Electronics and Telecommunication Programme(UG)

Welcomes NBA Committee

3rd and 4th September 2021

Department Highlights

- **2002**: Started with UG (EXTC) with an intake of 60
- **2003**: UG (E&TC) intake increased to 120.
- **2008**: PG (E&TC) Started with an intake of 18
- **2011**: NBA Accreditation (1st Cycle) for 3 Years
- **2014**: Ph.D. (Technology) E&TC started with an intake of 10
- **2015**: Permanent Affiliation by University of Mumbai
- **2016**: NBA accreditation (2nd Cycle) for 3 Years
- **2017**: Institute Awarded 'A' Grade by NAAC for 5 years
- **2019**: NBA accreditation (3rd Cycle) for 3 Years
- **2019**: Conferred Autonomous Status for next 10 years

Faculty Achievements

Dr. Lochan Jolly

- Awarded the Special Recognition for Academic Excellence in Faculty (Regional) Category under IEI BLC-FCRIT Excellence Award.
- Lab Migration contribution award by FOSSEE, IIT Bombay
- Designing Science Laboratory for School Students recognition by IEEE Bombay Section

Dr. Payel Saha has been awarded eminent educator award, Global Eminence Awards-2020, for outstanding dedication and commitment.

Dr. Sangeeta Mishra has been awarded BSS Annual Awards 2019-2020, winner of "Dr APJ ABDUL KALAM BEST SCIENTIST AWARD" for Electronics, and

Global Eminence Award 2020 and Summit winner of Eminent Educator Award 2020-2021 from Bestow Edutrex International.

Research Grant

Sr. No.	A.Y	Project Title	Funding Agency	Amount	Duration
1	A. Y 2020-21	Sanitizing Chamber	DST	Rs. 1,00,000/-	1 year
2	A. Y 2019-20	IEDC, MRG	MU	Rs. 2,00,000/-	1 year
3	A.Y 2018-19	IEDC, MRG	MU	Rs. 2,13,000/-	1 year

Institute Vision and Mission

*Thakur College of Engineering and Technology will excel in Technical Education to become an **internationally renowned premier Institute** of Engineering and Technology.*

*To provide state-of-the-art **infrastructure and the right academic ambience** for developing **professional skills** as well as an environment for the growth of **leadership and managerial skills** to students which will make them **competent engineers** to deliver **quality results in the industry**.*

Department Vision and Mission

*The department of Electronics and Telecommunication Engineering envisions developing **internationally competent professionals** with a **sense of responsibility and social sensitivity**.*

*To deliver an excellent undergraduate engineering program that prepares students **for successful careers** with **social sensitivity**, and also actively promotes the **culture of research** amongst students and faculty.*

Program Educational Objectives (PEOs)

PEO 1

- To provide students with a strong foundation in mathematical, scientific and electronics, and communication engineering fundamentals required to solve engineering problems-thus generating core competence. (**Knowledge**)
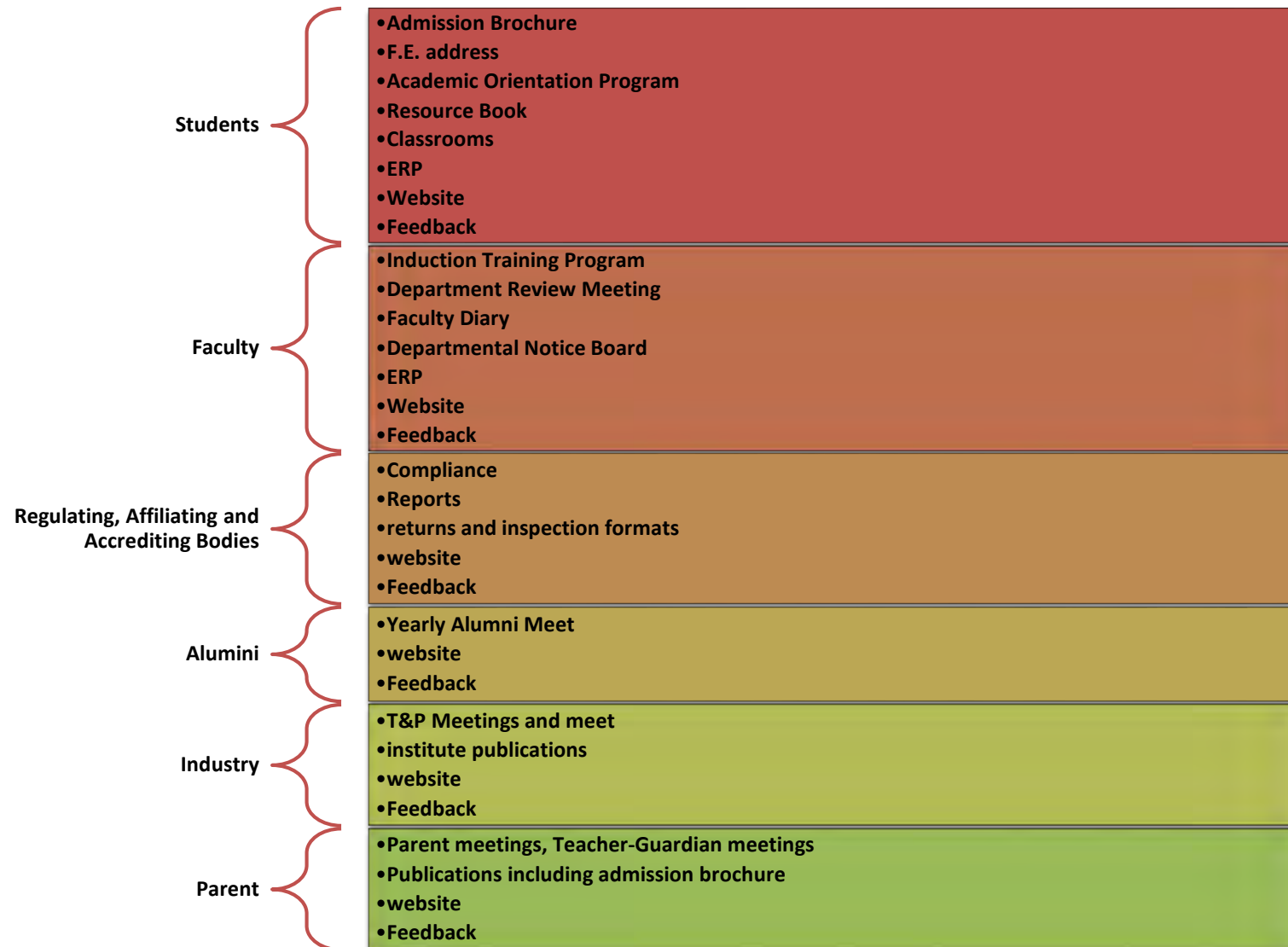
PEO 2

- To prepare the students for successful and productive career choices in both public and private sectors by identifying the gaps between the curriculum and the industry requirement. (**Skill & Professionalism**)
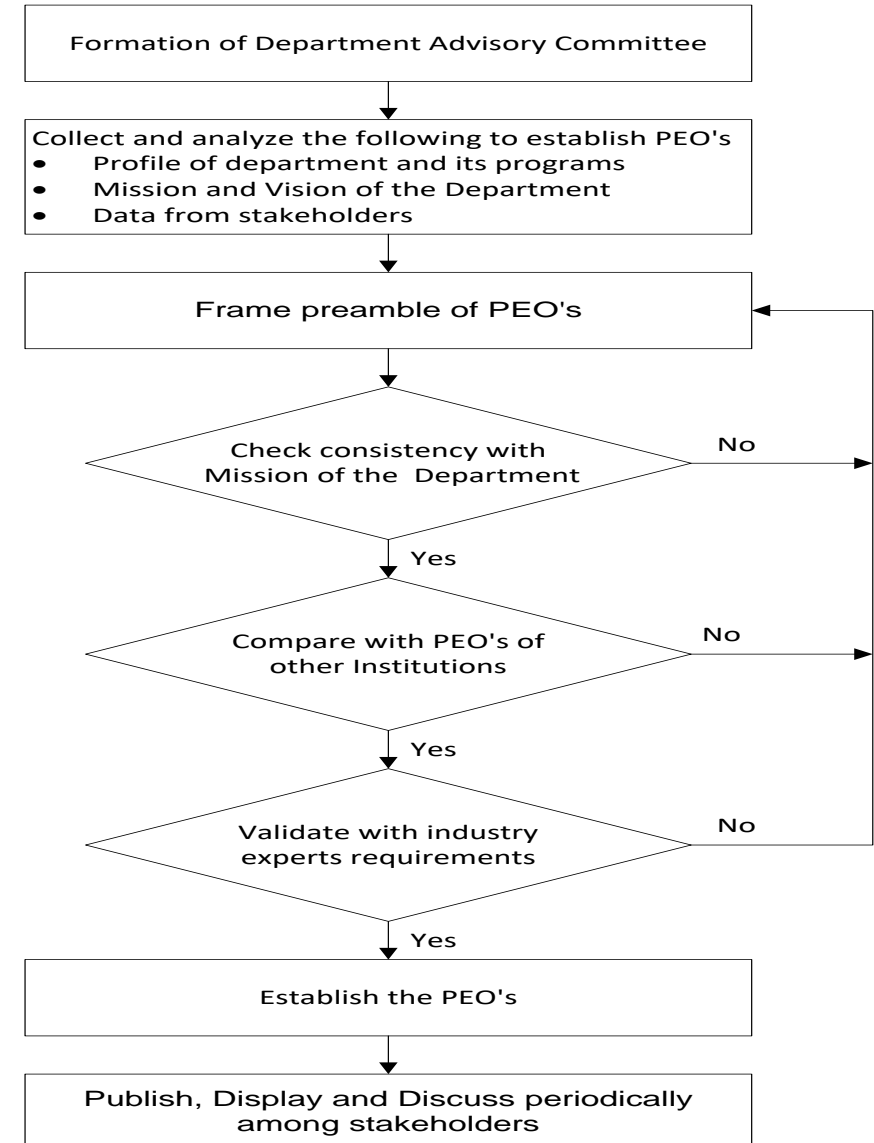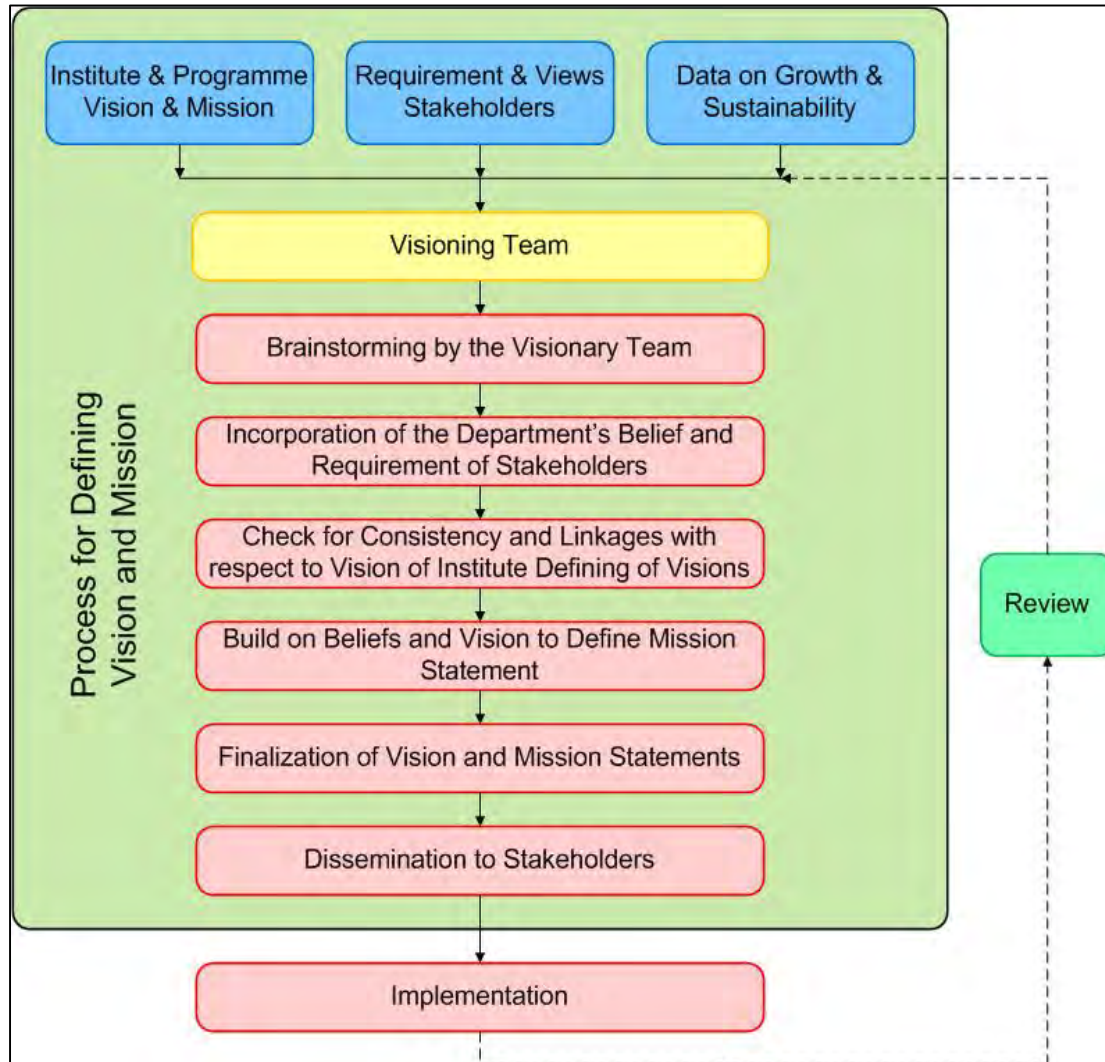
PEO 3

