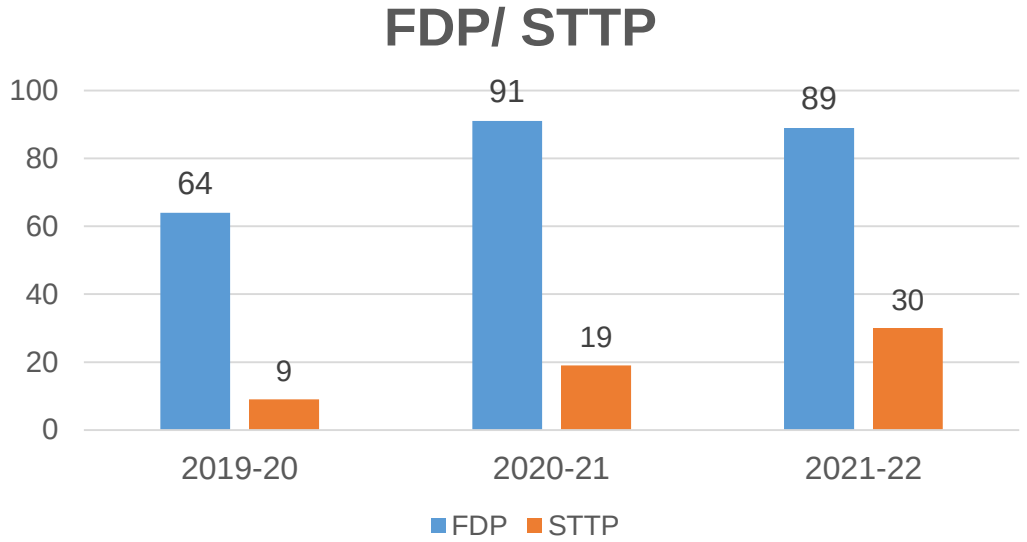
Assessment & Evaluation

FA, IE, Online tools for Evaluation

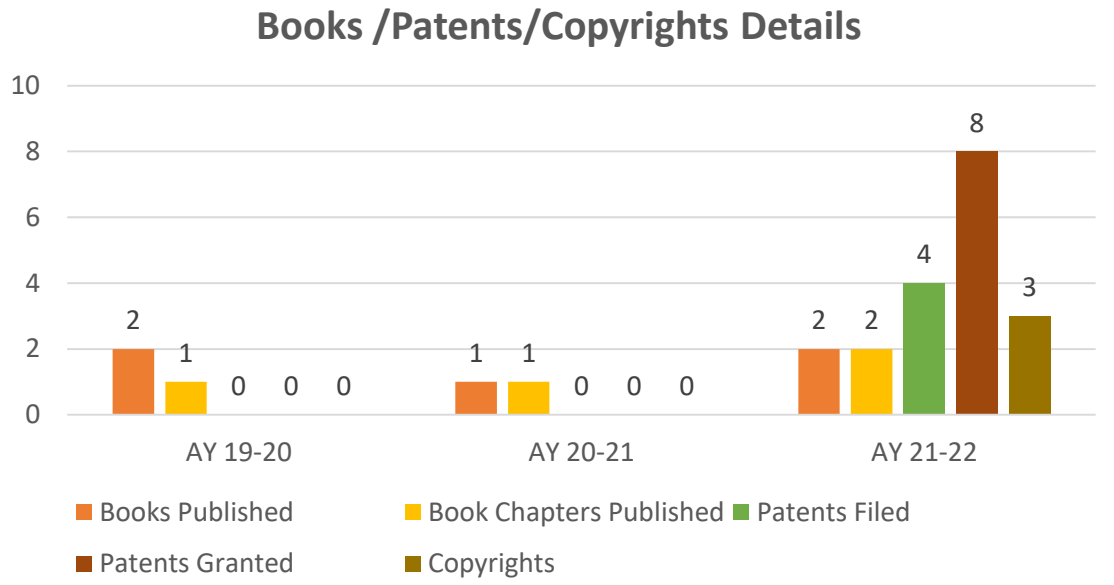
Inclusive Classroom

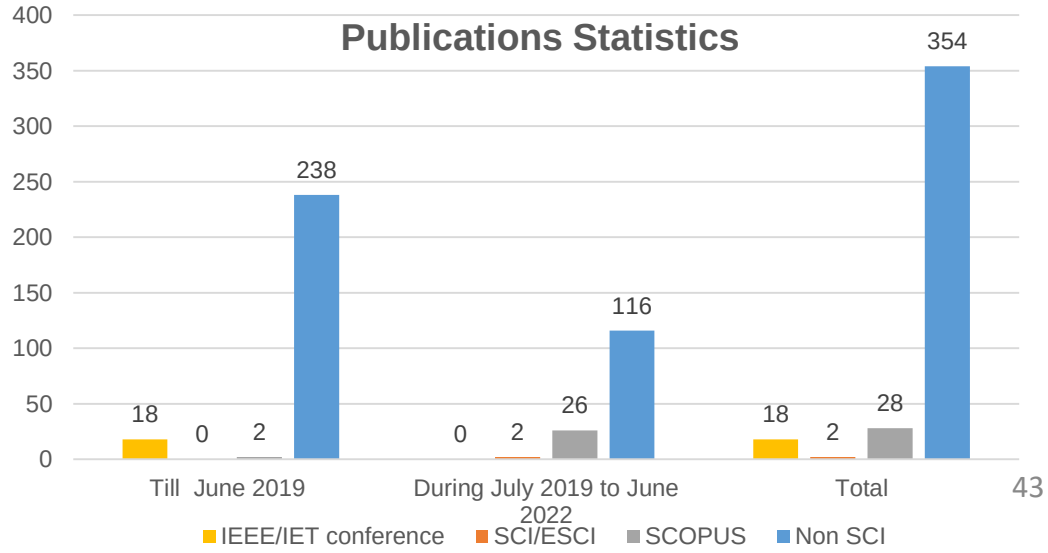
ABL,PBL,RBL,PS,ESD,
Specialization,
Competitive exams

Faculty Contributions



Publications	Till June 2019	During July 2019 to June 2022	Total
Non SCI	238	116	354
SCI/ESCI	0	2	2
SCOPUS	2	26	28
IEEE/IET conference	18	0	18
Total	258	144	402





Academic Research

Faculties Awarded PhD

Dr. Vikas Kaul,
Sant Gadge Baba Amravati University, Maharashtra, 2020

Dr. Anil Vasoya,
Sant Gadge Baba Amravati University, Maharashtra, 2021

Dr. Aaditya A. Desai
SVKM's Narsee Monjee Institute of Management Studies, Mumbai, Maharashtra, 2020

