



Department of Information Science and Engineering

Hearty Welcome  
To  
Honourable Members of NBA Expert Team



**Presentation by:**

**Dr. Manjunath T. N.  
Professor and HOD**



## Agenda

1. About the Department & Achievements
2. Criteria 1: Vision, Mission and PEOs
3. Criteria 2: Program Curriculum and TLP
4. Criteria 3: COs and POs
5. Criteria 4: Student Performance
6. Criteria 5: Faculty Information and Contribution
7. Criteria 6: Facilities and Technical Support
8. Criteria 7: Continuous Improvement
9. OBE Philosophy in the Department



## About the Department

Name of the Program	BE in Information Science and Engineering (UG)
Established Year	2010-11
AICTE Approved Intake	2023-24 : 240                      2018-19 : 120 2019-20 : 180                      2010-11 : 060
Admission in % (Avg.)	100
Faculty Qualification	Total Faculty Members : 35 Faculty members with Ph.D. : 31 ( 89%)
Technical Staff	06
Support Staff	SDA -1 ; Attender-1
Current Students Strength	891
Faculty Cadre Ratio	Professors: 05                      Associate Professors: 07 Assistant Professors: 23
Department Library	Number of Titles: 175; Number of Volumes: 219
Laboratories	05
Seminar Hall	01



## Achievements/Recognitions

Department Level (Assessment Period)			
R & D Centre	Recognized by VTU Research Supervisors : 17 Research Scholars Pursuing Ph.D.: 28 Ph.D. Awarded : 03		
MOUs with Industry	<b>08</b>		
Professional Body Memberships	<b>04 (CSI, ISTE, IEI, IEEE)</b>		
Patents	Filed: <b>07</b> , Granted: <b>02</b> Total: <b>09</b>		
Publication Per Faculty Per Year	1.27		
Consultancy	<b>Rs. 3.94 Lakhs</b>		
Placement , Higher study and Entrepreneur	Placement : <b>91%</b>	Higher Studies: <b>15</b>	Entrepreneur : <b>02</b>



## Student Level (Assessment Period)

Publications	Journals: <b>08</b> Conference Proceedings: <b>17</b>	
Participation	Cocurricular Activities : <b>24</b>	Extra Curricular Activities: <b>09</b>
University Ranks	<b>06</b>	
Industry Internship/Visits	Internship: 655	Visits: 06
No. of MOOCS completed	1665	
Alumni Interaction	<b>14</b>	
Expert talks organized	<b>08</b>	
Students funded Projects (KSCST,VTU, INDUSTRY)	7	PBL: 228



# Criterion-1

## Vision, Mission and PEOs



## Department Vision and Mission



VISION

Emerge as Centre of Learning in the field of Information Science & Engineering with technical competency to serve the society



MISSION

To Provide Excellent Learning environment through balanced curriculum, best teaching methods, innovation, mentoring and industry institute interaction.



## Program Educational Objectives (PEO's)

Our Graduates will be able to:

**PEO-1**

Successful professional career in Information Science and Technology .

**PEO-2**

Pursue higher studies & research for advancement of knowledge in IT industry.

**PEO-3**

Exhibit professionalism and team work with social concern.





## Consistency of PEO's with Mission of the Department

PEO Statements	M1 (Balanced curriculum, best teaching methods)	M2 (Innovation)	M3 (Mentoring)	M4 (Industry Institute Interaction)
<b>PEO1:</b> Successful professional career in Information Science & Technology.	3	2	3	2
<b>PEO2:</b> Pursue higher studies and research for advancement of knowledge in IT industry.	3	3	3	2
<b>PEO3:</b> Exhibit professionalism and teamwork with social concern.	3	3	3	3