- To promote awareness amongst students for life-long learning and to inculcate in them professional and ethical attitude, good leadership qualities, and commitment to social responsibilities (**Attitude & Social Responsibilities**)
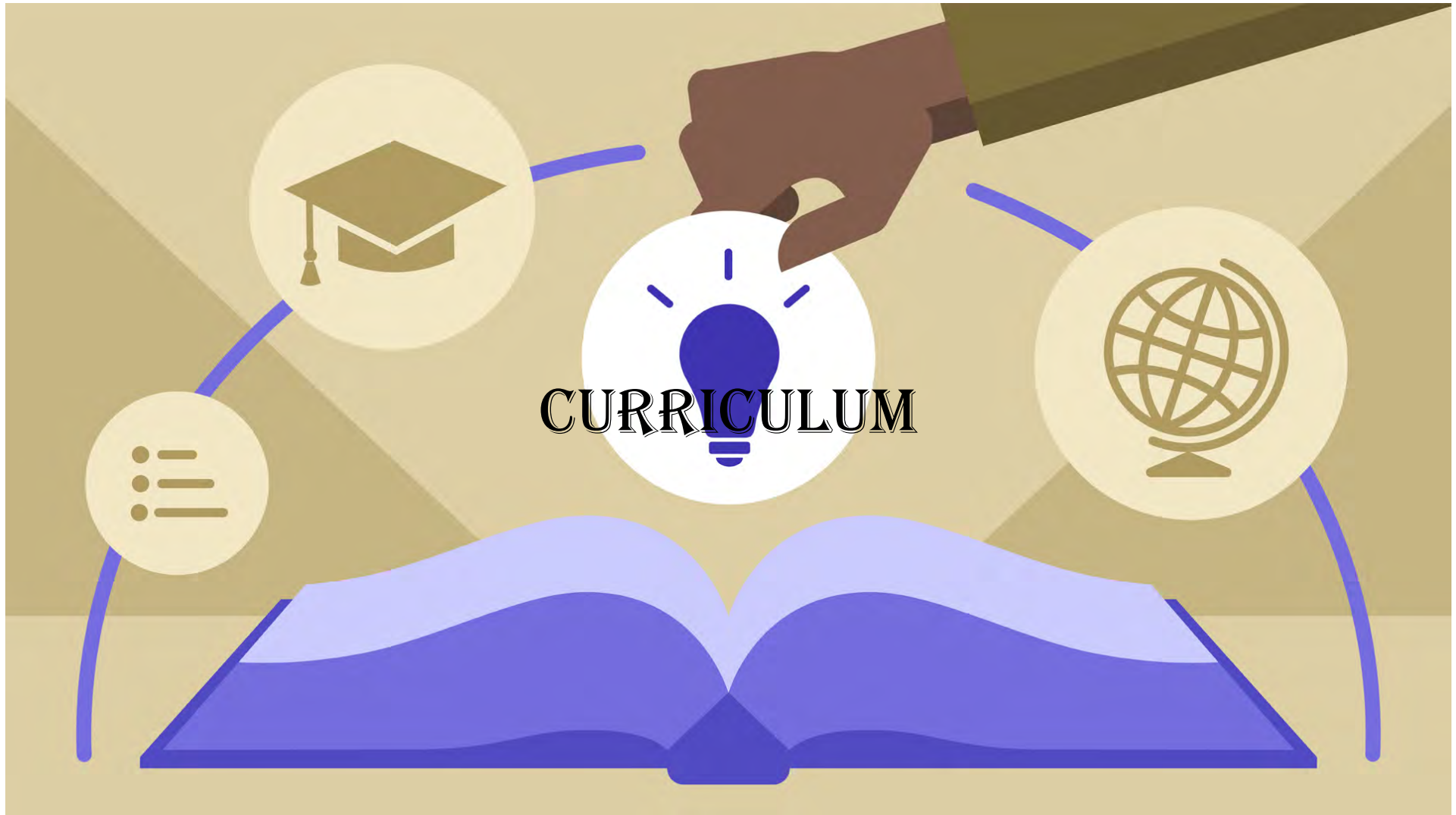
Process of Dissemination of PEOs amongst stakeholders

Students
- Admission Brochure
- F.E. address
- Academic Orientation Program
- Resource Book
- Classrooms
- ERP
- Website
- Feedback

Faculty
- Induction Training Program
- Department Review Meeting
- Faculty Diary
- Departmental Notice Board
- ERP
- Website
- Feedback

Regulating, Affiliating and Accrediting Bodies
- Compliance
- Reports
- returns and inspection formats
- website
- Feedback

Alumini
- Yearly Alumni Meet
- website
- Feedback

Industry
- T&P Meetings and meet
- institute publications
- website
- Feedback

Parent
- Parent meetings, Teacher-Guardian meetings
- Publications including admission brochure
- website
- Feedback

Process for Defining Vision and Mission (left flowchart):

- Institute & Programme Vision & Mission
- Requirement & Views Stakeholders
- Data on Growth & Sustainability

→ Visioning Team
→ Brainstorming by the Visionary Team
→ Incorporation of the Department's Belief and Requirement of Stakeholders
→ Check for Consistency and Linkages with respect to Vision of Institute Defining of Visions
→ Build on Beliefs and Vision to Define Mission Statement
→ Finalization of Vision and Mission Statements
→ Dissemination to Stakeholders
→ Implementation

Review

Right flowchart:

- Formation of Department Advisory Committee
- Collect and analyze the following to establish PEO's
  - Profile of department and its programs
  - Mission and Vision of the Department
  - Data from stakeholders
- Frame preamble of PEO's
- Check consistency with Mission of the Department — No / Yes
- Compare with PEO's of other Institutions — No / Yes
- Validate with industry experts requirements — No / Yes
- Establish the PEO's
- Publish, Display and Discuss periodically among stakeholders

Curriculum

Pre - Autonomy

University of Mumbai Curriculum

Range of credits from 175-180 for a student to be eligible to get Under-Graduate degree in Engineering.

More focused on Core Courses

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Before Autonomy (UoM & OBE)

Choice Based Credit Grading System (CBCGS) & Outcome Based Education (OBE) as per University & Accrediting bodies

After Autonomy

- Strengthening of Present Courses as per Industry & Research needs
- Design & Development of Holistic Student Development Scheme
- Design & Development of Programs in the Emerging Areas of specialization

Curriculum

Post - Autonomy

2019 Onward

AICTE Model Curriculum based

Introduction of HSD/HME scheme

Inclusion of Internship programs, Major/Minor specialization, Activity Points

13

Scope: Acquisition of knowledge and technical skills that students need to develop as a part of standardize learning plan to strengthen, broaden their diverse curriculum learning to be globally employable

Domain wise core, elective subjects classification.

Mapping of subjects, open electives, and professional electives with IITs, NIT, state universities, industries.

Non-credit academic extension programmes through audit courses.

Credit based specialization courses in the field of engineering and technology.

Field work, survey work, field project work as a part of in house and out house projects.

120 hours of activity as per AICTE guidelines to enhance social, welfare, and community services.

Curriculum enhancement to prepare students for public and private sector competitive examination.

Credit Distribution - Scholastic

S.N.	Category	AMC Breakup of Credits (Total 160)	TCET Breakup of Credits	
			2019	2020
1	Humanities and Social Sciences including Management courses	12	12	9
2	Basic Science courses	25	27	27
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc	24	28	24
4	Professional core courses	48	48	61
5	Professional Elective courses relevant to chosen specialization/branch	18	20	20
6	Open subjects – Electives from other technical and /or emerging subjects	18	12	12
7	Project work, seminar and internship in industry or elsewhere	15	18	9
8	Mandatory Courses [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Knowledge Tradition]	(non-credit)	(non-credit)	(non-credit)
	Total	**160**	**165**	**162**

Credit Distribution Chart-Co Scholastic & Non Scholastic

				Credits (2019)	Credits (2020)
Additional Credit Offering for Holistic Student Development (20 Percent)					
1	Professional Skills I-VIII (Industry Specific/Interdisciplinary/Case Study Based Learning/Experimental Learning)		-	12	12
2	Project Based Learning I-IV (Industry/Research/Interdisciplinary)		-	8	8
3	Research Based Learning I-IV (Academic Research/Online/MOOCS)		-		
4	Activity Based Learning I-IV (Societal/Life Skills/Co-Curricular/Extra-Curricular/Extension)		-	4	4
5	Employability Skill Development (Industry Specific/Interdisciplinary) (Conducted by T&P)		-	-	6
		Total		**24**	**30**
Credit Offering for Holistic Student Development					
1	Extraordinary Achievement Credits (1. National Level Achievements 2. National Level Competitive Exams 3. Standard International Certifications 4. Major Contribution to Society)	Additional Credits based on Certification		8	8
Credit Offering for Specialization					
1	Specialization in Emerging Areas	Based on exam conducted by Department		20	18
Grand Total				165+24+8+20= **217**	162+30+8+20 = **220**

PBL & ABL – 2 hrs/Week

Project Exhibition & Competition

SE – IC the Future

TE – EXIM (Exhibition in Microcontroller)

BE – Minds Eye

Publications in IC PAGE

Publication in Multicon-W

Article in E-Magazine 'Abhivarg'

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Activities conducted in Semester III
Theme: Social Awareness

Extension Activity

E waste Management

Quiz on Current Affaires

Personality Development WAT and TAT test

Online Treasure Hunt

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Creative Writing

Extempore Speech

Group Discussion

Extension Activities (Connecting with Society)