Faculties guiding PhD

Dr. Deven Shah
Guiding-8 Ph.D. students in IT/ Computer, Awarded-4

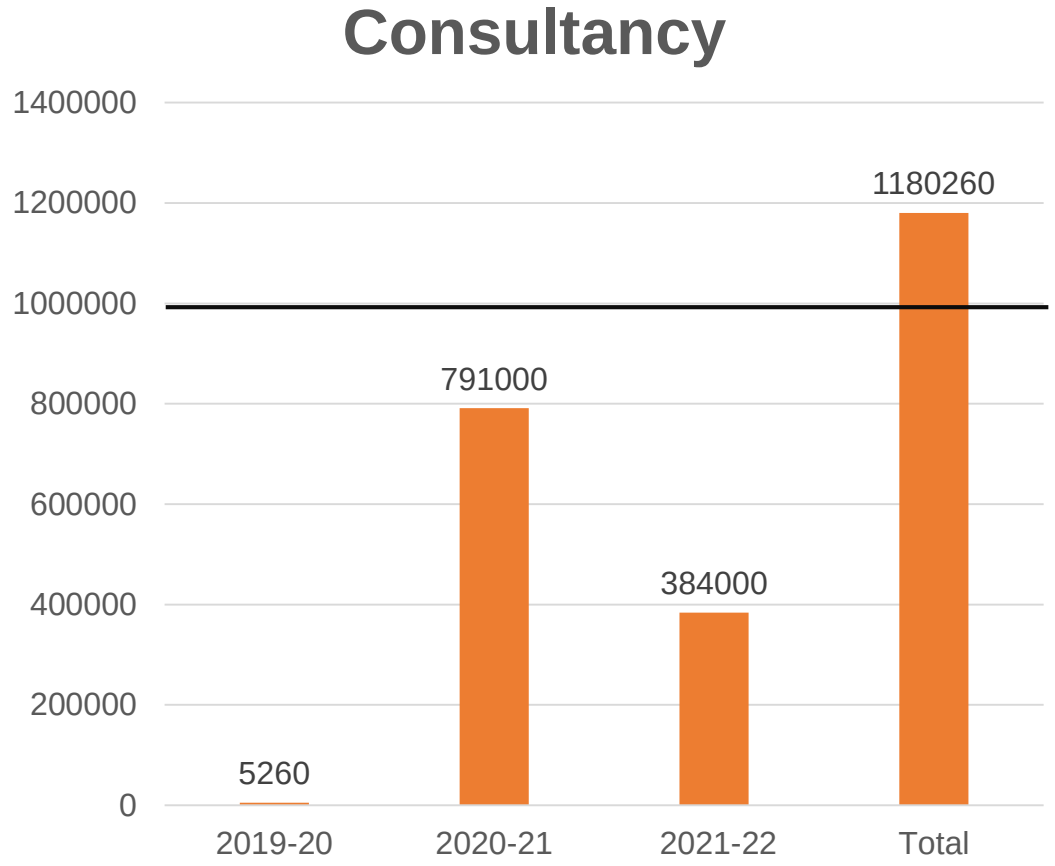
Dr. Kamal Shah
Guiding-2 Ph.D. students in IT

Dr. Rajesh Bansode
Guiding- 6 (5 in IT, 1 in E&TC)
02 PhD IT students submitted their Ph.D. Thesis

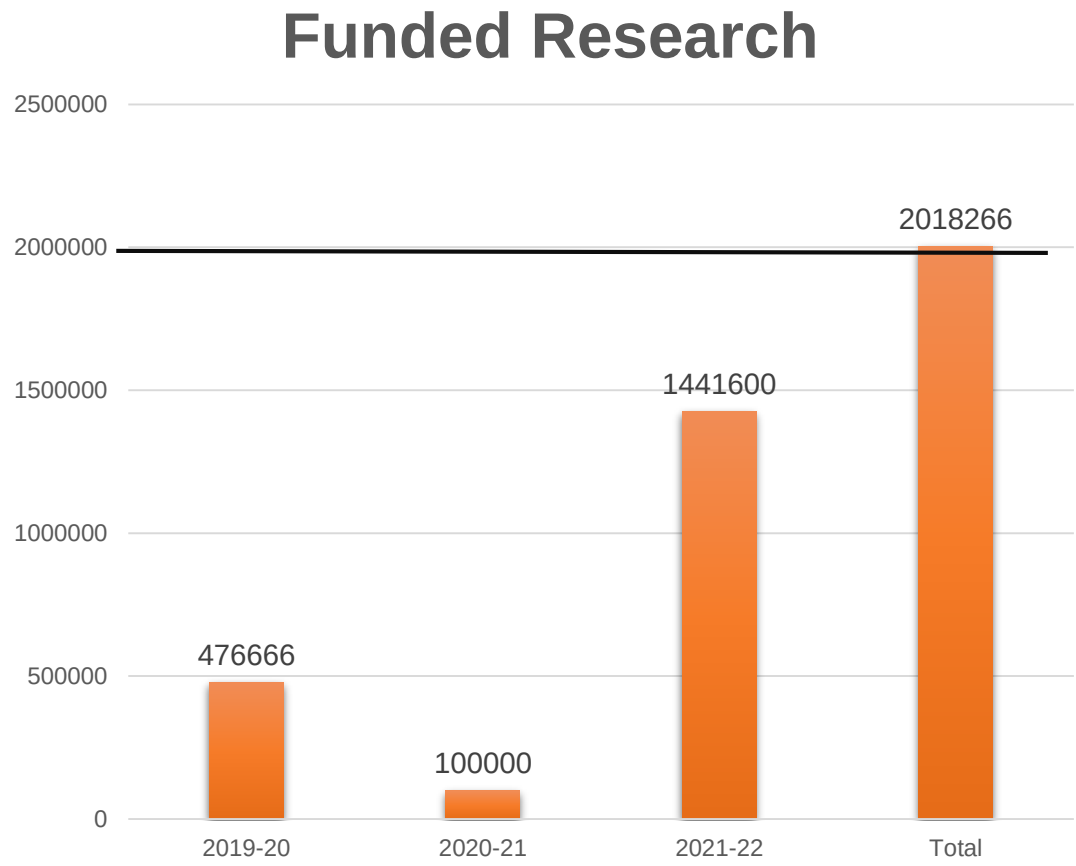
Citation Source : Google Scholar

Name of the faculty member	h-index	i10-index	No. of citations	Google scholar Link
Dr. Deven Shah	9	5	192	https://scholar.google.co.in/citations?user=fn985L8AAAAJ&hl=en
Dr. Kamal Shah	5	4	126	https://kamalsehulshah.wixsite.com/kamalshah/
Dr. Rajesh Bansode	7	6	254	https://scholar.google.co.in/citations?user=gXU75VAAAAAJ&hl=en&oi=ao
Dr. Bijith Marakarkandy	7	6	362	https://scholar.google.co.in/citations?user=i_PgH7UAAAAJ&hl=en
Dr. Sangeeta Vhatkar	9	8	173	https://scholar.google.co.in/citations?user=cBqqstQAAAAJ&hl=en
Dr. Vikas Kaul	7	5	126	https://scholar.google.co.in/citations?user=Qsh04g8AAAAJ&hl=en
Mr. Namdeo B. Badhe	1	0	5	https://scholar.google.co.in/citations?user=ydon5gIAAAAJ&hl=en
Mrs. Pranjali Kasture	2	1	12	https://scholar.google.co.in/citations?user=LYhLiUUAAAAJ&hl=en
Dr. Anil K. Vasoya	3	1	26	https://scholar.google.co.in/citations?user=xvNl4bcAAAAJ&hl=en
Mr. Bhushan Nemade	9	8	189	https://scholar.google.com/citations?hl=en-US&user=ozF3Y1YAAAAJ
Mr. Vijaykumar Yele	1	1	2	https://scholar.google.co.in/citations?user=9DBfxHgAAAAJ&hl=en
Dr. Aaditya A. Desai	5	4	126	https://scholar.google.co.in/citations?user=YX2aI-sAAAAJ&hl=en
Mrs. Purvi Sankhe	2	1	18	https://scholar.google.com/citations?user=_czILi8AAAAJ&hl=en
Ms. Neha Kapadia	2	0	4	https://scholar.google.co.in/citations?user=LFakXWEAAAAJ&hl=en
Mr. Rahul Neve	2	0	6	https://scholar.google.co.in/citations?user=QOvzpIsAAAAJ&hl=en
Mr. Shridhar Kamble	4	2	42	https://scholar.google.co.in/citations?user=6jll_WAAAAAJ&hl=en
Mrs. Mary Margarat	2	1	24	https://scholar.google.co.in/citations?user=L40HgZYAAAAJ&hl=en
Mr. Sudhir Dhekane	1	0	1	https://scholar.google.co.in/citations?user=zUTA1n0AAAAJ&hl=en
Mrs. Neha Patwari	1	0	1	https://scholar.google.co.in/citations?user=4_U9UckAAAAJ&hl=en
Mrs.Shruti Mathur	5	2	57	https://scholar.google.co.in/citations?user=GJOOGukAAAAJ&hl=en
Mr.Sandip Bankar	1	0	2	https://scholar.google.co.in/citations?user=KqEXrfMAAAAJ&hl=en
Ms.Swati Abhang	2	0	14	https://scholar.google.co.in/citations?user=LKoTAxcAAAAJ&hl=en