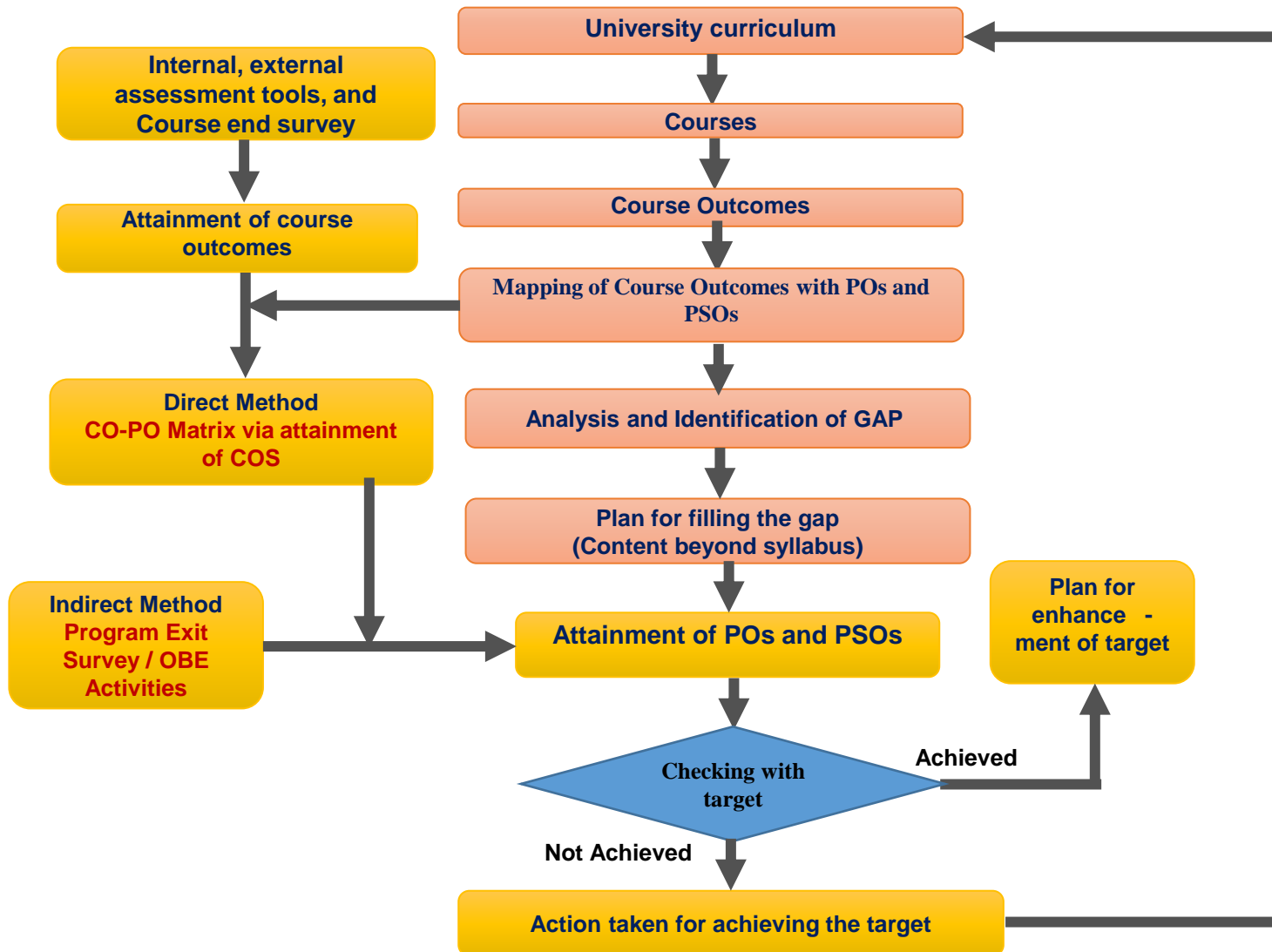


## Criterion-2

# Program Curriculum and Teaching