Survey designing and study

Project Based Learning

A.Y 2019-20

Domain Wise Project Distribution

Domain	Total No of Projects
Embedded Systems	6
Electronics Devices and Modelling	16
Communication Engineering	10
Signal Processing	7
Antenna And Microwave Engineering	4
Information Technology	3
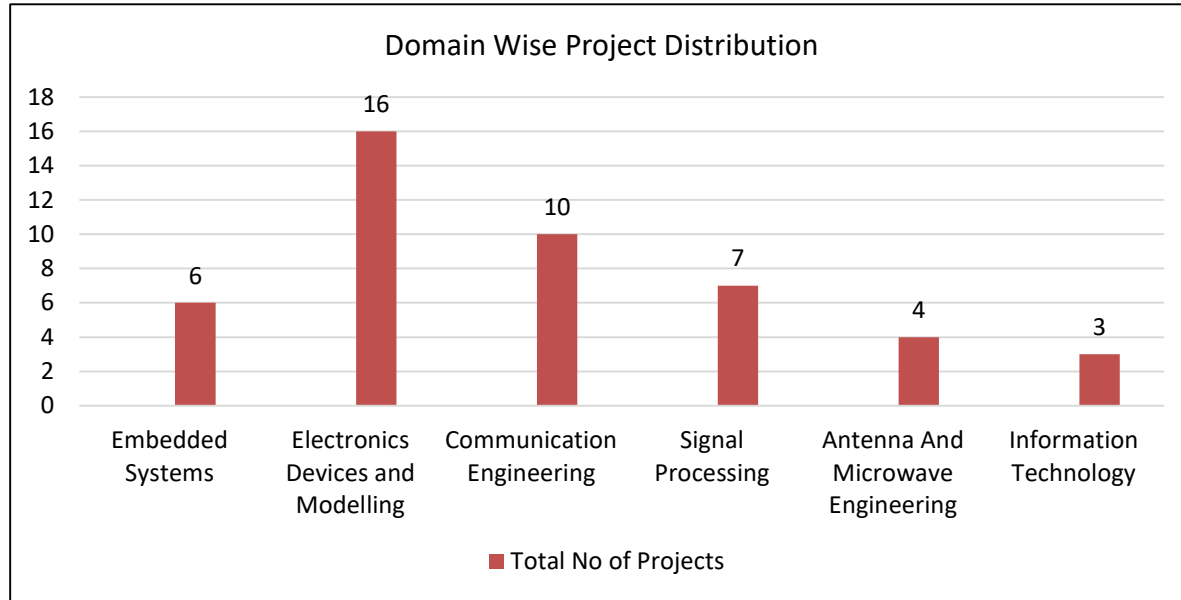
First year of autonomy

Project were divided as per domains

Each group had maximum 3 students

There were 46 groups

22

Website to create awareness about Ayurveda(Ayurveda)

Website for infographics on new education system(NExPlain)

Website of all educators for needy people and suggest application area(Educator)

A.Y 20-21: ODD Semester III
Theme: Website Development

❑ Total 45 groups
❑ Some of the areas were:
- Carrier guidance
- Best out of waste
- Effective use of E waste
- Conversion of quantity in SI Units
- Reuse of electronic equipment's for educational purpose

A.Y 20-21: Even Semester IV
Theme: Gamification: Learning through games

❖ Total 47 groups
❖ Some of the areas were:
- Hangman
- BJT cards
- Quizzycar
- LogiX
- Connect
- Strokes

Snake and Ladder

BRAIN JIGSAW TEASER
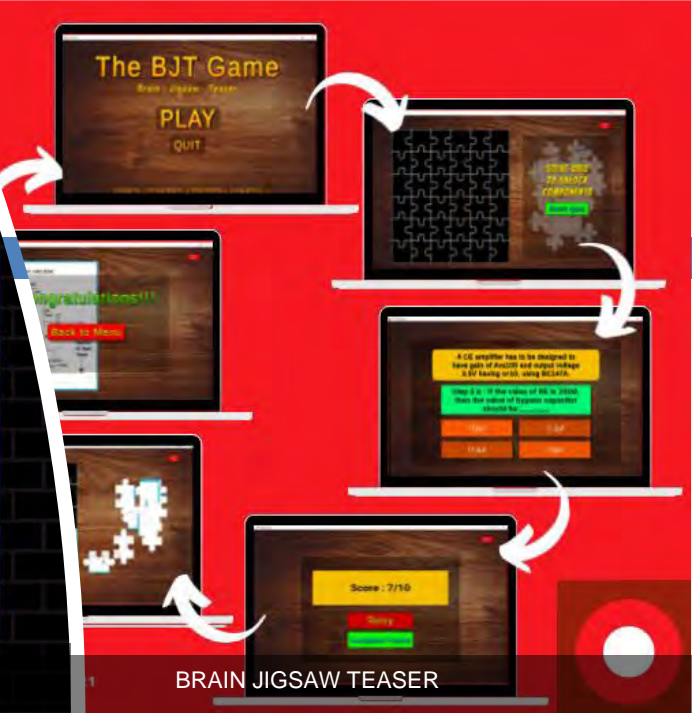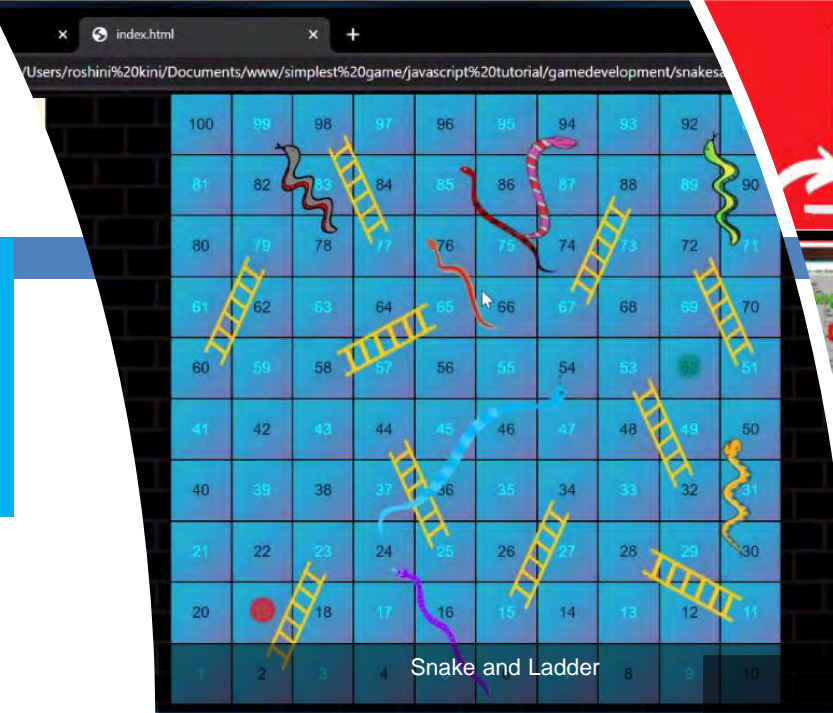
MANJI LITE

This Game will include many hurdles, and as the player or players move ahead the hurdles may or may not become tougher.

It will involve strategizing against the opponents, to ensure you move ahead in the game. The player to reach the end first wins the game.

This game can be played by more than two members as well.

This game will be played by a dice which is based on a random probability.

Tools used to develop the game : Python, Visual Studio.

Department Profile

Student

- 120 Intake +
- 12 DSE –(BE)
- 18 –(ME)
- 10- (Ph.D.)

Faculty

Faculty Members:27
PG recognized:06

Professors: 04,
Adj. Prof ;01
Assoc .Profs: 03,
Assistant Professors: 19

Ph.D. : 05,
Ph.D.(Pursuing): 04,
M.E/M.Tech/P.G: 18

Approved Ph.D. guides: 03 (UOM)

04 Laboratory Assistants

Infrastructure

05 UG Classrooms
01 ME Classroom
1 Tutorial/Smart Class room

9 UG Labs
1 ME LAB
1 Ph.D. Lab (shared)

1 HOD Cabin
1 Faculty Room
1 Meeting Room

Departmental Library

Seminar Halls-3,
Multipurpose room,
Digital Library

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Student Faculty Ratio

Year	No of Students (Sanctioned Intake)	No. of students (Actual Intake)	Total no. of faculty members	STR (Sanctioned Intake)	STR (Actual Intake)
2016-17	432	443	28	15.43	15.82
2017-18	432	453	28	15.43	16.17
2018-19	432	456	24	18.78	19.83
2019-20	396	418	25	15.84	16.72
2020-21	396	421	24	16.5	17.54
2021-22	396	419	23	17.22	18.22

STR
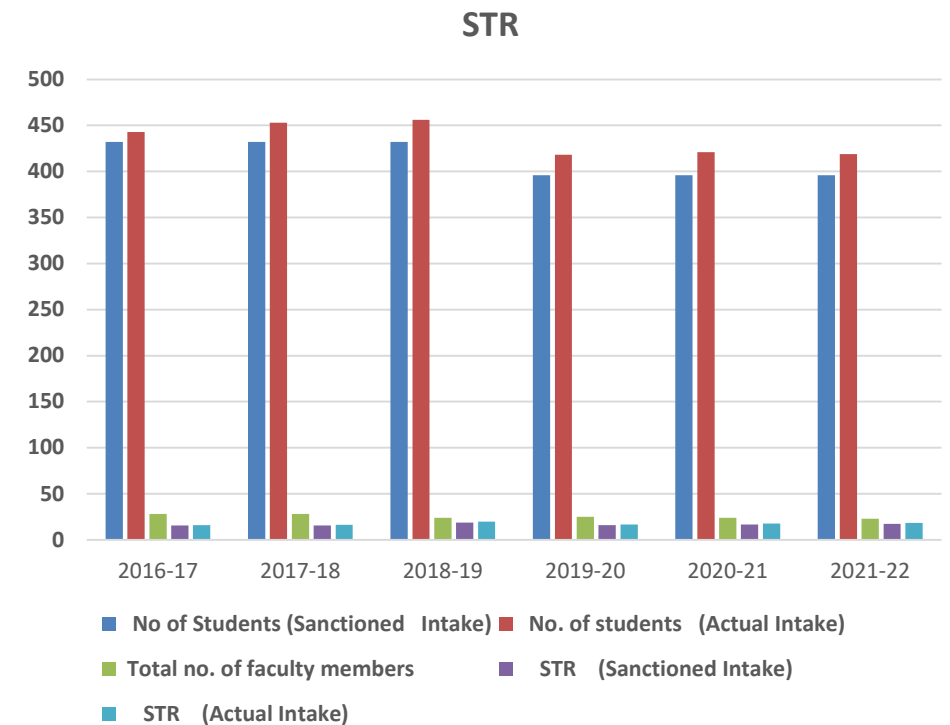
Faculty Cadre Ratio

Sr. No	Cadre	AICTE Requirement UG	AICTE Requirement PG	No. of faculty members currently in the department
1	Professor	02	1	03
2	Adjunct Professor	--	--	01
3	Associate Professor	06	1	02
4	Assistant Professor (incumbent 5th pay)	-	-	01
5	Assistant Professor (6th pay)	16	1	16
6	Assistant Professor (Ad-Hoc)	00	00	03
Total number of faculty members		**24**	**03**	**26**

No. of faculty members currently in the department

Legend:
- Professor
- Adjunct Professor
- Associate Professor
- Assistant Professor (incumbent 5th pay)
- Assistant Professor (6th pay)
- Assistant Professor (Ad-Hoc)
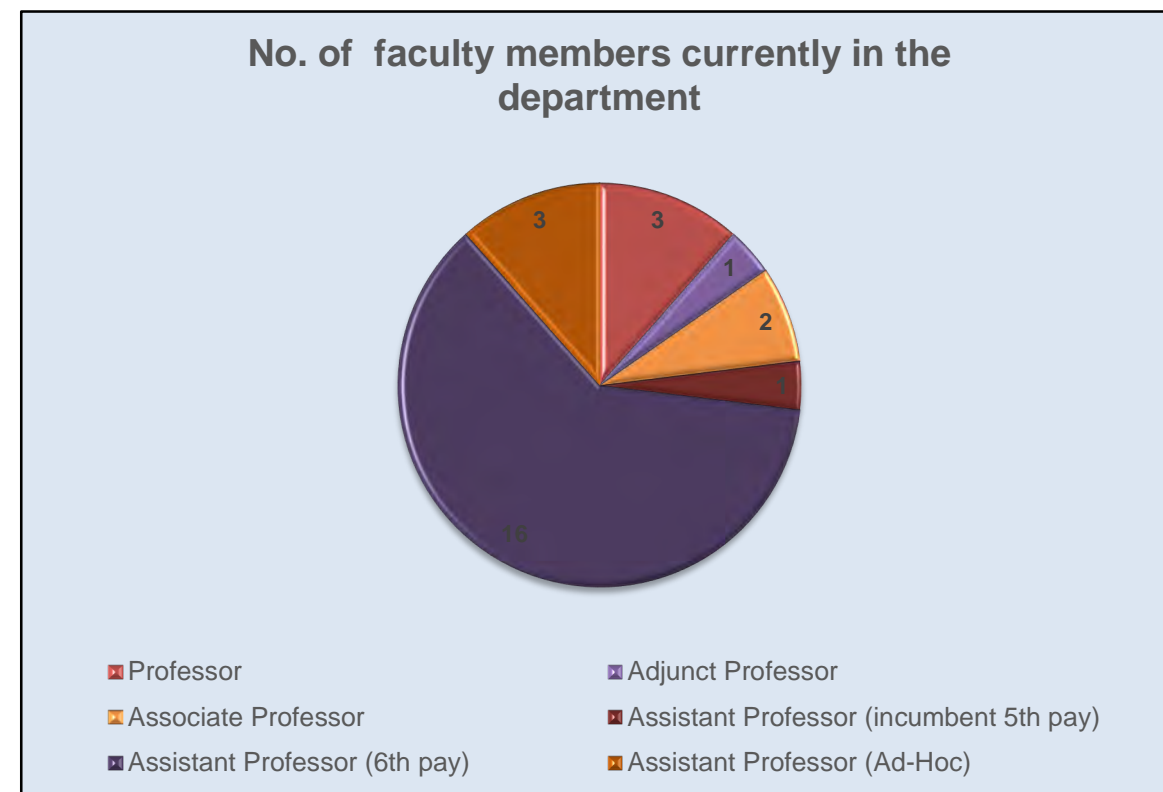
* Includes 1 Incumbent Assistant Professor (5th Pay)