Consultancy and Funded Research



Total Consultancy in 03 Assessment years **Rs.11,80,260/-**



Total Funded research in 03 Assessment years **Rs.20,18,266/-**

Criteria 6:
Facilities & Technical Support

Adequate and well equipped laboratories and technical manpower

- Mr.Vinod Maurya
  - LAB 203
  - HSC, BCA (Pursuing) Diploma In Computer Engineering
  - Hardware & Networking.
- Mr.Phaujadar Ram
  - LAB 204
  - HSC, BCA (Pursuing) Diploma In PC Maintenance&
  - Networking (2008), MS-CIT from TCSC 2007
- Mr.Ashish
- Mudholkar
  - LAB 205
  - BSC IT, MBA
- Mr.Anil Taware
  - LAB 206,207
  - Diploma in Digital Electronics (BTE)
- Mr. Vaibhav Chavan
  - LAB 313
  - B.Com (Pursuing), Diploma In Computer Hardware & Networking, MS-CIT.
- Mr.Mahendra Vishwakarma
  - LAB 307,309
  - B.Sc

Training attended by laboratory Assistant

Laboratories: Maintenance and overall ambience

- Maintenance of the labs including calibration, testing of the equipment is done by the lab assistants.
- R checkup of equipment is carried out at the end of every semester.
- Stock register is maintained for the laboratories.
- A he requirement minor repairs are carried out by the lab technical staff.
- M epairs are outsourced by following the procedure of the i e.
- I c checks are conducted by Lab in-charges & putting up the lab r ments to HODs on regular basis. Operational and Safety r es
- I tion and Maintenance of Software Periodic replacement / al
- THINK 6S

Details of Hardware, Software Licenses, Lab. Utilization

Safety measures in laboratories-6S Standard

- General Safety instructions
- Electrical safety guidelines.
- CCTV cameras
- First aid box and Class ABC fire extinguishers
- Periodical calibration
- Fully and rightly loaded PC Systems
- Symantec Antivirus and FortiGate 400E Firewall.

Criteria 7:
Continuous Improvement

Continuous Innovative Practices & Impact on Processes

- Gaps Identified
  - **PO1:** Students participation in GATE exam is less and application of fundamentals is not visible.**T-2.49,A-2.54, 2%**
  - **PO2:** Complex problems and analysis of these problems is rarely faced by the students in their curriculum. **T-2.5,A-2.60, 1%**
  - **PO3:** Prototype design /project and creating the solution for the same was not seen. **T-2.48,A-2.59,9%**
  - **PO4:** Investigation of complex problem was rare and lacked by the students. **T-2.48,A-2.52, 1.6%**

- Activity
  - **PO1- DMBI lab expt**
  - **PO2-SIH**
  - **PO3-RBL**
  - **PO4-Capstone project**

- Gaps Mitigated
  - **PO1**-Students have applied **knowledge of engineering** fundamentals to perform experiments in DMBI with application of mathematics to solve complex problems.
  - **PO2-Analysis of problem** is done in solving problems of Smart India Hackathon which require identification, formulation, literature review and analysis of complex engineering problems.
  - **PO3-Design/Development of Solution** is done through RBL activity called Prototype Design.
  - **PO4-Investigation of complex** problem is done through Capstone project in DSA.

Continuous Innovative Practices & Impact on Processes

- Gaps Identified
  - **PO5:** As the exams were held online as per instructions from GoM, Google Classroom was identified as the modern tool for conducting exams. **T-2.43,A-2.47, 1.64%**
  - **PO6**: Lack of awareness/ Connection between engineering students and societal problems was missing. **T-2.41,A-2.35,-2.5%**
  - **PO7**: Students' awareness is less towards how Engineering can help the environment in various manner. **T-2.46,A-2.48, 1%**
  - **PO8:** The practice of performing plagiarism check was not in place for BE project reportsas professional ethics. **T-2.45,A-2.55 , 4%**

- Activity
  - PO5-GCR
  - PO6-Ezine
  - PO7-EVS project report
  - PO8-Plagarism report

- Gaps Mitigated
  - **PO5-Modern tool** like Google Classroom was used for submission of assignments, conduction of exam and sharing of notes.
  - **PO6**-Connect between **Engineer and society** occurs through E-zine magazine helps students to identify, describe and address to the issues in the society.
  - **PO7**-**Design/Development of Solution** is done through RBL activity called Prototype Design.
  - **PO8-Investigation of complex problem** is done through Capstone project in DSA.

Continuous Innovative Practices & Impact on Processes

- Gaps Identified
  - **PO9:** Team work and Individual work skills are required by the industry. **T-2.48,A-2.48,0%**
  - **PO10**: Students lack of communication skills reduces their chances of placements and outreach activities. **T-2.44,A-2.47,1.23%**
  - **PO11:** Project management process and finance is required for the start of project.**T-2.54,A-2.42, -4.72%**
  - **PO12:** Students must update themselves with new and latest topics relevant to the industry. **T-2.47,A-2.53, 2.42%**

- Activity
  - **PO9-Internship**
  - **PO10-Industrial visit report**
  - **PO11-BE project report**
  - **PO12-IEDC grant**

- Gaps Mitigated
  - **PO9**- Internship provided opportunity for **individual and team work** as the project.
  - **PO10**-Desciption of activities carried out during Industrial visit are made by the students in IV report through **written communication**.
  - **PO11-Life Long Learning** is achieved through Project with the broadest context of technological change.
  - **PO12**-IEDC and MRG Grants enable **project management and finance.**

Continuous Innovative Practices & Impact on Processes

- Gaps Identified
  - **PSO1:** Students do not get opportunity to work on live industry projects. **T-2.52,A-2.51**
  - **PSO2:** Implementation and application of IOT, cloud and analytics is observed less in student projects. **T-2.53,A-2.43**
  - **PSO3:** Finding real life solution to any problem is a major challenge**T-2.54,A-2.36**

- Activity
  - **PSO1-Outhouse Internship**
  - **PSO2-Analytics projects**
  - **PSO3-Web Programming**

- Gaps Mitigated
  - **PSO1**-Outhouse internship enable to **create scalable IT solutions.**
  - **PSO2**-IoT projects enable to combine **IoT, Cloud** and **analytics** to provide integrated solution to real time problem.
  - **PSO3**-Web programming subject helps in **moulding any problem into internet/web based solution**.