Learning Process

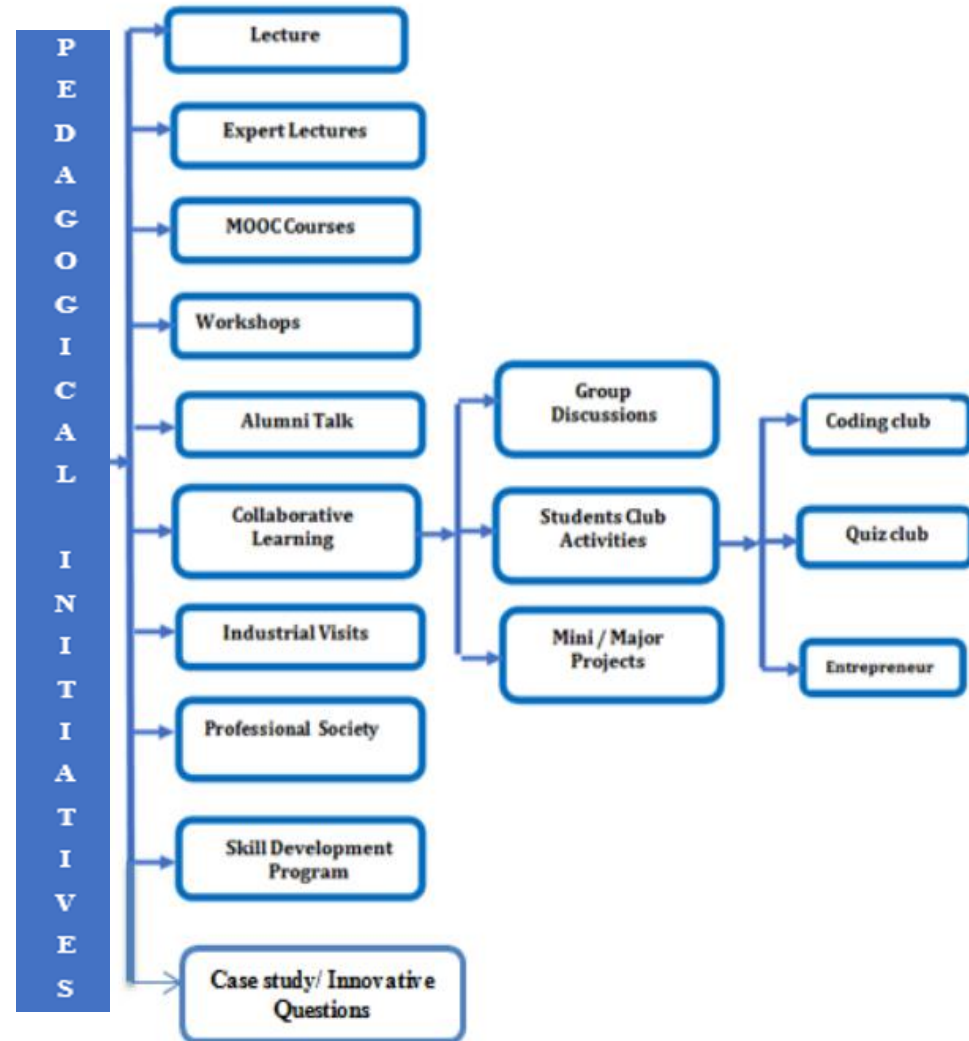
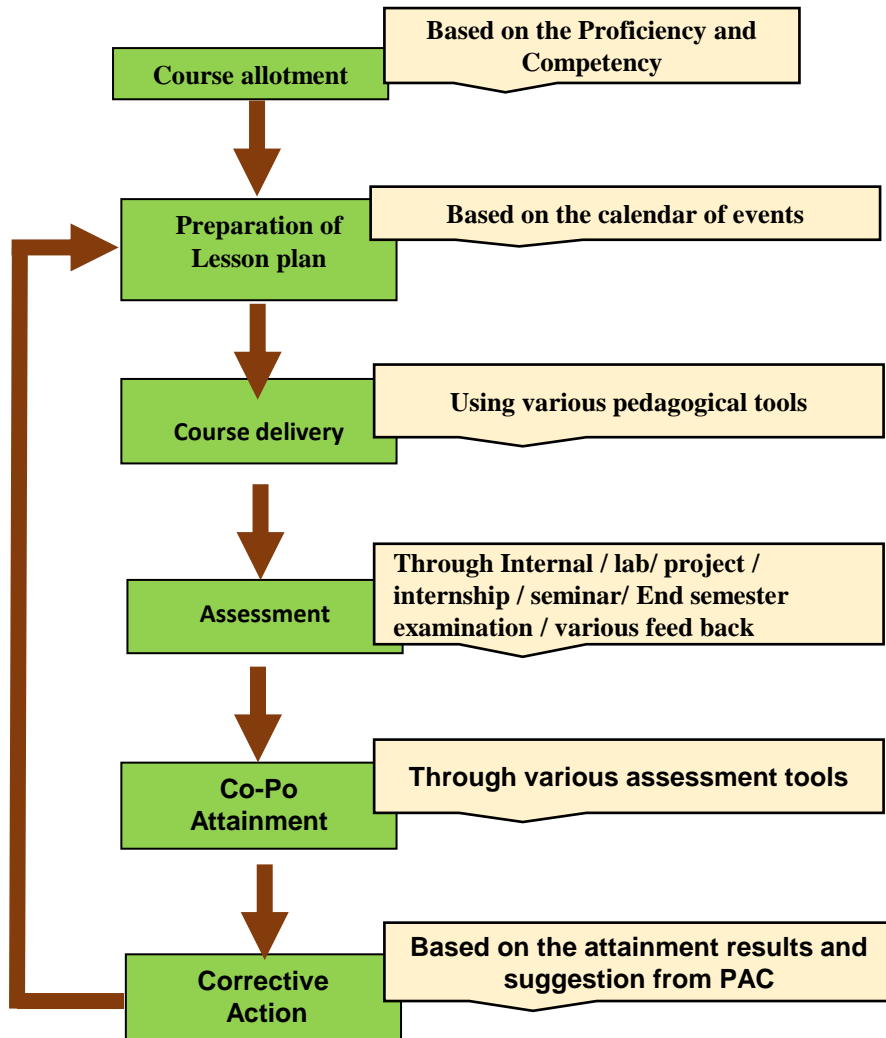