Faculty Qualification

Sr. No	Academic Year	A.Y 21-22	A.Y 20-21	A.Y19-20	A.Y 18-19
1	No. of regular faculty with Ph.D	4	4	4	4
2	No. of regular faculty with ME/M.Tech	21	22	23	21
3	No. of regular faculty required to comply 20:1 ratio	21	21	21	23

Faculty Qualification
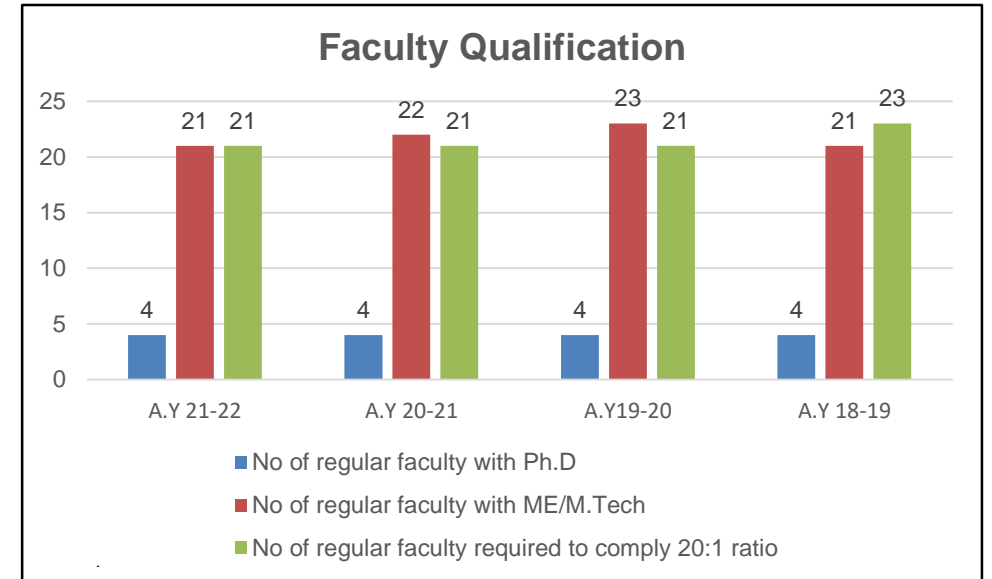
* Includes PG faculty

Faculty Retention

Faculty Retension Statistics

	AY 18-19	AY:19-20	A.Y:20-21
More than5 Years	21	21	22
Between 3-5 Years	2	2	1
Less than 3 years	3	5	4

* Includes PG faculty

Faculty Publications

Publications

Number of Publications with h-index and i-index
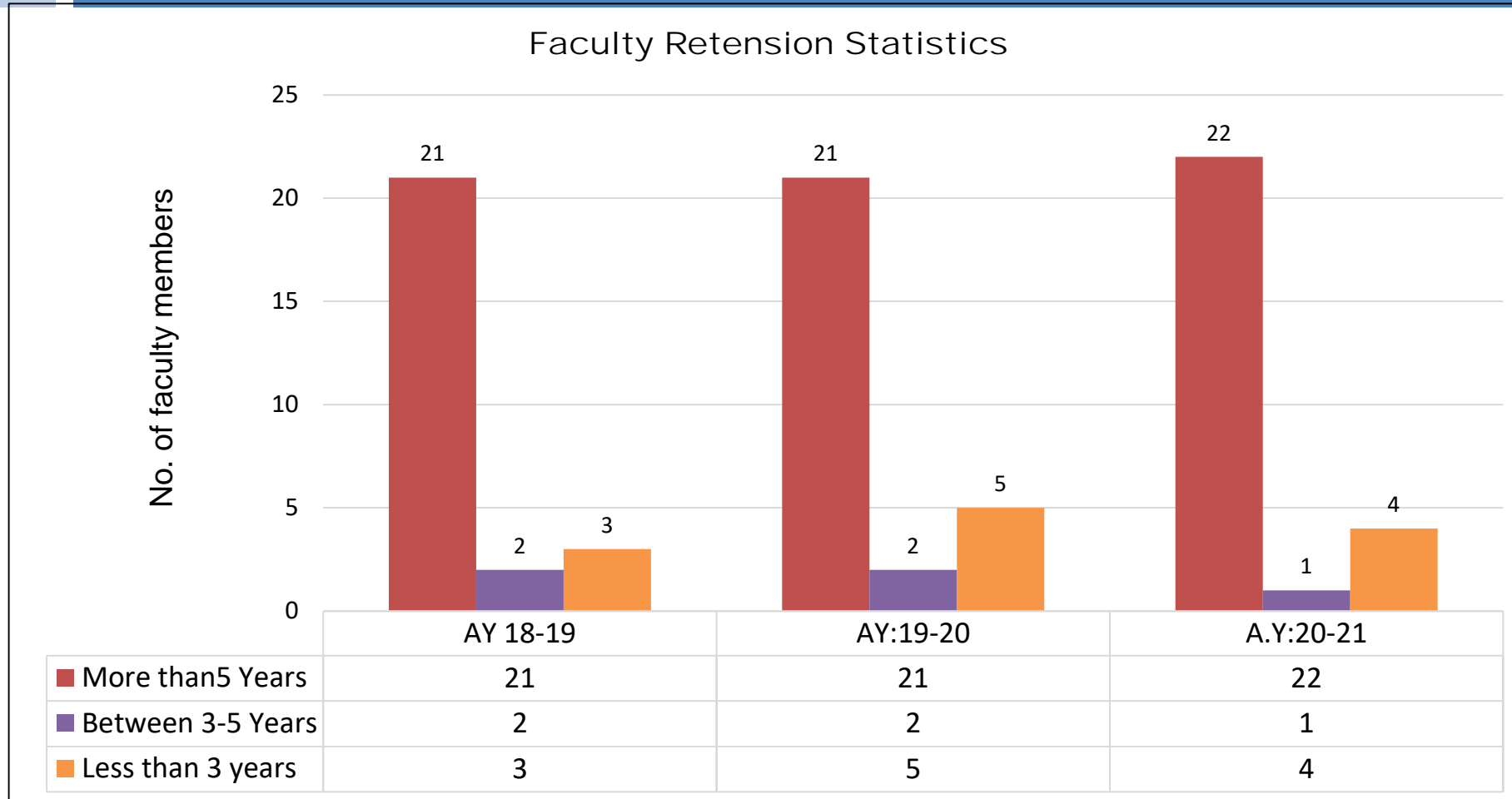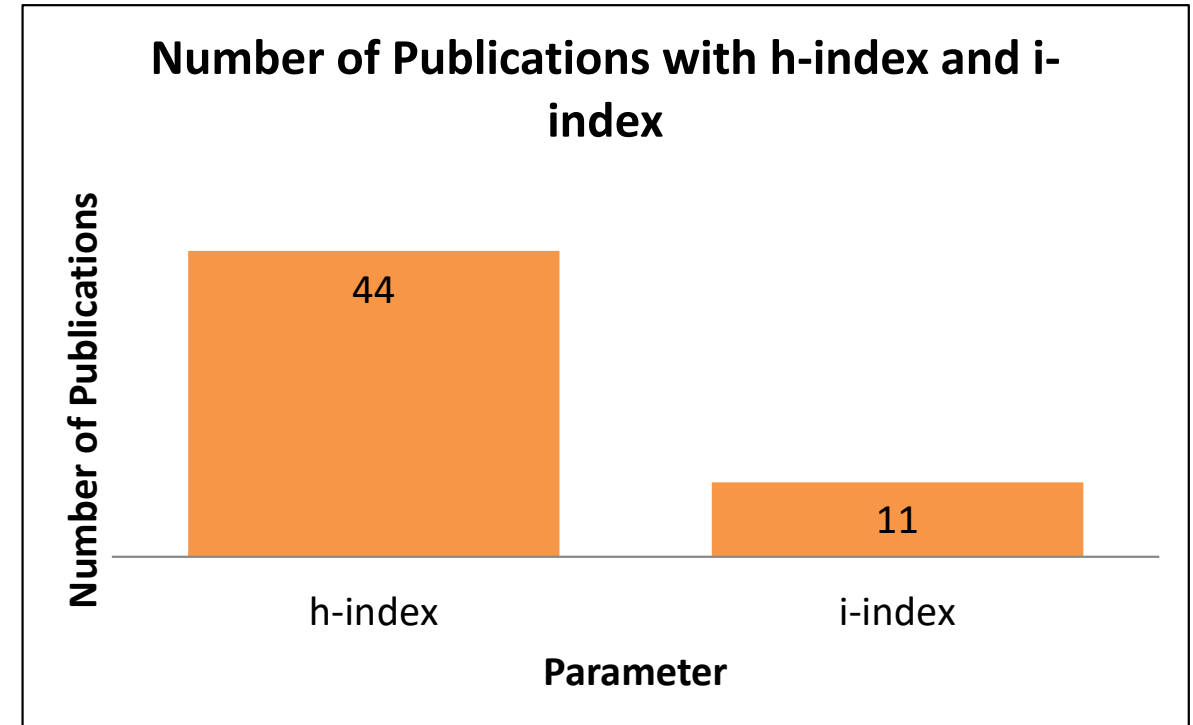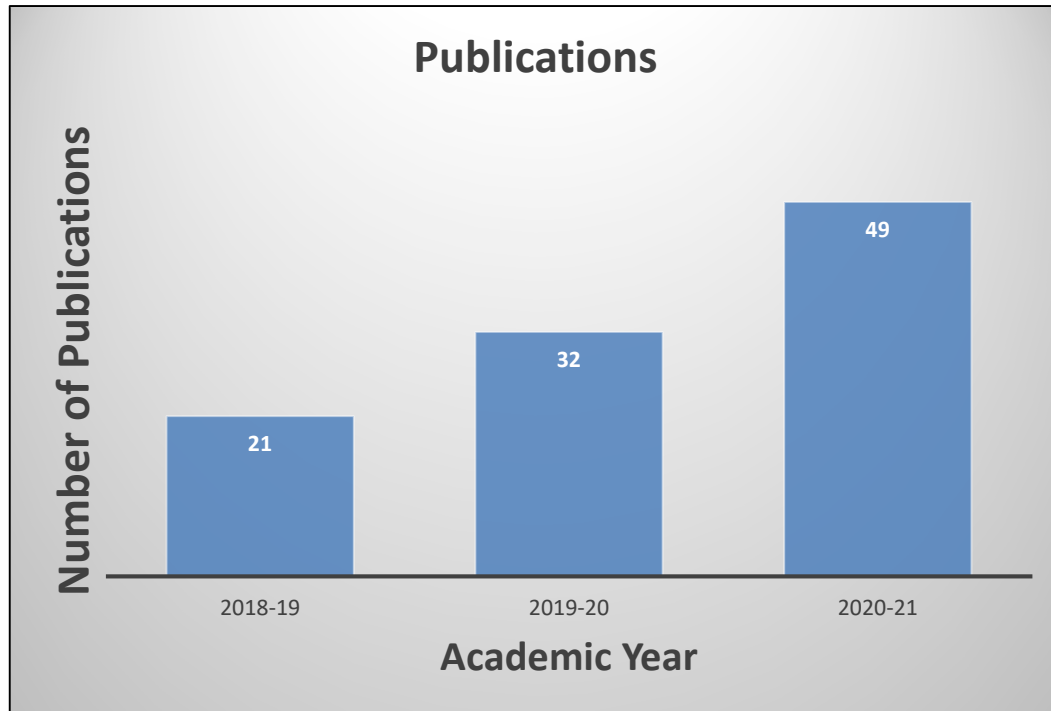
Since 2014, the number of publications having h-index/ i-index are shown above.