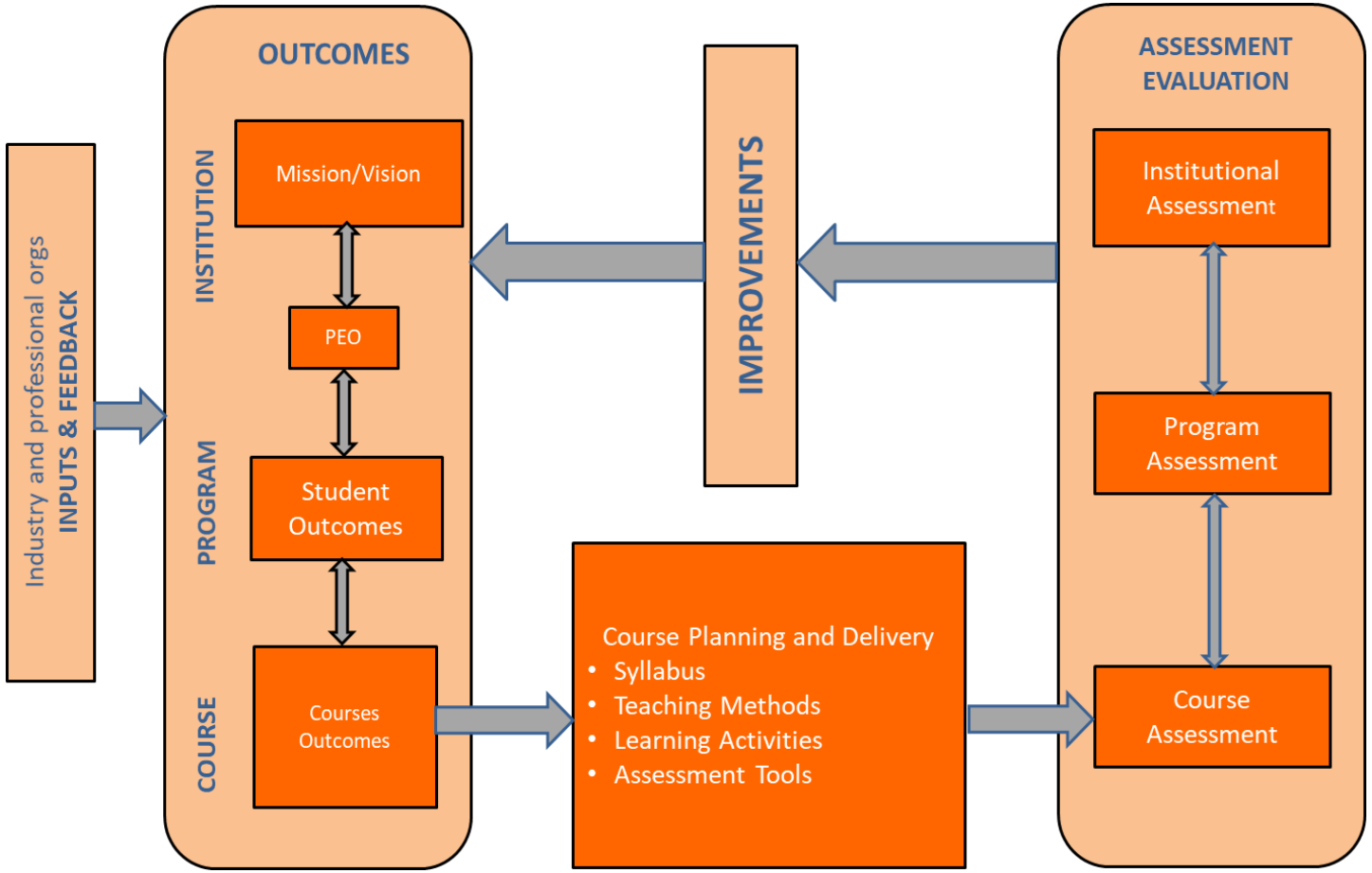
Outcome Based Education Philosophy of the Department

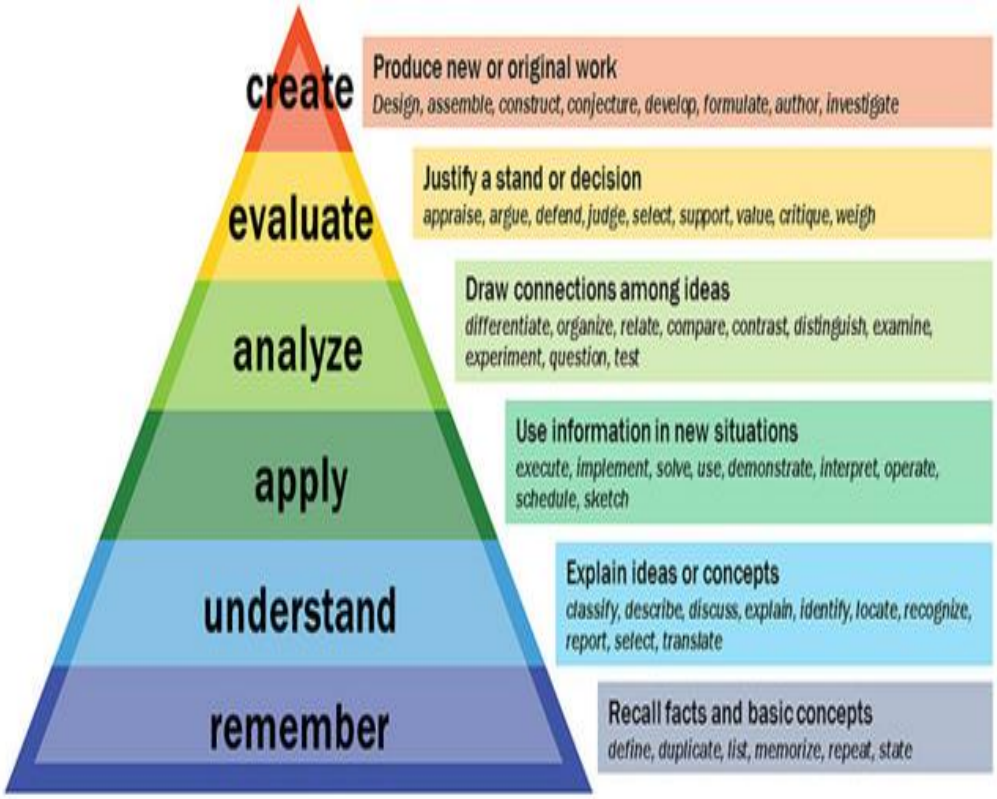
Outcome Based Education: Introduction

- To ensure the highest degree of credibility in assurance of quality and relevance to professional education and come up to the expectations of its stakeholder's to enhance overall educational productivity.
- OBE is a process that involves the restructuring of curriculum, assessment and reporting practices in education to reflect the achievement of high order learning and mastery rather than the accumulation of course credits.
- Outcome-based education is targeted at achieving desirable outcomes (in terms of knowledge, skills, attitudes and attributes/behavior)

1. TEACHING LEARNING
2. EXAM CONDUCT
3. PLACEMENT
4. HIGHER STUDIES & ONLINE CERTIFICATIONS
5. EXTRA/CO-CURRICULAR
6. RESEARCH & DEVELOPMENT
7. CONSULTANCY
8. INNOVATIVE & BEST PRACTICES

OBE Model/ Blooms Level





Program Outcomes

No.	Listing of POs
PO 1	**ENGINEERING KNOWLEDGE: Apply** Knowledge of Mathematics, Science, engineering fundamentals and an engineering specialization to the **solution** of **complex** engineering **problems.**
PO 2	**PROBLEM ANALYSIS: Identify,** F**ormulate, 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 specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.
PO 4	**CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS:** Using research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of 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 limitations.
PO 6	**THE ENGINEER AND SOCIETY: Apply** reasoning informed by contextual knowledge to **assess** societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
PO 7	**ENVIRONMENT AND SUSTAINABILITY: Understand** the impact of professional engineering solutions in societal and environmental contexts and **demonstrate** knowledge of and need for sustainable development.
PO 8	**ETHICS: Apply** ethical principles and commit to professional ethics and responsibilities and norms of engineering practices.
PO 9	**INDIVIDUAL AND TEAM WORK: Function** effectively as an individual, and as a member of leader in diverse teams and in multi-disciplinary 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	**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.
PO 12	**PROJECT MANAGEMENT & FINANCE: Demonstrate** knowledge and understanding of engineering and management and leaders in a team to manage projects and in multidisciplinary environments

Program Specific Outcomes

PSO 1	**To develop the culture of augmenting existing technologies to create scalable IT solutions.**
PSO 2	To combine various technologies like IoT, Cloud and Analytics to provide integrated **solutions to real time problems of government /industries**.
PSO 3	To master in molding any problem into a **web/internet based solutions**.