## Process to Identify the Curriculum Gaps and Implementation



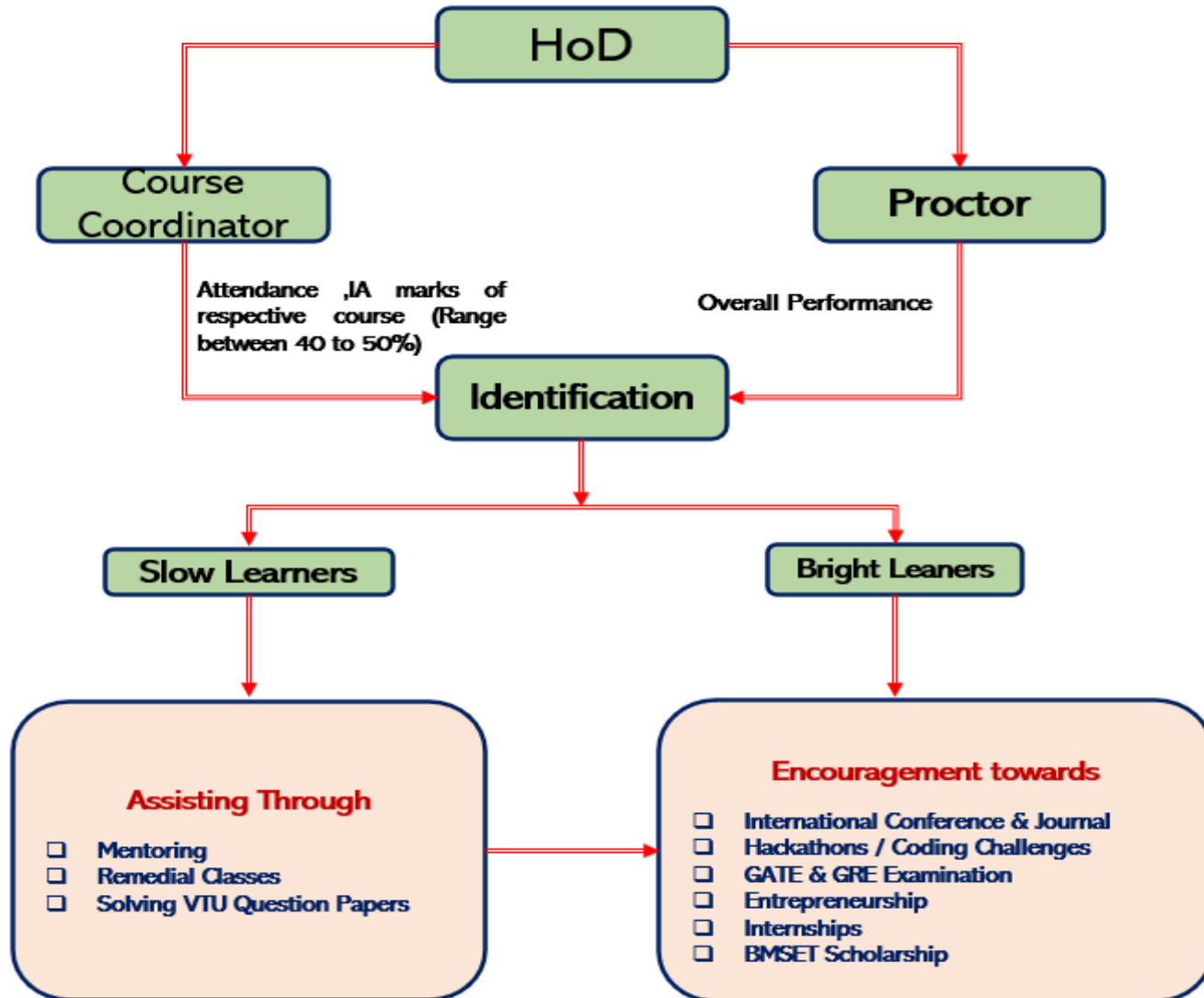


## Teaching Learning Process





## Methodology for assisting slow and bright students





## Quality of IA Question Papers

- **Course coordinators** will set the **Question Paper** based on **Bloom's Taxonomy**.
- Question Paper will have **Case Study and Innovative question**
- The **Module coordinators** ensures the question paper is in according to **Bloom's levels** and **Question Mapping to COs** then it will be scrutinized by **Program coordinator and HOD**.
- **Scheme of evaluation** is prepared
- **Blue Books** are evaluated according to **scheme of evaluation** prepared.

**BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT**  
 Avalahalli, Doddaballapur Main Road, Bengaluru - 560024

**FIRST INTERNAL ASSESSMENT TEST, OCTOBER 2023 - 24**

Course Name	<b>BIG DATA ANALYTICS</b>	Course Code	18CS92
Branch & Semester	<b>ISE &amp; VII Sem</b>	Date	11-10-2023 [2.00PM to 3.30PM]
Name of the Course Coordinator (s)	<b>Dr. Manjunath T N Dr. Pushpa S K Dr. Gireesh Babu C N</b>	Max. Marks	50

*Note: Answer THREE full questions from Part A and Part B questions are compulsory.*