Innovative Practices

SR. NO.	INNOVATIVE PRACTICES	IMPACT ON PROCESS
1	Use of MS office OneNote and Graphical Tablet, which made the online teaching similar to classroom teaching with board and chalk.	Understanding of numerals and analytical subject through PPT was difficult, this practice eased the process.
2	DBMS practical conduction, the Errors that were coming at student's PC end were resolved by taking the remote access of the student's screen.	The doubts and the errors of the students were solved just like in the offline sessions.
3	All faculty members have created 30% of the course material for online teaching be it in the form of video lectures, PPT and Modules and is made available on their websites	Students were able to use it effectively in this pandemic hour
4	Videos were uploaded explaining the practical's on online simulator.	The resource was available to students anytime, so they watched it as per their pace and it showed a remarkable improvement in the practical exam.
5	Students were motivated to develop games based on the previous semester subject in the PBL sessions.	Along with the enhancement in Professional skills of the students it also stimulated their thinking level. The games developed are hosted on github and some of them developed Mobile app also, so that can be used for GBL in the next semester.
6	Conduct of FA on RBT and Gate based questions for some subjects	It not only increased the learning level of the students but also made them little bit ready for competitive exams.
7	Introduced GBL by using Nearpod, Kahoot and popping polling questions in between.	Increased attentiveness and interaction of the students.

Student Validation,
Continuous Evaluation,
Subject Teacher Observation

Slow Learner

Fast Learner

Tutorial & Practice Session

Counseling by Teacher guardian, Professional Counselor

Bridge Courses, NPTEL Courses

Technical Paper Writing for In-House & Out-house Conferences

Seminar & Workshops by IEEE-TCET
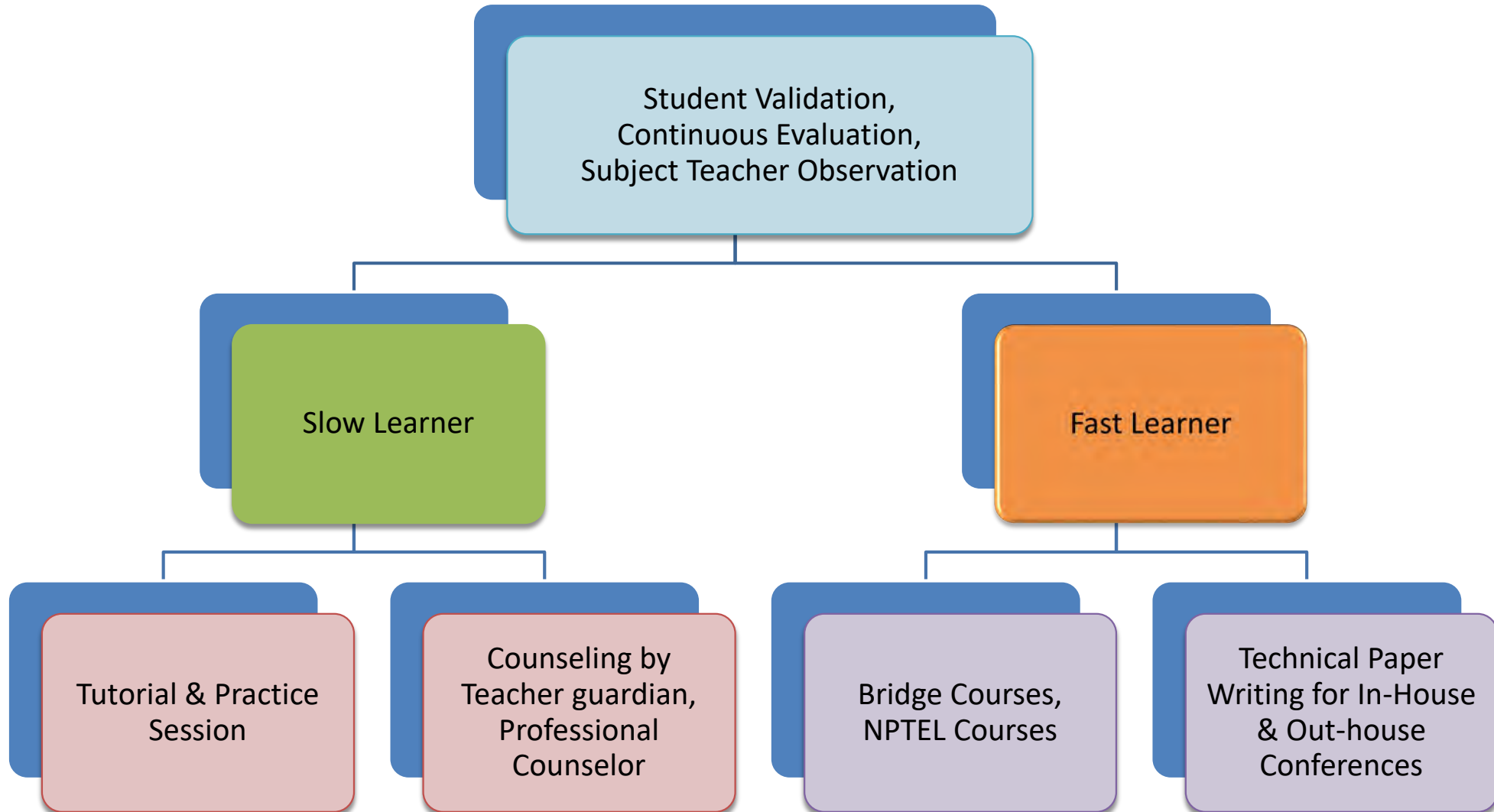
A.Y. 2020-21

- Webinar on AI-IOT
- Webinar on Cyber Security
- Activities - Fun Run
- Quiz on Fundamentals of Python
- Workshop on UI/UX
- ZEITGEIST – Webinar
- Data Science Workshop
- Arduino Workshop
- Webinar on Fundamentals of Git and GitHub.

A.Y. 2019-20

- Seminar On Embedded System
- Workshop On Design Thinking
- Workshop on Ethical Hacking
- Actions On Google Workshop
- Seminar On My journey to NASA
- Alumni Interaction
- Educational Excursion to
- Delhi-Jim Corbett- Nainital
- Photography Competition (SE&TE)

A.Y. 2017-18

- Technical Seminar on
  - Projects (Innovation with Basics)
- Seminar on Graphic designing
- Alumni Interaction I
- Deep Learning Session
- 90 mins App Development
- Workshop
- One Day IV
- Ethical Hacking Workshop
- Alumni Interaction II

14

Carrier Guidance, Training and Placement

TCET provides multidimensional career guidance throughout the course duration. This guidance is provided to students through professional trainers from industries and consultants/ experts in higher education.

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              ┌─────────────────────┐
              │   Carrier Guidance  │
              │     and Placement   │
              └─────────────────────┘
                 │                │
    ┌────────────────────┐   ┌────────────────────┐
    │  Higher study,     │   │ Professional       │
    │  online courses    │   │ Training and       │
    │  and Certification │   │ placement          │
    │     (HOC Cell)     │   │      (T&P Cell)    │
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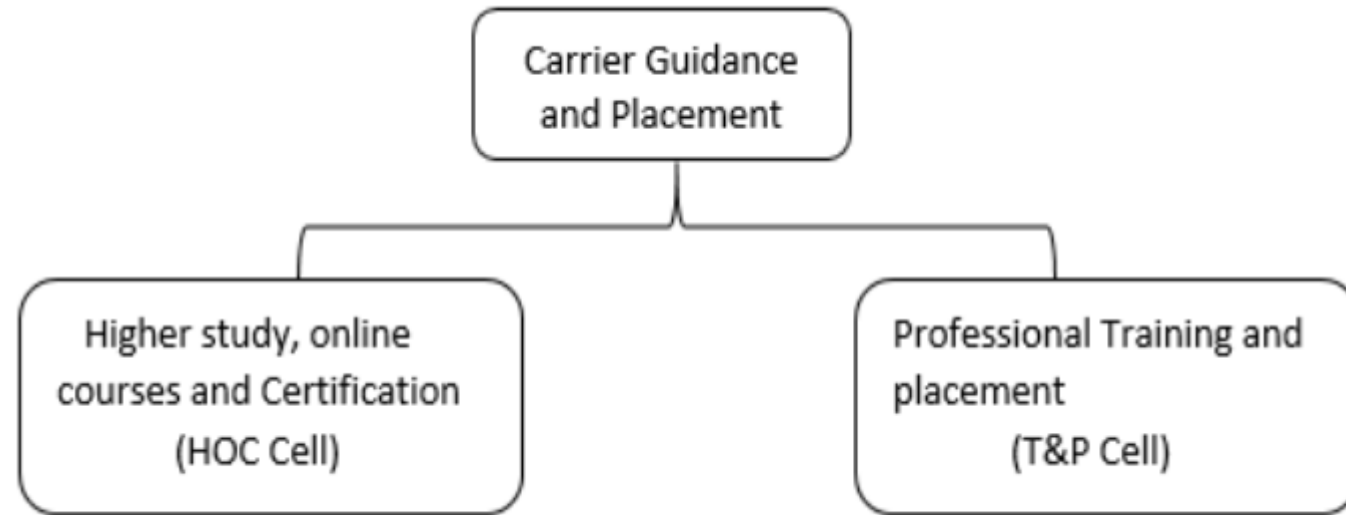
Students to be encouraged for Higher Studies

Established HOC Cell (2015-16)

Students are encouraged to take NPTEL courses

GATE and other competitive Exams Awareness Seminars

Mock Tests (GRE,CAT,GATE) conducted

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Event Details conducted under HOC Cell

Event Details	Company Sector	Designation	First Name	Last Name	Discipline	Level	Date of Lecture
Seminar IELTS	British Council	Representative	Rajesh	Gandhi	all Branches	FE/SE/TE/BE	28/08/20
opportunities for higher studies at abroad	Imperial Overseas	Representative	Hiren	Rathod	all Branches	SE/TE/BE	28/08/20
Session Northeastern University	Northeastern University	Director	Jeffrey	Hengel	all Branches	FE/SE/TE/BE	19/10/19
opportunities for higher studies in France	Campus France Mumbai	Manager	Vikash	Golla	all Branches	FE/SE/TE/BE	27/09/19

Event Details	Company Sector	Designation	First Name	Last Name	Discipline	Level	Date of Lecture
USA Universities Education Fair - 2019	Imperial Overseas	Adviser Counselor Coordinator Marketing/ Sales Director	Ritu Bayu Kushala Nishant Chad	Sharma Sutrisno Maheshwar Dule Schemppo	all Branches	FE/SE/TE/BE	19/08/19
opportunities for higher studies at abroad	Mission Career	Representative	Gautam	Umashankar	all Branches	SE/TE/BE	12/07/19
GATE Awareness	GATE Academy	Representative	Bharat	Sawant	all Branches	SE/BE	11/07/19
opportunities for higher studies in Germany	College	Representative	Nimit	Maheshwari	all Branches	SE/BE	27/07/18 03/08/18
Awareness about Competitive Exams	IMS Learning Resource Ltd	Representative	Jimit	Bhayani	all Branches	SE/TE/BE	03/08/18

Event Details	Company Sector	Designation	First Name	Last Name	Discipline	Level	Date of Lecture
USA Universities Education Fair - 2018	college	Regional Manager Director Marketing/ Sales	Shreyya Sebastian Nishant	Singh Fuentes Dule	all Branc hes	FE/SE/TE/BE	19/08/19
why, where,how to apply Higher Studies	Mission Career	Director	Pooja	Welling	all Branches	SE/BE	27/07/18
Seminar UPSC/MPSC Exams	-----------	Representative	Damini	Waigankar	all Branches	FE/SE/TE/BE	09/02/18

HOC cell also encourages students to participate for online courses from various platforms such as NPTEL, UDEMY, and Coursera etc. This helps students to build a solid background for master's program and placement. TE and BE students are encouraged to appear mock test for the preparation of GRE and CAT examinations. It also conducts orientation of on GATE and other examinations for master's program.