Measurements PO wise

PO details	Activities	Measurement	Outcomes	Direct/Indirect tools used
Engineering Knowledge	Program based examination	Exam conduct based on GATE questions	SE result 95%, TE 96%, 52%	Direct
Problem Analysis	SIH	Two events of internal evaluation for SIH selection process	Participation at national level SIH	Indirect
Design Development of solutions	RBL	Rubrics for business canvas, paper presentation , industry linkage	Enable students to identify & formulate the problem Statement	Direct
Conduct investigation of complex problems	Capstone Project	OR exam	Providing solution for complex problem using NoSQL	Direct
Modern Tool usage	GCR	Conduct and evolution of exam	Accuracy in result generation	Direct
Engineer & Society	Ezine	Number of articles by all stakeholders	Social problems are identified and possible ideas and solutions are discussed	Indirect
Environment & Sustainability	EVS project	Environment sustainability viz. waste management	Mechanism to provide solutions of environment problem	Direct
Ethics	Plagiarism	Plagiarism check for BE project report, permissible % of Plagiarism	Original contents of reports	Direct
Individual & Team work	Internship	Group assignment	Collaborative learning and functioning effectively in team	Direct
Communication	Industrial Visit	IV report with interaction with outside word	Improvement Writing and communication skills	Indirect
Life Long learning	BE Project	Incorporation of problems from SIH, TV2035, NEP 2020	Paper presentation, Project competition	Direct
Project management & Finance	Grants for IT	ISE, FA, ESE, case study	Understanding mechanism of financial planning	Direct

Comparative PO-PSO Attainment for last 3 Pass out Batches

PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Avg.
2015-19 Batch	1.95	2.02	1.96	1.9	1.89	1.49	1.48	1.43	1.63	1.52	1.52	1.6	1.84	1.7	1.83	1.72
2016-20 Batch	2.04	2.10	2.04	1.98	1.96	1.56	1.58	1.47	1.70	1.57	1.65	1.71	1.88	1.74	1.87	1.79
2017-21 Batch	2.45	2.50	2.49	2.26	2.30	1.93	1.99	1.86	1.85	1.84	2.04	2.17	2.18	1.90	1.88	2.11
2018-22 batch	2.51	2.64	2.66	2.62	2.5	1.74	1.5	1.25	2.25	2.4	2.47	2.53	2.48	1.42	2.11	2.42

Final attainment comprises of 80% attainment from direct tools & 20% from indirect tools

Comparison of POs for last two batches

PO	2017-21 Batch	2018-22 batch	PO value Difference (2018-2017 Batch)	Remarks
PO1	2.45	2.51	+0.06	Technical Improvement among students appearing for competitive exams
PO2	2.5	2.64	+0.14	Improvement in students participation with awareness for competing in SIH, Toy Hackathon etc.
PO3	2.49	2.66	+0.17	Successful implementation of RBL projects during TE,BE as per rubrics
PO4	2.26	2.62	+0.36	Clarity in continuous implementation of Capstone projects in Courses, Open electives
PO5	2.3	2.50	+0.2	Improved awareness of using modern tools for conduct of exam with its evaluation
PO6	1.93	1.74	-0.19	Lack of industry/parents articles for each version/vol.of Ezine magazine
PO7	1.99	1.50	-0.49	Need more awareness on EVS projects, e-waste management etc.
PO8	1.86	1.25	-0.61	Lack of improvement is required for Plagiarism of reports of all UG projects
PO9	1.85	2.25	+0.4	Improved participation of students for carrying out internship as per AICTE internship policy
PO10	1.84	2.40	+0.56	Improvement /more understanding on technological tools during local & outstation industrial visits
PO11	2.04	2.47	+0.43	Successful completion of BE projects among students in all domains
PO12	2.17	2.53	+0.36	Grants received from various agencies received are more and completion of projects has improved
PSO1	2.18	2.48	+0.3	Students through projects have achieved more IT scalable solutions
PSO2	1.9	1.42	-0.48	Lack of IoT projects enable to combine IoT, Cloud and analytics to provide integrated solution to real time problem
PSO3	1.88	2.11	+0.53	Improvement in understanding of Web programming subject which helps students in moulding any problem into internet/web based solution

Action for POs/PSOs Improvement

- PO 6
  - Ezine
  - Social internship with credits
  - Inclusion of Indian constitution in curriculum
- PO 7
  - Inclusion of EVS in curriculum with case study measurements
- PSO2
  - Environment sustainability projects based on IoT viz. e-waste management
  - Use of more cloud services for project implementation
- PO 8
  - Plagiarism quality check
  - Inclusion of Value education and Professional ethics & CSR

CO Assessment Processes

- Course Outcome Assessment
  - Direct Assessment
    - Formative Assessment
    - Practical Assessment
    - Internal Assessment Test
    - End Semester Examination
    - BE Project
  - Indirect Assessment
    - Course Survey
    - Informal Formative Assessment

Mechanism For Listing Of Course Outcomes

- Course Outcomes are the statements that help the learners to identify what he/she will be able to do at the end of the course .
- Course Outcomes are specific and measurable statements that define the knowledge, skills, and attitudes that learners will demonstrate by the completion of a course.
- Course Outcomes are defined by the course instructor.
- All COs must be relevant to the particular course.
- All COs should be written by considering entire syllabus, Teaching Learning Process and assessment tools
- Generally single CO may map to 1 or 2 POs but multiple POs can also be mapped by alternate assessment tools
- COs which are written based on Blooms level 1 or 2 may not map to any PO directly however it can be done in an indirect manner by using appropriate tools.
- Correlation level (CO-PO/PSO) mapping
    - Slightly (Low): 1
    - Moderate (Medium) :2
    - Substantial (High) : 3

Course Outcomes (Internet Programming)

- **C352.1** Implement interactive web page(s) using HTML, CSS and JavaScript.
- **C352.2** Design a responsive web site using HTML5 and CSS3.
- **C352.3** Design and develop web applications using json and JavaScript frameworks.
- **C352.4** Build Dynamic web site using server-side PHP Programming and Database connectivity.
- **C352.5** Describe and differentiate different Web Extensions and Web Services.
- **C352.6** Demonstrate web application using Python web Framework-Django

CO-PO Matrix (Internet Programming)

CO PO Mapping :

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C352.1	M	H	L	H						L		M	M		M
C352.2	M	L	L						M	L		M	L		M
C352.3	M	M		M	M				M	M		M	L		H
C352.4		H	H	H			L					M			H
C352.5	M					L		L			M	M			H
C352.6	M				L				M	M		M			H

Target Attainment:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C352.1	2	3	1	3						1		2	2		2
C352.2	2	1	1						2	1		2	1		2
C352.3	2	2		2	2				2	2		2	1		3
C352.4		3	3	3			1					2			3
C352.5	2					1		1			2	2			3
C352.6	2				1				2	2		2			3
Target level	**2**	**2.25**	**1.67**	**2.67**	**1.5**	**1**	**1**	**1**	**2**	**1.5**	**2.00**	**2**	**1.33**		**2.67**
Attainment Level	**1.77**	**2.05**	**1.49**	**2.45**	**1.35**	**0.85**	**0.89**	**0.85**	**1.76**	**1.34**	**1.72**	**1.80**	**1.21**		**2.42**

Course Attainment of Internet Programming

SEM V : Internet Programming (C352)							
	Direct Assessment Tools				Average Attainment (Direct)	Indirect Assessment (Course Survey)	Overall Attainment
COs	ISA	FA	PRAC	ESE			
C352.1	2.6	2.76	2.74	2.86	2.74	2.89	2.82
C352.2	1.89	2.68	2.76	1.96	2.32	2.82	2.57
C352.3	2.57	2.94	2.74	2.43	2.67	2.84	2.76
C352.4		2.9	2.64	2.39	2.64	2.83	2.74
C352.5			2.74	1.9	2.32	2.82	2.57
C352.6			2.85	2.83	2.84	2.8	2.82

Final Attainment

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C352.1	1.86	2.82	0.93	2.82						0.93		1.86	1.86		1.86
C352.2	1.70	0.85	0.85						1.70	0.85		1.70	0.85		1.70
C352.3	1.82	1.82		1.82	1.82				1.82	1.82		1.82	0.91		2.76
C352.4		2.70	2.70	2.70			0.89					1.78			2.70
C352.5	1.70					0.85		0.85			1.72	1.82			2.75
C352.6	1.76				0.88				1.76	1.76		1.83			2.78
Avg	1.77	2.05	1.49	2.45	1.35	0.85	0.89	0.85	1.76	1.34	1.72	1.80	1.21		2.42

Inference for Low POs attained :