Qn. No.	Question	Marks	CO
1.	The rise in technology has led to the production and storage of voluminous amounts of data, i.e. petabytes of data. Conventional system for storage, processing and analysis pose challenges due to large growth in data. Data needs new tools for storing, processing and analyzing. In this context sketch evolution of Big data and their characteristics with example.	10 M	CO:1 K:3
OR			
2.	Consider satellite images of the Earth's atmosphere and its regions. A number of satellites generate data continuously. Apply 5Vs features of Big Data with reference to satellite data.	10 M	CO:1 K:3
3.	Traditional data store use RDBMS tables or data warehouse. Big data processing and analytics requires scaling up and scaling out both vertical and horizontal computing resources. Scaling requires massively parallel processing platforms. Interpret between Distributed, Grid & Cluster computing. Cloud computing and its services.	10 M	CO:1 K:3
OR			
4.	Characteristics of Big data make designing Big data architecture a complex process. Further, additions of new technological innovations increase the complexity in designing. Explain the logical layers in designing data processing architecture and its functions in the layer.	10 M	CO:1 K:3
5.	Distinguish between 1. Traditional data store and Big data store. 2. In- memory column format and In-memory row format.	10 M	CO:2 K:4
OR			
6.	Big Data analytics applications are software applications that leverage large scale data. The application analyse Big Data using massive parallel processing framework. Compare main components of Hadoop ecosystem with a neat diagram.	10 M	CO:2 K:4
7.	Consider data storage for BMSIT student details. Each student data is in a file of size 64MB. A data block stores the full file data for student (number of students is N = 1 to 500). i. How the files of each student will be distributed at a Hadoop cluster? How many student data can be stored at one cluster? Assume that each rack has two Data Nodes each with 64GB memory and each cluster consists of 120 racks. ii. Show the distributed blocks for student with ID=96 and 1025. Assume default replication in the DataNodes=3.	5 M 5 M	CO:3 K:3
8.	Data are important for most aspects of marketing, sales and advertising. Customer Value depends on three factors – quality, service and price. Analyze a solution to improve customer value analytics using big data in marketing and sales domain and it challenges.	10 M	CO:3 K:4

**Course Outcomes (COs)**

CO1:	Apply the fundamental concepts of Big Data analytics.
CO2:	Analyze the concepts of NoSQL and Mapreduce programming concepts for Big Data Applications.
CO3:	Design solutions for different case studies/problem statements.
CO4:	Study and demonstrate big data tools to solve real time problems.

**Bloom's Category**

Remembering (K1)	Understanding (K2)	Applying (K3)	Analyzing (K4)	Evaluating (K5)	Creating (K6)
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**Signatures of the Question Paper Scrutiny Committee**

Course Coordinator(s)	Module Coordinator(s)	Program Coordinator	Head of the Department



## Quality of final Year Projects



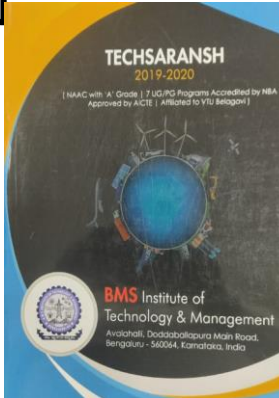
We have **Students' Project Assessment and Review Committee (SPARC)**.

- SPARC monitors the end to end project activities
- **Project work starts from 7<sup>th</sup> Semester**
- The evaluation of the project is done at **2 Phases (Review is done monthly)**

Phase	Work done
1	Literature Survey & Problem definition
	Requirement specification, Analysis & System Design
2	Implementation, Validation, Results, conclusion and report writing.

**2019-23  
Batch**

Category of Projects	Count
Application Oriented	28
Environmental / Societal Product Development	14
Research Oriented	8
Review Projects	7





## Quality of Completed Projects

Sl. No	Year	Project name	Team members	Faculty Mentor	Quality of Completed Projects
1.	2023-24`	Souls-Script. (Mobile application)	Krish Gupta (USN: 1BY21IS069) & Team	Dr. Swetha M. S	<b>CODE Fiesta Tech Fest, conducted by SJB institute of Technology: Cash Prize 25K</b>
2.	2023-24	Remote Work and Digital Collaboration	RAGHAV KUMAR JHA - (1BY21IS124) & Team	Dr. Swetha M. S	<b>Girl Geek Hack'23 hosted by NITK: 15K Cash Prize</b>
3.	2022-23	Soil analysis and crop suggestion using IoT and Machine learning	Tharang S, Kaushik K. Sathvik P. Roshini Sanikop	Dr. Shanti D.L.	Funded by KSCST
4.	2022-23	"Transparency in Carbon Credits by Automating Data Management Using Blockchain"	Mr. Divya Kalash (USN: 1BY19IS055) & Team	Dr. Pushpa S K and Dr. Swetha M S	<b>NPCI (National Payments Corporation of India) Blockchain Hackathon: 15 Lakhs Cash Prize</b>
5.	2022-23	"Smart Education"	Mr. Lokesh and Team	Dr. Gireesh Babu	<b>Smart India Hackathon 2022: 50K Cash Prize</b>
6.	2021 -22	SvayaKT - An E-Agriculture Ecosystem	Karan Venkatesh, Ananth D, Adarsh H, Nirisha B	Dr. S. K. Pushpa	Funded by VTU
7.	2021 -22	Adaptive Ambulance Monitoring System	Shohebahmed Pranav R D, Sumukha Nithin UralaM R	Prof S. Mahalakshmi	Funded by VTU
8.	2021-22	Indian Crop and Fertilizer Recommendation System Using AI and Machine Learning Techniques	Praveen & Team	Dr. Swetha M. S	<b>Patent Filed: Patent Application Number: 202141032290</b>
9.	2020-21	Automatic waste segregation using Image processing and robotic arm	Hariprasad & team	Dr. Rudresh Shirwarkar	Funded by KSCST