Higher Studies

Student Participation in Higher Studies
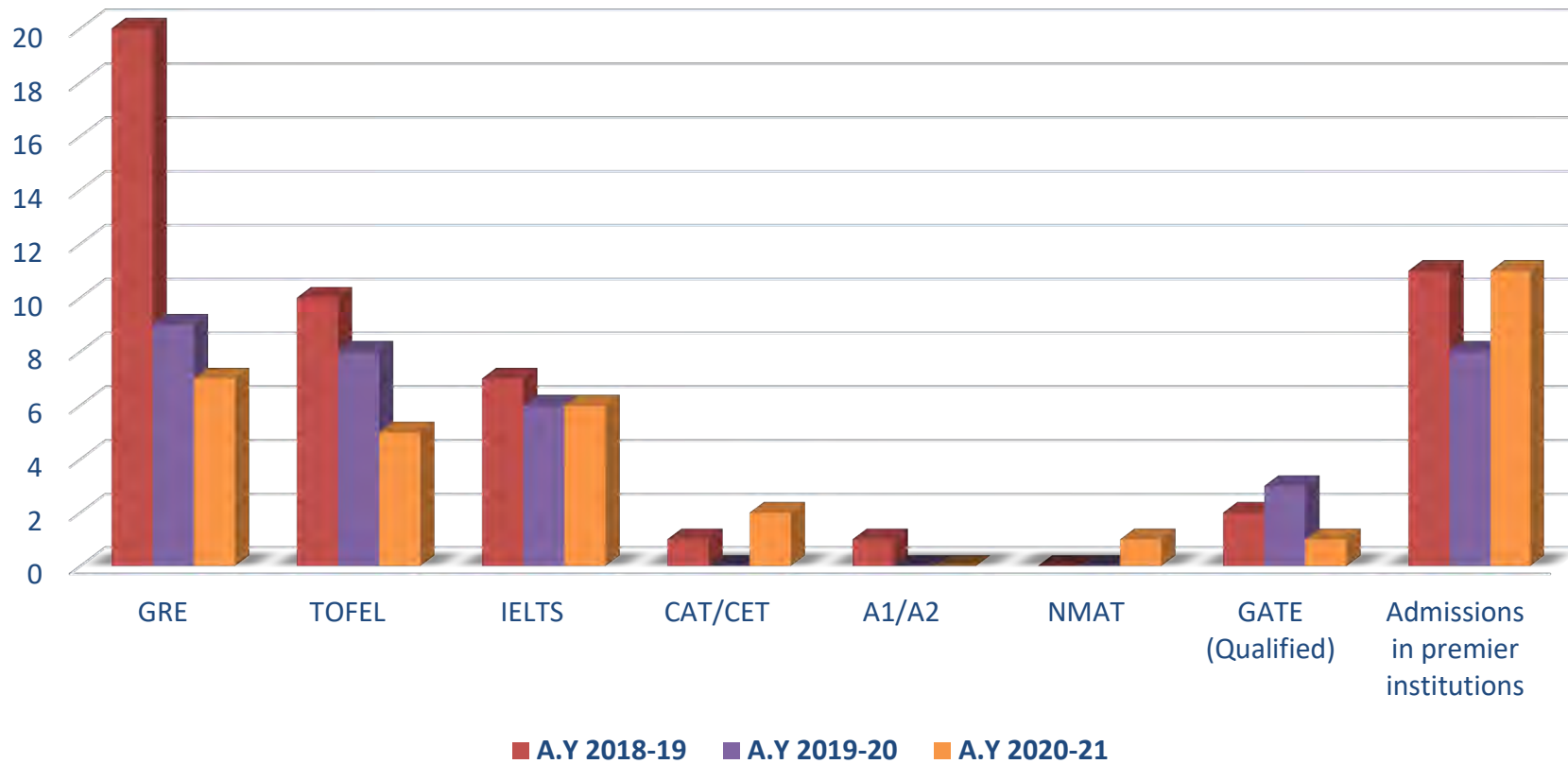
Online course done by students

A.Y 20-21
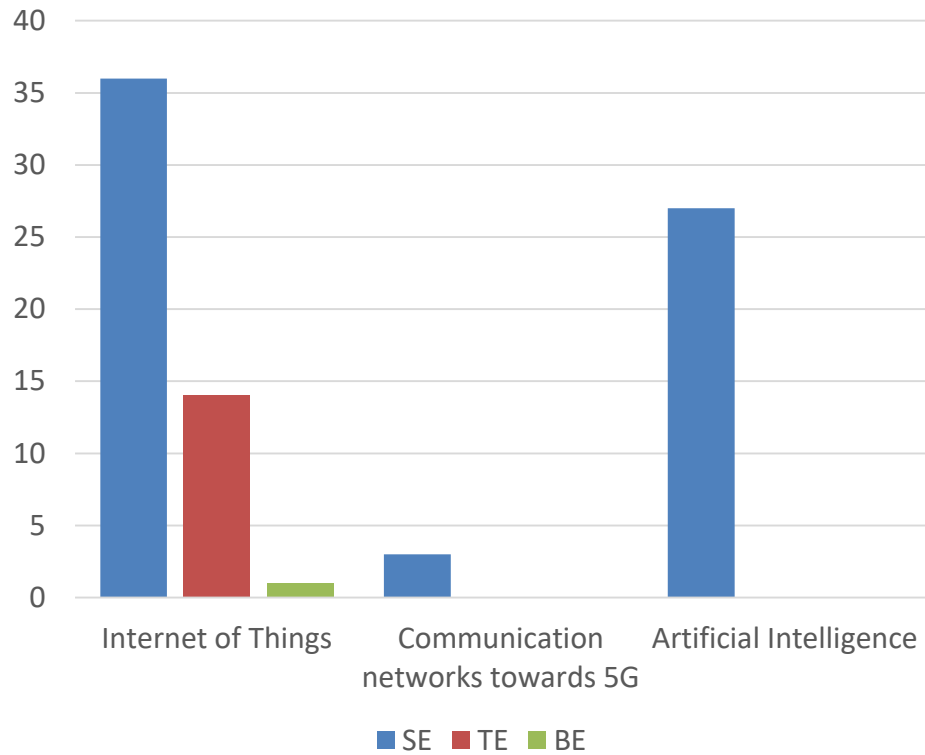
A.Y 19-20
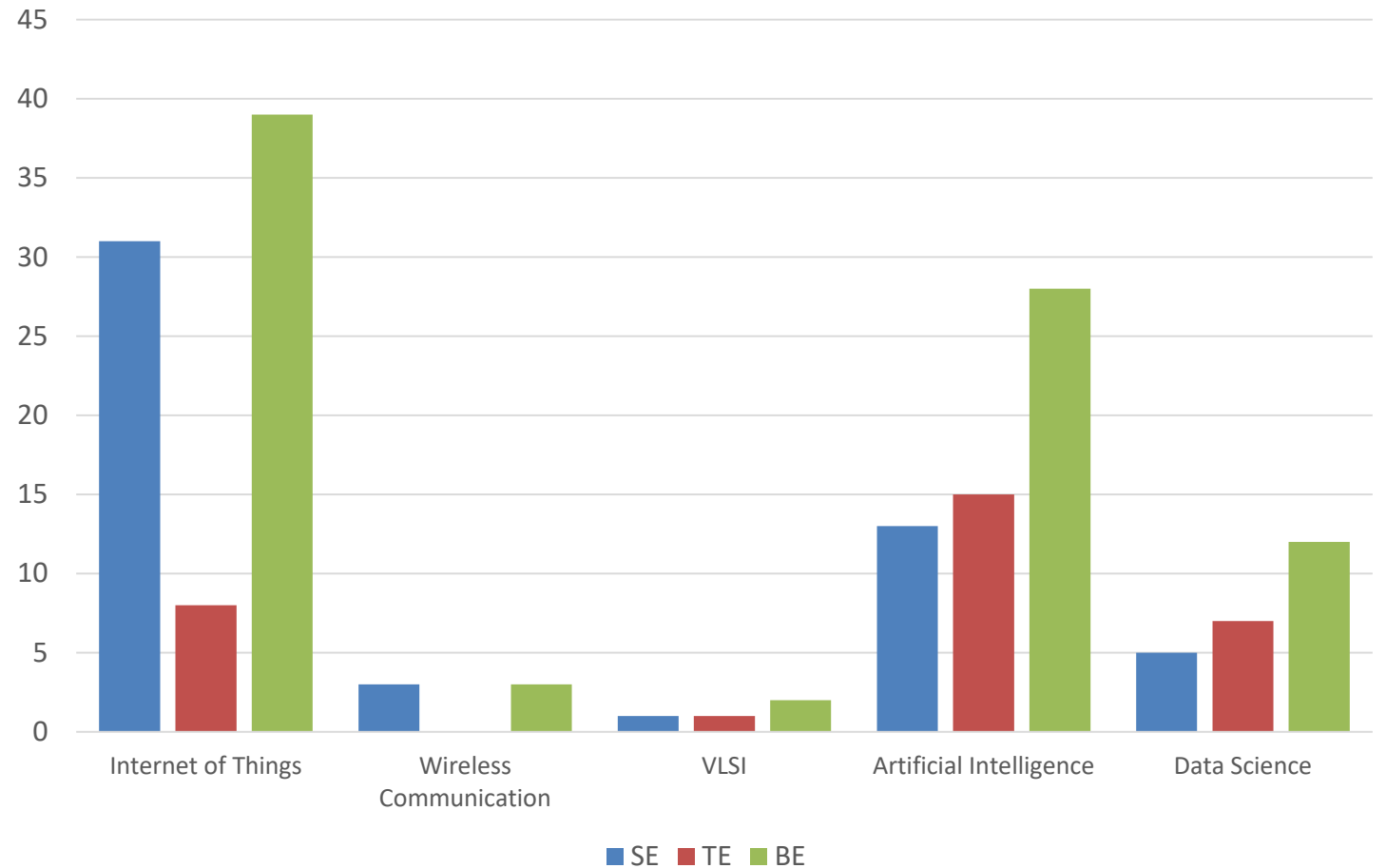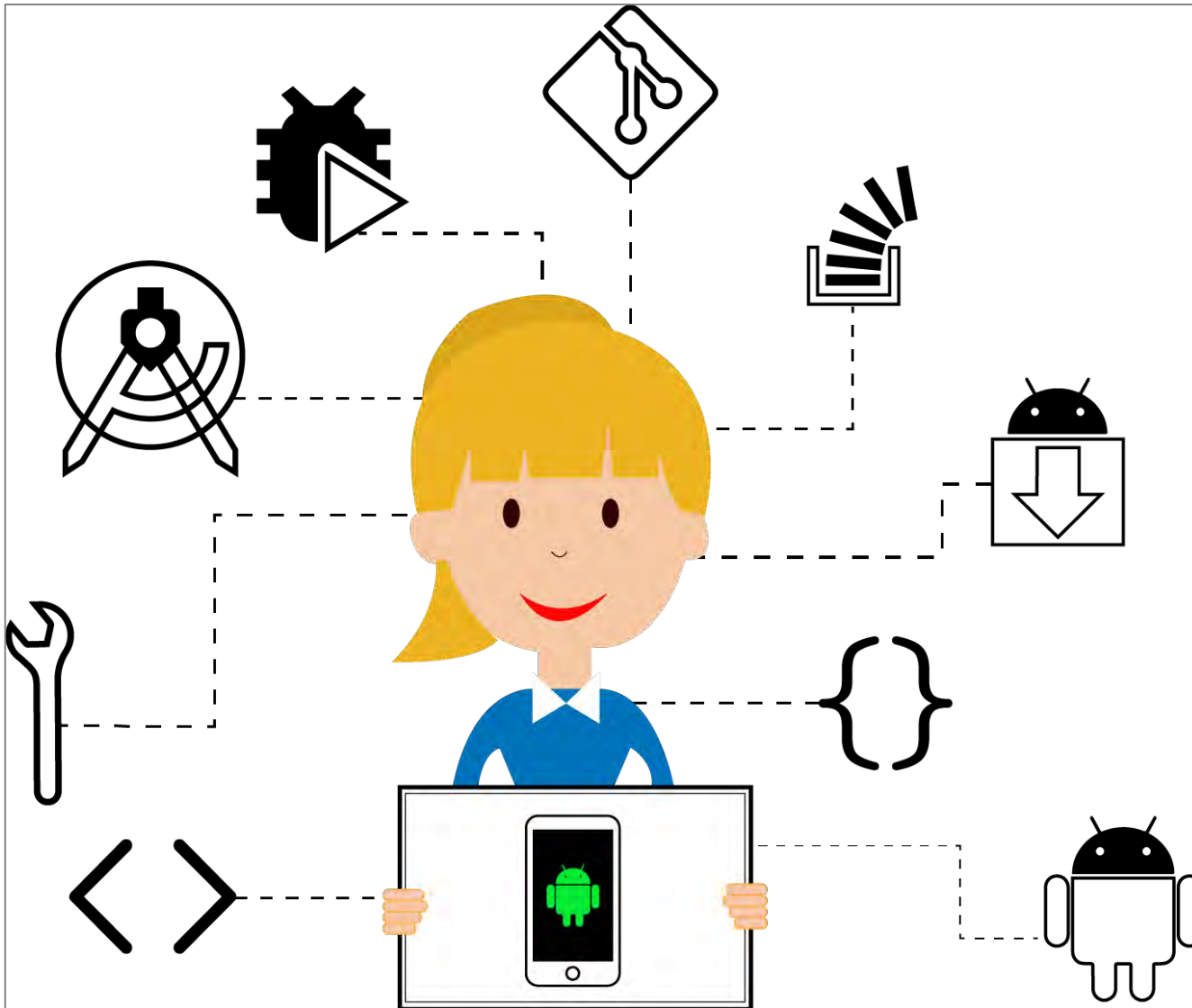
- Outhouse
- Inhouse