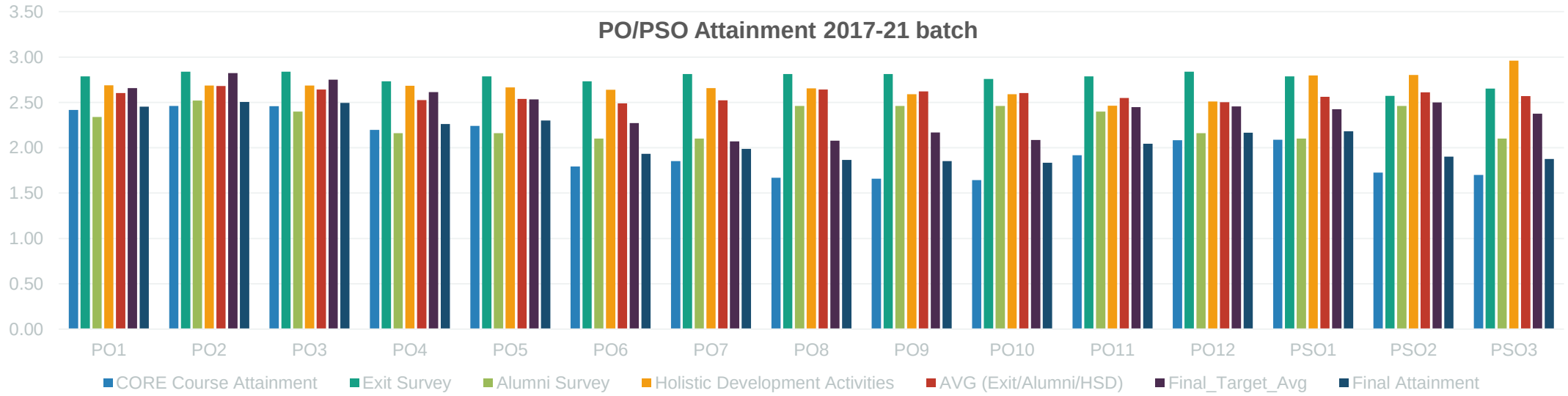
- **PO6 :** Engineering & society :- PBL Projects will be implemented based on problem statements helpful to society viz. App. Development for mentally disabled persons
- **PO7:** Environment & Sustainability:- RBL Projects will be implemented based on problem statements related to waste management system
- **PO8:-**Ethics:-Web page contents will be checked with plagiarism check

PO/PSO Attainment Tools

- PO/PSO Assessment
  - PO/PSO Attainment through Direct methods
    - CO Attainment through Direct methods
      - Formative Assessment
      - In Semester Assessment
      - Practical Assessment
      - End Semester Assessment
  - PO/PSO Attainment through Indirect methods
    - Course Outcome Attainment through Indirect methods
      - Course Survey
      - Programme Exit Survey
  - Alumni Survey

PO/PSO Attainment 2017-21 batch

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CORE Course Attainment	2.42	2.46	2.46	2.20	2.24	1.79	1.85	1.67	1.66	1.64	1.92	2.08	2.09	1.73	1.70
Exit Survey	2.79	2.84	2.84	2.73	2.79	2.73	2.81	2.81	2.81	2.76	2.79	2.84	2.79	2.57	2.65
Alumni Survey	2.34	2.52	2.40	2.16	2.16	2.10	2.10	2.46	2.46	2.46	2.40	2.16	2.10	2.46	2.10
Holistic Development Activities	2.69	2.69	2.69	2.68	2.67	2.64	2.66	2.65	2.59	2.59	2.46	2.51	2.80	2.80	2.96
AVG (Exit/Alumni/ HSD)	2.60	2.68	2.64	2.53	2.54	2.49	2.52	2.64	2.62	2.60	2.55	2.50	2.56	2.61	2.57
Final Target Avg	2.66	2.82	2.75	2.61	2.53	2.27	2.07	2.08	2.17	2.08	2.45	2.45	2.42	2.50	2.38
Final Attainment	2.45	2.50	2.49	2.26	2.30	1.93	1.99	1.86	1.85	1.84	2.04	2.17	2.18	1.90	1.88



Measurements: Teaching learning process (ISO –IP/02)

Activities	As per regulatory/Statutory requirement	Measurements as per Institute requirements.	Benchmarking w.r.t. Quality Objectives/ Institute requirement	Outcome	POs Attained/KSA
Syllabus and scheme formation	AICTE model curriculum as reference-163	206 credits =176(includes 23 credits for project work & internship)+30(comprising of HME)	BOS – Scheme syllabus	43 additional credits are provided to students by offering Internship , RBL, PBL, ABL, ESD, PS, projects, open electives	1,3,4,5,6,9,11,12 Knowlede,Skill,Attitude
Syllabus coverage and delivery	3 hrs / week * 15 weeks = 45 hrs	3 hrs/week * 15 weeks = 45 hrs	100% syllabus coverage	All 6 modules contents are covered in 15 weeks	1,2,3,4,5,6,8,10,11, 12 Knowledge,Skill,Attitude
ISE	2 ISA/ semester	3 ISEs for SE, TE , 1 ISA for BE/semester	Based on 100% course content preparation check	100% passing percentage	1,2,3,4,5,11 Knowledge,Skill,Attitude
ESE	ESE 1/semester	ESE 1/semester	Based on 100% course content preparation check	100% passing percentage	1,2,3,4,5,11 Knowledge,Skill,Attitude
Formative assessment	--	02 Formative assessments conducted per sem	02 FAs are conducted as required	To understand continuous TLP	1,2,3,4,5,11 Knowledge,Skill,Attitude
Co curricular activities (Eg Internships, Professional body activities etc), Extracurricular activities (sports, cultural etc) Holistic activities (RBL,	Credits are assigned for conduct of Internship as Co-Curricular activities	Additional credits are applicable as per curriculum	Conducted in the ratio of 2:1 as per sem requirements with credits	Overall improvement in attaining Graduate attributes,credits.	1,2,3,4,5,6,7,8,9,10 ,11 Knowledge,Skill,Attitude

Quality Measurement

2018-19	2019-20	2020-21	2021-22
a)Syllabus Coverage: **100%,** **b)**Faculty Feedback: >**75%**, **c)**Student Attendance: > **75%,** **d)** Working days: 14-15 weeks, **e)**Results: ✓ **SE: 93.75 (Yearwise)** ✓ **2. TE: 98.65 (Yearwise)** ✓ **3. BE:100 (Yearwise)** **f)Success Rate:91. 14 %**	a) Syllabus Coverage: **100%,** b) Faculty Feedback: > **75%,** c) Student Attendance: >**75%**, d) Working days: 15-18 weeks, e) Results: ✓ **SE: 98.13 % (subject wise), 75% (Yearwise)** ✓ **TE: : 98.13% (subject wise), 85% (Yearwise)** ✓ **BE: >95% (subject wise), 100% (Yearwise)** **f)Success Rate: 97.91 %**	a) Syllabus Coverage: **100%**, b) 360 ° Feedback, Faculty Feedback, Institute Feedback, Feedback about Class with **> 75%,** c) Student Attendance**: > 75%,** d) Working days: 15-18 weeks e) Results: ✓ **SE: 99.57 % (subject wise), 75% (Yearwise)** ✓ **TE: 99.65 % (subject wise), 85% (Yearwise)** ✓ **BE: >95% (subject wise), 100% (Yearwise)** **f)Success Rate: 89.40 %**	a) Syllabus Coverage: **100%**, b) 360 ° Feedback, Faculty Feedback, Institute Feedback, Feedback about Class with **> 75%** c) Student Attendance: **>75%** d) Working days: 15-18 weeks, e) Results: ✓ **SE: 97.62 (ODD Semester)** ✓ **TE: 100 % (ODD Semester)** ✓ **BE: 100 % (ODD Semester)** **f)Success Rate :93.52%**

Measurement: Exam (ISO –IP/03)