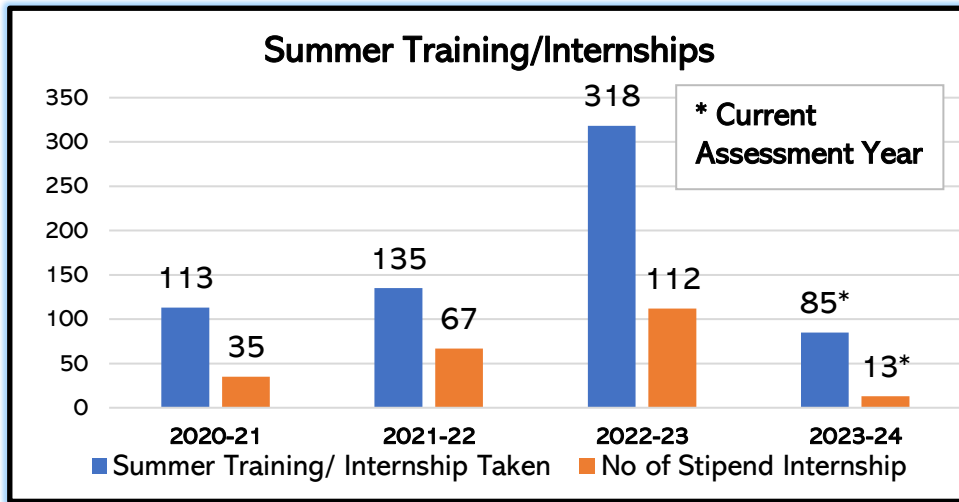
## Quality of Completed Projects (Cont...)

10.	2020-21	IoT based Smart Traffic Signal Monitoring System	Tanay Tadas & team	Dr. Sridhar Sanshi	Funded by VTU
11.	2020-21	Human Trap Detection During Calamities using CNN	Simran & Team	Dr. Veena	Funded by VTU
12.	2020-21	Detection of Covid 19 and its Severity using Deep Learning	Samrudhi Shetty & Team	Dr. Sheela Kathavate	Funded by VTU
13.	2018-19	Mobile Railway Track Fault Detection System with Internet of Thing and Machine Learning	Jayanth G, Nikhil S, Pathan Aseef Khan	Dr. Vinutha K	Patent Filed: Patent Application Number: 202141000383

- 2 Patents Filed
- 7 Student Funded Projects by KSCST/VTU
- 15.9 Lakhs Worth of Prize Money by our students



## Industry Institute Interaction and Impactness



Sl. No	Type of Interaction	Number of Industry Interaction
1	Academic Alliance & MOU	8
2	Partial Delivery	4
3	Technical/Expert talks	8
4	Industry Visits	6
5	Faculty Consultancy	4
6	Student Internships	655
7	Faculty Internships	102

Batch	Placement	Admitted to Higher Studies	Entrepreneur
2022-23	181	5	0
2021-22	122	7	1
2020-21	63	5	1



## Student Centric Activities - Sample



Innovation Rewarding - BICEP



Group Discussion



Brainstorming Session



Poster Presentation

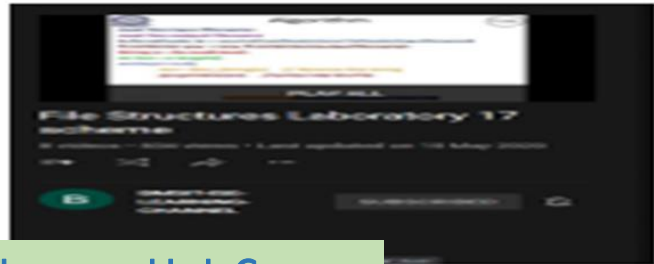


Project Based Learning (PBL) - Presentations

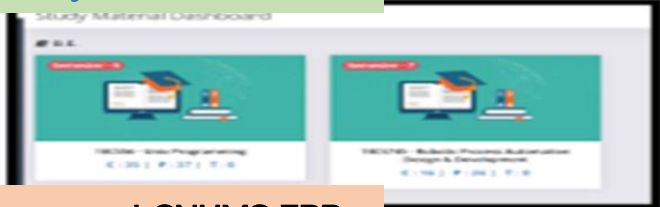
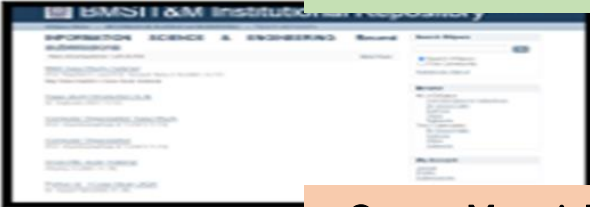