Internship

Total number of students selected for Internship

Year	Students
2018-19	78
2019-20	81
2020-21	146
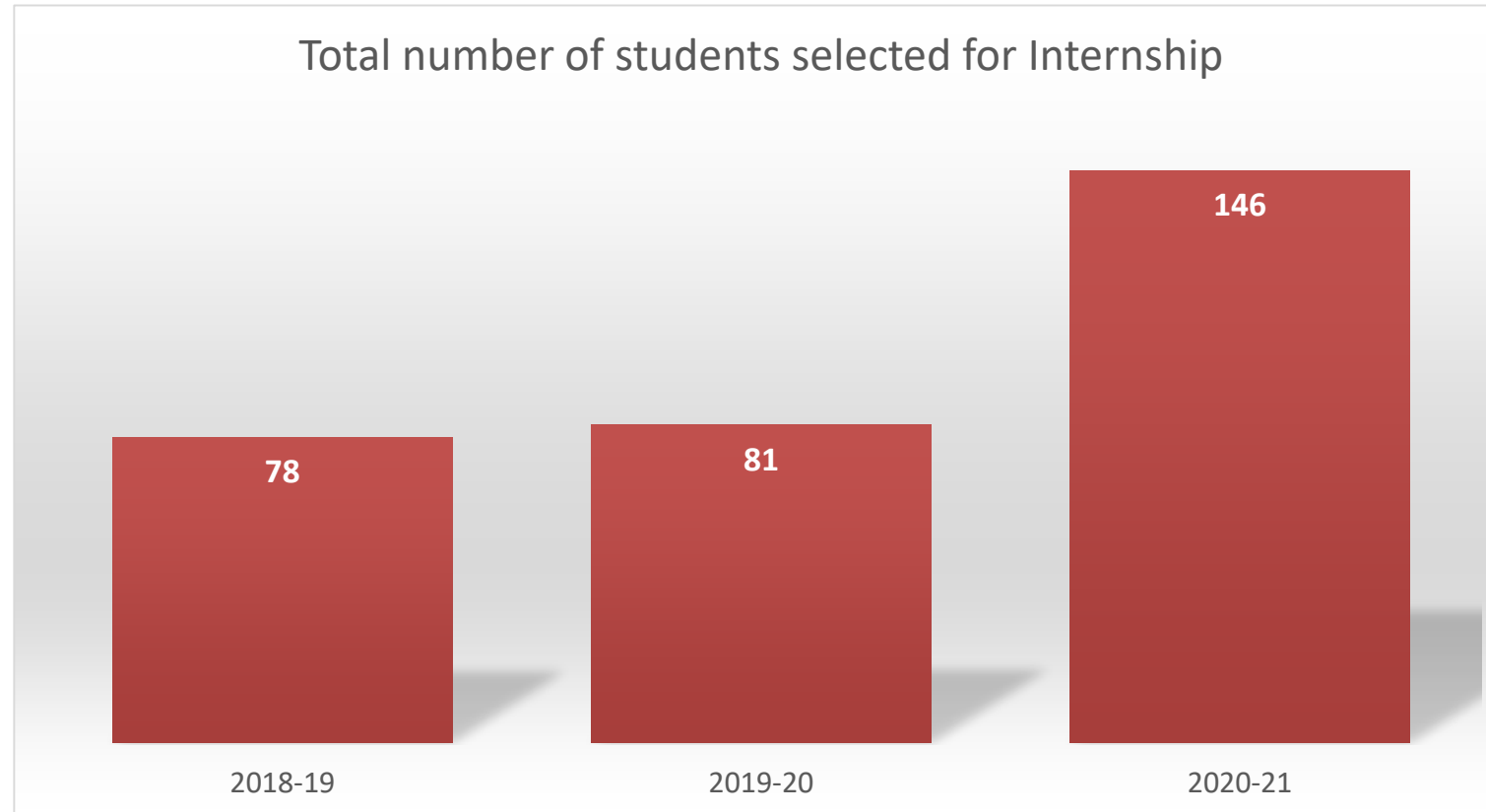
- Total Students completed Internship 147

- Duration 30 to 45 days

- Internship provided by department

Company name	Skills required	No. of students
Sahu Technologies	HTML, CSS, Javascript/Jquery,PHP	44
Libratherm Instruments Pvt. Ltd.	Knowledge of content writing, various terms, keywords used in Electronics & Telecommunication Engineering	4
Oswal Industries	Knowledge Electronics devices and circuits	4

Inhouse internship:
Tracks Covered in Odd and Even Semester
A.Y 20-21

Odd Sem: Technical

- Electronic Product Development
- Data Networking and Cyber Security
- Arduino
- Website Making
- Video Making
- GIS

Even Sem: Social (NGO)

- Dhyan Foundation
- Nazarath Foundation
- Datri Foundation
- Art of Living
- Bhaktivedant Hospital
- We Can Foundation

Professional Activities & Achievements

Odd Semester

| Academic Orientation Programme (AOP) [July] | TCET-MUN Inter Collegiate/ School [September] | Zephyr-Inter Collegiate Technical Festival [September] | NSS Residential Camp [December] |

Even Semester

| Academic Orientation Programme (AOP)[January] | Tspark Event of EDC cell [February] | Multicon-W, ICWET, IOW [February] | E-WEEK [February] | Enertia Annual Sports Event [March] | Soujorn Annual Cultural Event [March] |

Yearly Departmental Budget

Sr. No.	Year	Budget (Lacs)	Actual Investments			Utilization Factor of Budget (%)	Excess (Lacs)
			Consumable (Rs)	Equipment (Lacs)	Total (Lacs)		
1	2016-17	24.62	80,178.00	20.14	**20.94**	85.05	3.68
2	2017-18	24.55	79,138.00	26.07	**26.86**	109.41	-2.31
3	2018-19	48.80	65374.95	42.07	**42.73**	87.56	6.07
4	2019-20	33.04	76623.00	16.55	**17.31**	52.39	15.73
5	2020-21	25.86	NA	5.66	**5.66**	21.88	20.20

Growth of Central Library (Institute Level)

Department Yearly Budget
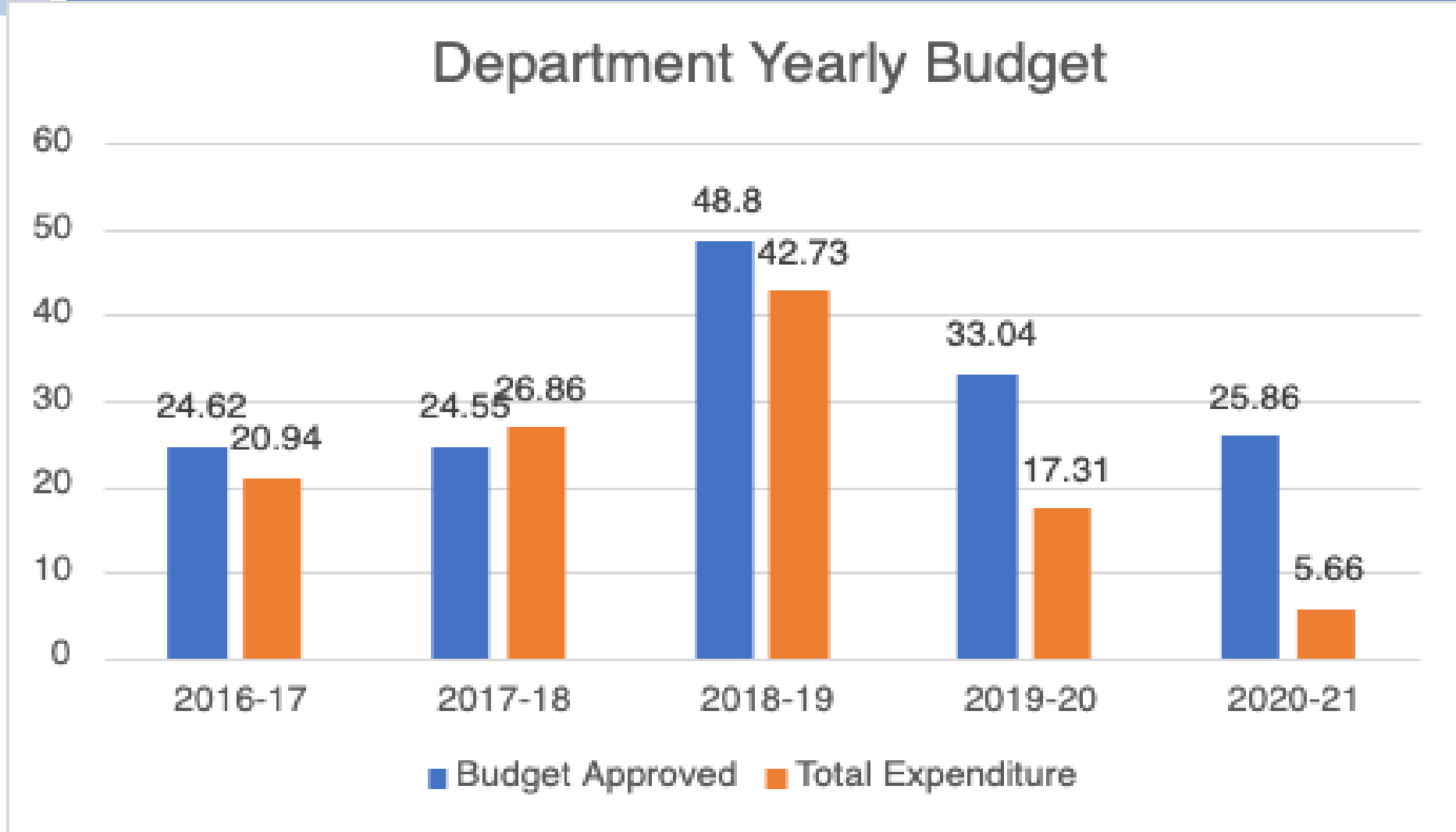
Note: All values are in lakhs

Growth of Central Library (Institute Level)