Activities	As per regulatory/Statutory requirement	Measurements carried out at Institute level.	Benchmarking w.r.t. Quality objectives/Institute requirement	Outcome	POs Attained/KSA
Design of question paper	As per Bloom's taxonomy	Higher order techniques of Bloom's Taxonomy	To cover at least 30-35% of Syllabus-ISE,IA-40-50%, 100% syllabus for ESE	Effective learning module wise	1,2,3,4,5,8,9,11,Knowledge, Skills, ,Attitude
Conduct of examination	Infrastructure and manpower as required from time to time	ISE-3,oral or practical exam - 1/subjects, ESE-1/subjects	100% term grant, 100% of exam conduct	Effective evaluation and assessment of the students.	8,9,10,Skills,Attitude
Open house	After every written exam	Open House to be conducted for both IA semester Assessment (IA-Th) and End Semester Exam (SEE)	To clear doubts of the students regarding evaluation of answer books after seven days of the result declaration.	Transparency and accountability of the assessment .	8,9,10S,kills,Attitude
Grievance redressal	After conduct of open house	Within 7 days of open house	As per university norms (Null & void), for malpractices found during exam.	Effective resolving of the doubts/malpractices	8,9,10,11, , Skills,Attitude
Result declaration	Within 45 days from the conduct of examination	Within 20 days from the conduct of examination	In no case exceeding result declaration beyond 1 month	Measurement of result benchmark as per quality objective	6,8,9,10,11, , Skills,Attitude
Result analysis	One month	Overall result analysis, comparative result analysis, faculty wise result analysis	Two weeks after declaration of result	Classification of students as slow, medium and fast learners for measuring the student validation.	1,2,5,6,8,9, Knowledge,Skill,Attitude
Remuneration to examiner	For all the staff involved in the conduction of Examination	Remuneration of invigilation, term work ,oral practical, paper assessment, moderation.	Remuneration will be paid after the results are declared	Closure of the exam conduct process	5,8,9, Skills,Attitude

A.Y	BE			TE			SE		
	No. of students appeared	No. of students Passed	Result (in %)	No. of students appeared	No. of students Passed	Result (in %)	No. of students appeared	No. of students Passed	Result (in %)
21-22(ODD)	140	140	100	139	139	**100**	126	126	100
21-22(EVEN)	140	140	100	141	136	**96.45**	138	132	95.65
20-21(ODD)	145	145	100	139	139	**100**	129	129	100
20-21(EVEN)	145	145	100	139	139	**100**	142	142	100
19-20(ODD)	151	148	98.01	147	143	**97.28**	134	129	96.27
19-20(EVEN)	154	154	100	145	145	**100**	133	133	100

- In autonomous status, examinations were conducted to assess students' knowledge and skills acquired from the learning process.
- In A.Y 19-20 (ODD) Semester, the exam was conducted in offline mode before covid-19.
- After A.Y 19-20 (Even) to 21-22 (ODD) semester, the exams were conducted in online mode on the google classroom and Microsoft teams due to Covid-19.
- For A.Y 20-21 (Even) semester, the exams were conducted in offline mode.
- Question papers were set using bloom's taxonomy, questions are mapped with CO's. For the development of PO to meet requirements of OBE model, the examination system which is learner centric is used to ensure that learning is tested using RBT model.

Measurements: Placement (ISO –IP/06)

Activities	**As per regulatory/ Statutory requirement**	**Measurements as per Institute requirements.**	**Benchmarking w.r.t. Quality Objectives/ Institute requirement**	**Outcome**	**POs Attained/ KSA**
Industry Institute Interaction- Industry Visits, II symposium, TPO Meet, HR Meet	-	Advisory Board Meetings, Workshops, Conferences, TPO/HR meets	As per ISO Requirement	Every Year Industry Visits, II symposium, TPO Meet, HR Meet have conducted	1,2,3,4,5,8,9, 11,12 Knowledge,S kills, ,Attitude
Training	90 Hrs	5 hrs/week * 15 weeks = 80 hrs + 10 Mock Tests (10 Hrs)	100% syllabus coverage based on industry requirements	All 6 modules contents are covered with Mock tests and Interviews	8,9,10,11,12 Skills,Attitude
Internship	120 Hours for first year 160 Hours for second year 160 Hours for third year 120 Hours for fourth year Total 560 Hours for 4 years of engineering	560 Hours for 4 years of engineering	As per ISO Requirement	100% all students have completed	8,9,10 S,kills,Attitud e
Outhouse Project	10% of total students in final year student	10% of total students in final year student and minimum 75% attendance in academic and training to apply for outhouse internship/ apprenticeship/ project.	10% of total students in final year student	Successfully completed	8,9,10,11,12 Skills,Attitude
Placement	-	As per ISO standards	As per ISO Requirement	The professional placement percentage is more than 95% and sustained.	6,8,9,10,11,1 2, Skills, Attitude

Measurements: HOC (ISO –IP/07)

Activities	As per regulatory/Statutory requirement	Measurements as per Institute requirements.	Benchmarking w.r.t. Quality Objectives/ Institute requirement	Outcome	POs Attained/KSA
Orientation	AICTE model curriculum	Orientation for S.E at the beginning of the year	As per ISO Requirement	Dedicate human resource and place for HOC Cell activities for better visibility	1,2,3,4,5,8,9,11,Knowledge,Skills,Attitude
Competitive Exam Awareness	As per NAAC requirement	Students opted for HS	As per ISO Requirement	70% of the students appeared for competitive exam	8,9,10,11 Knowledge, skills, Attitude
Counselling	As per cr. 7 (NBA)	Students opted for HS	As per ISO Requirement	More than 80% students counsel by HOC Cell	8,9,10,,11 Knowledge, skills, Attitude
Foreign University Interaction	-	Atleast 4 to 5 universities per A.Y.	As per ISO Requirement	During edufair more than 50 universities participated and interacted.	1,2,3,4,5,6,9,10, Knowledge,Attitude

Extra/Co-curricular activities (ISO –IP/10)

Activities	**As per regulatory/Statutory requirement**	**Measurements as per Institute requirements.**	**Benchmarking w.r.t. Quality Objectives/ Institute requirement**	**Outcome**	**POs Attained/KSA**
Holistic Student Development Need	AICTE model curriculum as reference: Student Induction Program (SIP)	Technical Festival (Zephyr) Workshop / Seminar, Industrial visits, Technical paper presentation, Magazine, Employability skills development ,Internship, PBL, RBL, ABL, sports, NSS, Cultural, Zephyr	AICTE 100 Point activities ,41 Credits are given for Holistic Student Development	Formation of TSDW, 4 credits are provided to students by offering Internship , RBL, PBL, ABL, ESD, PS.	1,2,3,4,5,8,9,11,Know ledge,Skills,Attitude
Sports Activities	Student Induction Program (SIP)	Enertia, T- Spark	Extra credits are given (0.1 pointer)	Overall improvement of the students	8,9,10 ,Knowledge, skills, Attitude
Cultural Activities	SIP Module 9: Extra Curricular Activities (6 hours)	Sojourn, Special Days(traditional day, Tie-Saree Day, Special Day, Rose Day, BE Farewell, Teachers Day	--	Improved creativity skills ,teamwork, coordination, communication skills	8,9,10 ,Knowledge, skills, Attitude
Training & Seminar/ Workshop Organized	Student Induction Program (SIP)	Employability skills development ,Internships, Workshop / Seminar, Zephyr	Credits are given and Counted in 100 points activity	Improvement in latest technical skills, Overall improvement in attaining Graduate attributes, credits.	1,2,3,4,5,6,9,10, Knowledge
Alumni Association	--	Additional credits are applicable as per curriculum	--	Effective interaction with Alumni ,new Internships, Placements opportunities, Guest lectures & Workshops, exposure to latest trends industries	8,10,Knowledge, Attitude

Measurements: R&D Process (ISO –IP/11)