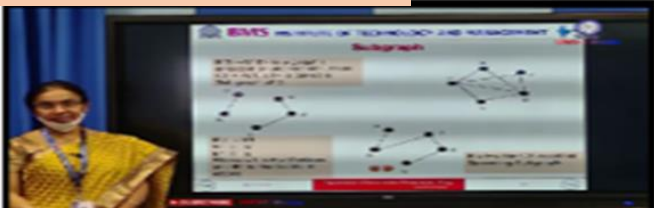
## Student Centric Activities – Sample (Cont..)



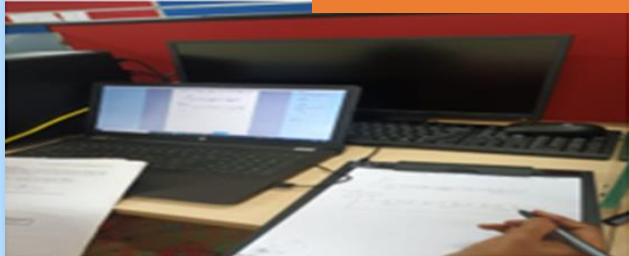
YouTube Channel for Theory and Lab Courses



Course Material in Dspace and GNUMS ERP



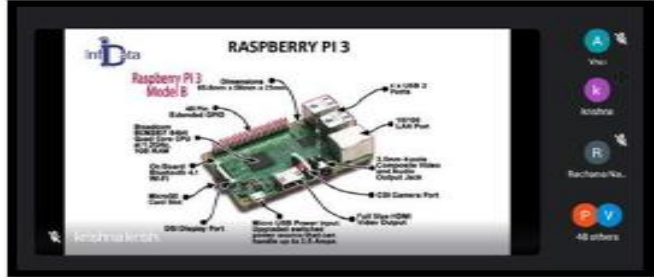
ICT Tools, PPT, Google Classroom, E-Studio



Iscribe Tool for Online Teaching during Covid and PBL Presentations



## Expert Talks





Industrial Visits



KTech Innovation Hub



LTI Mind Tree



GVK Bangalore



Sonarome

Industrial Visits



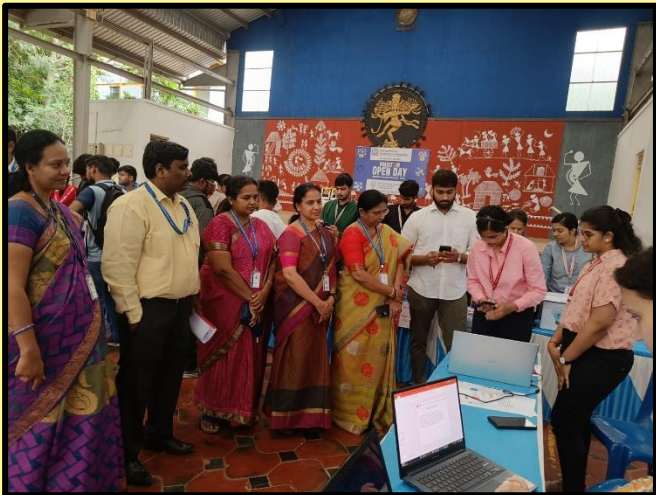
Cognizant Bangalore



## Open Day (Project Based Learning) - Sample



Best Projects will be Exhibited during Open Day of BMSIT



Rewarding Mechanism to Encourage Participation



## Participation in Sports / NCC - Sample




 कैंडेट को  
**NATIONAL CADET CORPS**  
 का  

 प्रमाण - पत्र 'सी'  
**CERTIFICATE 'C'**

No. KA 18 SDA 255149 Rank L CPL  
 Name RAGHAVENDRA K M सुपुत्र का MAHALINGA BHAT  
 Unit 39 KAR BN NCC BENGALURU पत्र दि 20 MAR 2020  
 प्रमाण केंद्र का विभाग KARNATAKA & GOA  
 NCC Directorate

प्रमाणित किया जाता है कि उपरोक्त कैंडेट ने (सं) संश्लेष, भार सरकार को प्रमाणित का कैंडेट नम्बर 20..... में हुए प्रमाणपत्र 'सी' परीक्षा..... में भी पास कर ली है।  
 This is to certify that the above mentioned Cadet has passed the Certificate 'C' Examination in ..... Grade held in 20..... under the authority of Ministry of Defence, Government of India.