Total no. Title added to the Central Library

■ Total no. Title added to the Central Library
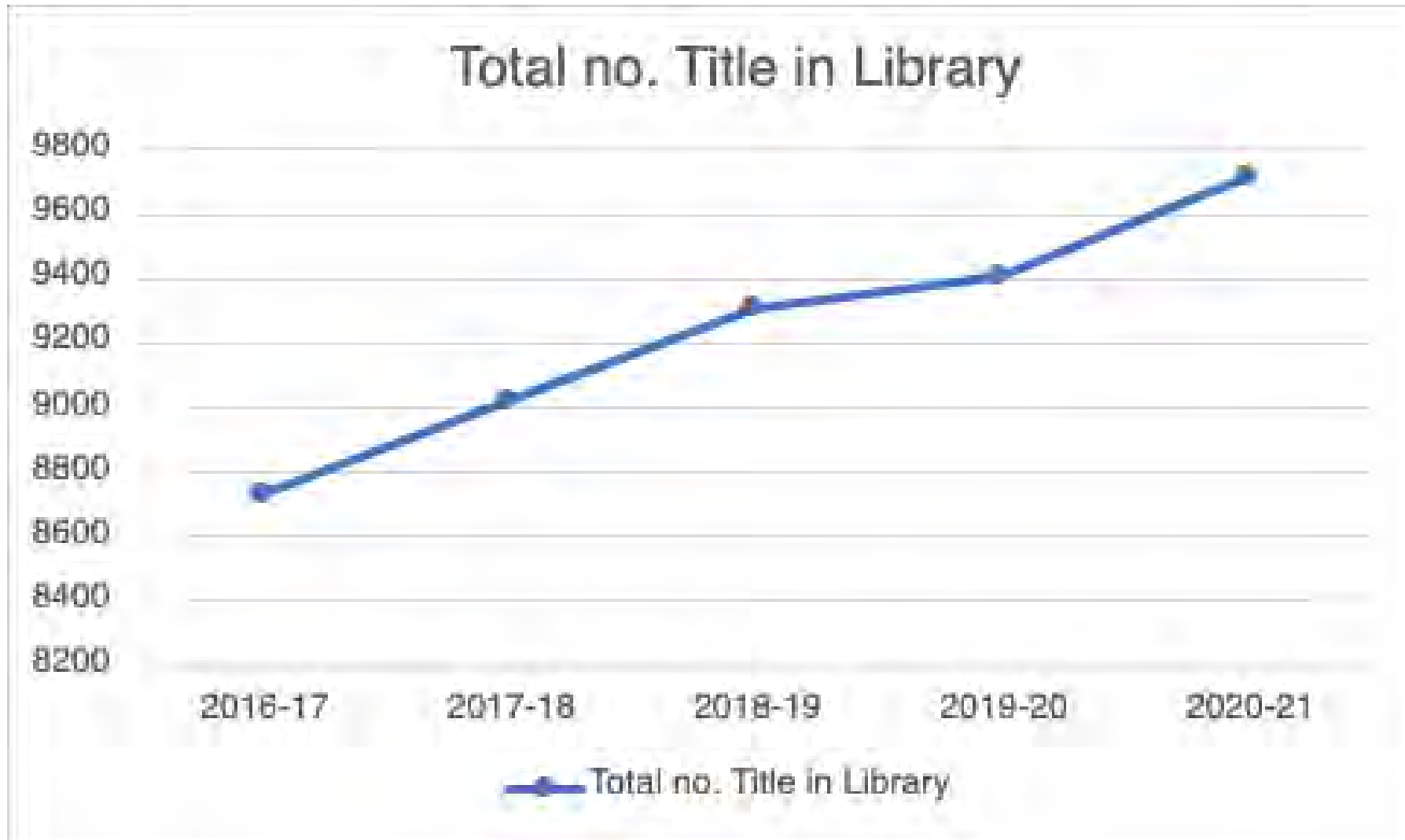
Growth of Central Library (Programme Specific)
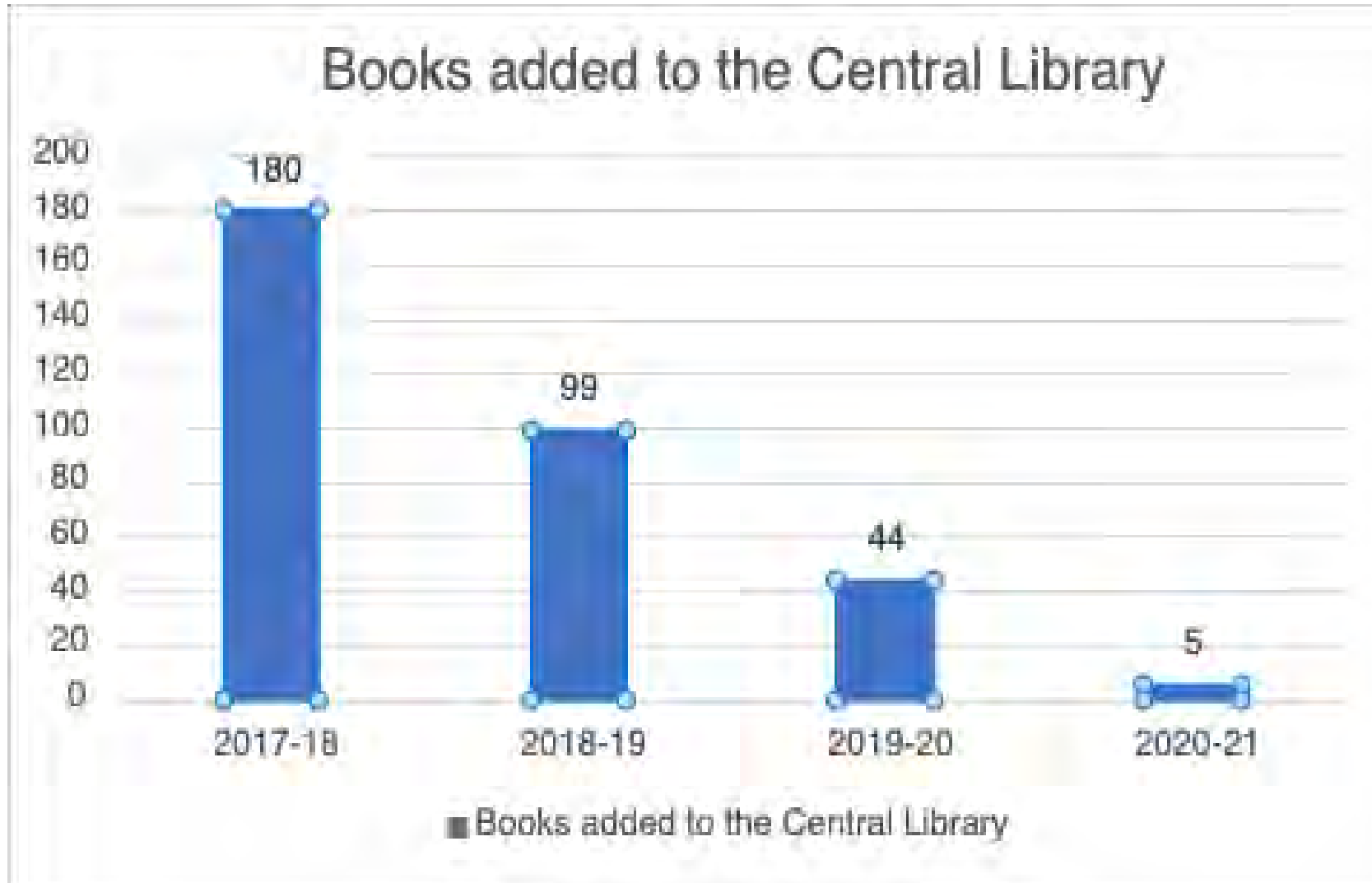
Continuous Improvement: Actions taken based on the results of evaluation of each of the POs & PSOs

PO1: Engineering knowledge:.
- Action 1 : Student development program

PO2:Problem analysis
- Action 1 : Outhouse internship
- Action 1 : Expert talks under IEEE and PBL

PO3:Design/development of solutions
- Action 1 : Final year projects in various domain
- Action 2 : Institute Hackathon and ABL activities

PO4:Conduct investigations of complex problems
- Action 1 : Research based activities are RBL
- Action 2 : Papers from digital library

PO5:Modern tool usage
- Action 1 : TELCON / IEEE Workshop
- Action 2 : Internship at in-house and outhouse industry level.

Academic Audit and actions taken thereof during the period of Assessment

Internal Audit is planned at the beginning and at the end of the semester
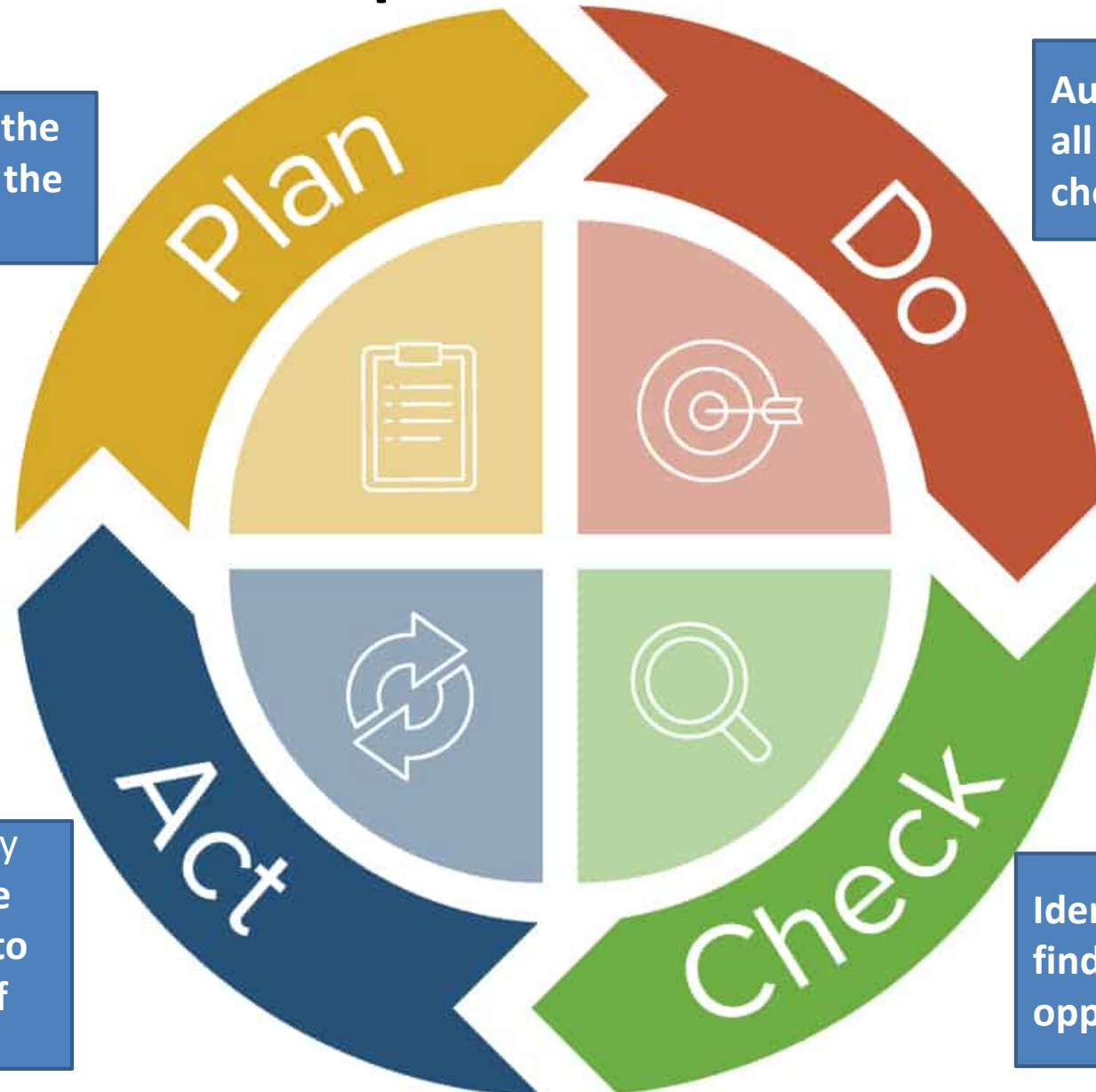
Auditors visit departments and all ISO files and processes are checked

In case of major discrepancy **non Non conformances are issued which are expected to be closed within a week of audit** conducted

Identify the positive, negative findings and scope for opportunity

Thank You