Activities	As per regulatory/Statutory requirement	Measurements as per Institute requirements.	Benchmarking w.r.t. Quality Objectives/ Institute requirement	Outcome	POs Attained/KSA
BE Project Paper Publication by students	AICTE Student Development Scheme	100 Marks for Practical and 50 Marks for Oral.	All BE students to publish paper in IC-ICN and Technology conference once per year.	6 credits assigned per semester	PO12, Knowledge, Skills
Project Competition	Smart India Hackathon	1 competition per year in house and outhouse participation.	100% project completion	Winners are awarded with certificate of appreciation	PO11, Skills and Attitude
Research Based Learning	Student Opportunities under AICTE	Presentation and Report submission	Based on 100% completion of RBL Activities	1 Credit assigned per semester	PO4, PO9, Knowledge, Skills
Technical Seminar: a) RBL b) Professional Body,	AICTE Activity points	1 per semester	Based on requirements of the industry	Bridging of gap between industry and academia	PO5, PO6 Knowledge, Attitude
Copyright	National IPR Policy and Copyrights Rule 2013	No. of copyrights	20% marks allotted of Term work to copyright	IPR in the form of registered copyright	PO11, PO12 Knowledge, Skills
Patent	National IPR Policy	No. of patents	20% marks allotted of Term work to copyright	IPR in the form of registered Patent	PO11, PO12 Knowledge, Skills

QUALITY MEASUREMENT

	2019-20	2020-21	2021-22
a) No. of students completing RBL/TBL projects*	145	145	140
b) Syllabus/Activity Coverage in RBL/TBL	100%	100%	100%
c) Student Attendance*	100%	100%	100%
d) No. of weeks	15	15	15
e) Paper publications	18	21	39
f) Copyrights	-	-	2
g) Patents	-	-	**12 (8 Granted+ 4 published)**

*Note: RBL was introduced in the syllabus in AY 2020-21.

Measurements: Consultancy (ISO –IP/12)

Activities	**As per regulatory/Statutory requirement**	**Measurements as per Institute requirements.**	**Benchmarking w.r.t. Quality Objectives/ Institute requirement**	**Outcome**	**POs Attained/KSA**
Grants : Minor Research Grants (MRG), Innovation And Entrepreneurship Development Centre (IEDC), other government / Private funding agencies etc.	MRG- University of Mumbai Norms & guidelines IEDC- As per Required proposal format of IEDC Others: Guidelines & proposals as per requirement of respective funding agencies.	sanctioned Grants	At least 3 consultancy proposals to be identified per year per department.	Continuous Improvement in IPR	1,2,3,4,5,9,12, knowledge, Skills, Attribute
Industrial Consultancy	As per the requirements of respective Industry needs	No. of consultancies	One consultancy per year per department should be undertaken initially which can be increased afterwards. Respond effectively to the emerging challenges and opportunities both at national and international level relating to SMEs and micro enterprises by increasing consultancy projects every year.	Development of Project vas per the requirements of industry.	1,3,5,6,7,8,9,10,11 ,12, knowledge, Skills, Attribute
Industrial Training	As per the requirements of respective Industry needs	Enrichment in technical skills	At least one training programme/workshop for consultancy should be organized per semester by consultancy committee	Trainings delivered to industry employees	1, 4, 6, 8, 9, 10,11, knowledge, Skills,Attribute

Measurements: Innovative & Best practices

	Innovative practices	Impact on Process
Curricular Aspects	• Industry designed and supported courses • (UIPATH-Robotic Process Automation) • Faculty members deputed for training in RPA. • Subject enrichment (IT department has collaborated with the industry practitioners and has invited them to endorse the courses offered to the students.) • Implementation of GATE curriculum in SE syllabus • Proficiency enhancement through value added skill-based courses in the emerging areas of Information Technology and by promoting MOOCS. (Introduced Block chain as a specialization course)	Courses are aligned with the requirement of the industry Curriculum enrichment through industry design courses
Teaching-Learning & Evaluation	• Blended Learning • Faculty brings Industry practitioners and researchers to co-teach during the regular sessions. • Consolidation of 100 activity points as per AICTE guidelines.	To augment the teaching learning experience
Research , Innovations & Extension	• Project ideas for RBL/PBL/ABL selected from broad areas of TV 2035 • Participation in various workshops, webinars and in events like MyGov Activities • ICICN 2022 (Multicon W) conducted during Feb 2022. • 1 Publication got acceptance in Q1 Journal (SCI) • 6 patents among which 5 granted, 5 accepted and 1 are in process • Consultancy and Industry training: • Industry Training (conducted industry training for Mahindra & Mahindra), INS Hamla training • IPR Awareness webinar was conducted for student and faculty members by IPR office.	• Provide solutions for societal problems, output after two years (publication in renowned journals / IPR / Start-up / Consultancy) • Strategizing to improve overall quality publication in the dept. • Industry Institute interaction
Infrastructure & Learning Resources	Use of G suite account, Zoom licenses, GCR, MS Team, ICT and digital infrastructure for teaching learning. Provide pen tablets to faculty for teaching subjects of mathematical nature	Interactive teaching learning process with Digital Infrastructure
Student Support & Progression	• Professional body activity- ACM, Progressive India, Alumni interaction • National level workshop is scheduled in the month of February under ACM activities • Students working on projects with social relevance	To meet applicable standards with continued motivation for research and development
Governance, Leadership & Management	• Program assessment & quality improvement committee (PAQIC) • Training program for non-teaching technical staff • Inculcation of ethical and social responsibilities through Value Education Seminars/Training • Revised guidelines for Question Paper Setting/ course articulation matrix • Data governance through digital insights team.	• Assess attainment of Program Outcomes (PO), Program Specific Outcomes (PSO), achievement of Program Educational Objectives (PEOs) and recommend action plan for improvement of quality. • Effective grievance redressal at dept. level • Improvement of technical skills • Effective attainment of Program Outcomes in line with the Course Outcome • Effective maintenance of latest and updated records, Data governance

Measurements: Innovative & Best practices

	Best practices	Impact on Process
Curricular Aspects	Industry experts and Alumni as a part of the BoS and advisory.	Valuable feedback towards curriculum/syllabus design
Teaching-Learning & Evaluation	Inclusion of ICT tools, E-resources and techniques used during Pandemic (Online Teaching and evaluation via Zoom, Google Classroom, MS Team) Lesson Plan, Formative Assessment, Recourse book Use of Pen tablet for Mathematical subjects	Ease of participation especially during pandemic Interactive teaching learning process.
Research , Innovations & Extension	Participation in events like MRG, IEDC, SIH, MyGov Activities Faculty Participation in FDP's, and certification courses Encouraged students to participate in project competitions outside the institute. Conduct of International Conference at the department level.	Student participation and useful for activity points Conference forms an important platform for increasing publications in department and networking with outside world.
Infrastructure & Learning Resources	Use of ERP , Website	Effective Data governance
Student Support & Progression	Mentoring and encouraging students for their performance in pandemic situation through Mentors. Teacher guardian-Student mentoring scheme, Scholarships and Financial Support. Technical seminars for students with resource person from industry In-house. Internship (Various tracks provided under the In-house Internship, for strengthening and upgrading the students updated with latest technology) Students undertake outhouse internship in various industries Students' participation in various cocurricular and extracurricular activities	Student support and monitoring
Governance, Leadership & Management	Internal Audits Department curriculum design committee (DCDC) Conduct of Advisory and BOS meetings	Revising the curriculum in order to cater to the needs of the stakeholders is a continuous process in view of the fast paced development in the field of

SHORT TERM AND LONG TERM GOALS

Short Term Goals – 1 to 2 yrs

1. All faculty members to pursue PhD degree
   - IPR creation by all faculty members
2. Placement to all eligible students
   - Student exchange program at other state universities
3. Product development through Internships

Long Term Goals – 2 to 5 yrs

1. All faculty members to be as Ph.D. guides
2. Consultancy domain-wise
   - Faculty exchange program at international universities
3. Center of excellence one per domain

Continuous Improvement

a. Closing the loop at course level, programme level and Institute level ensures quality assurance for students/graduates of their results, placement, higher studies, entrepreneurs.

b. All attainment analysis is made to provide continuous improvement through either in course delivery, Assessment and curriculum (Essence of OBE)