No. KAR/CC CERT/ARMY/IBB-5259/2021  
 Sd/- Bengaluru  
 Place Bengaluru  
 दिनांक 10 AUG 2024  
 By: Director General, National Cadet Corps







## Outreach Activities - Sample



NGO DarpanId - KA/2020/0254433      GSTIN - 29AABTL9441K1Z3

**Project Completion**      **LGS Social Innovation and Research Centre**

**College:** BMSIT&M      **LGS Trust**  
**Course:** BE      **An initiative of LGS TRUST®**  
**Branch:** IS      **Ms. Tejaswini K S**

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**ISSN:** 1BY20IS183      for participating in a 80 Hours of Theory and Practical on Project "Zero Food Waste - Connecting Foodless with Hotels and Community Halls" designed to award 20 Activity Points towards the "AICTE Activity Points Program"

**Certificate ID:** ZFH00C3D50

*Prof. Tejaswini*      *Mr. Harsha S*      *Mrs. B Kowsalya*  
**Mr. B G Shivanna**      **Mr. Harsha S**      **Mrs. B Kowsalya**  
President      Secretary      Treasurer

Rotaract Club of BMS YELAHANKA      National Cadet Corps & Civil Defence Unit of BMSIT&M

**AICTE ACTIVITY POINTS PROGRAMME**

**"COVID-19 & ITS VACCINATION"**

Joint Project by the Rotaract Club of BMS Yelahanka, National Cadet Corps and Civil Defence Unit of BMSIT&M

**CERTIFICATE OF COMPLETION**

Presented to Student COVID Warrior  
**Ms. TRUPTI MANJUNATH PATGAR**  
bearing the University Serial Number: 1BY20IS184  
of **BMS Institute of Technology and Management**

for the completion of the Awareness Drive on "COVID-19 and its Vaccination" organised by the Rotaract Club of BMS Yelahanka in collaboration with the National Cadet Corps and Civil Defence Unit of BMSIT&M from **12th June to 17th July 2021**. This is to certify that the participant has accomplished all the tasks worth 28 hours and **07 Credit Points** towards the AICTE Activity designed to equip the participant with accurate knowledge & skill required to fight the pandemic and effectively react to emergencies.

*Tejaswini*      *M. S. Ravi*      *Mohanan*  
**PROF. TEJASWINI B J**      **LT. RANI M S**      **DR. MOHAN BABU G N**  
Faculty Co-Ordinator,      Associate NCC Officer,      Principal, BMSIT&M  
RCBMSY, BMSIT&M.      Civil Defence Divisional      Warden, BMSIT&M.

Certificate ID: SCW-D-910 -02/08/2021

**Bengaluru, Karnataka, India**  
BS Narayan Block, Bengaluru, Karnataka  
560064, India  
Lat 13.133942°  
Long 77.567873°  
17/10/22 03:53 PM GMT +05:30



# Criterion-3

## Course Outcomes and Program Outcomes



## Program Specific Outcomes (PSOs)

PSO1:	Apply the Knowledge of Information technology to develop software solutions.
PSO2:	Design and develop hardware systems, manage and monitor resources in the product life cycle.

## Course Outcomes (COs)

Course Name: Data Structures And Applications	C232	AY	2021-22
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Item	Course Outcomes
C2 32.1	<b>Acquire</b> the fundamental knowledge on various data structures operations.
C2 32.2	<b>Apply</b> linear and nonlinear data structures in problem solving.
C2 32.3	<b>Analyse</b> various linear and nonlinear data structures for different applications.
C2 32.4	<b>Design</b> algorithms on representation and operations of data structures.
C2 32.5	<b>Interpret and select</b> suitable data structures for solving problems/real world applications.



## CO-PO & PSO Mapping - Sample

Item	Course Outcomes
C2 32.1	<b>Acquire</b> the fundamental knowledge on various data structures operations.
C2 32.2	<b>Apply</b> linear and nonlinear data structures in problem solving.
C2 32.3	<b>Analyse</b> various linear and nonlinear data structures for different applications.
C2 32.4	<b>Design</b> algorithms on representation and operations of data structures.
C2 32.5	<b>Interpret and select</b> suitable data structures for solving problems/real world applications.

Course Name: Data Structures and Application		C232		AY 2021-22										
CO-PO and CO-PSO Mapping														
COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C2 32.1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 32.2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 32.3	-	3	-	-	-	-	-	-	-	-	-	-	-	-
C2 32.4	-	-	3	-	-	-	-	-	-	-	-	-	3	-
C2 32.5	-	-	-	2	3	-	-	-	3	3	-	3	3	-
<b>C2 32</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>-</b>

**3** Represents for **high**

**2** Represents for **Moderate**

**1** Represents for **Low**



## Attainment levels set for COs Weightage given is 60(SEE):40(CIE)

### 2019-23 BATCH:

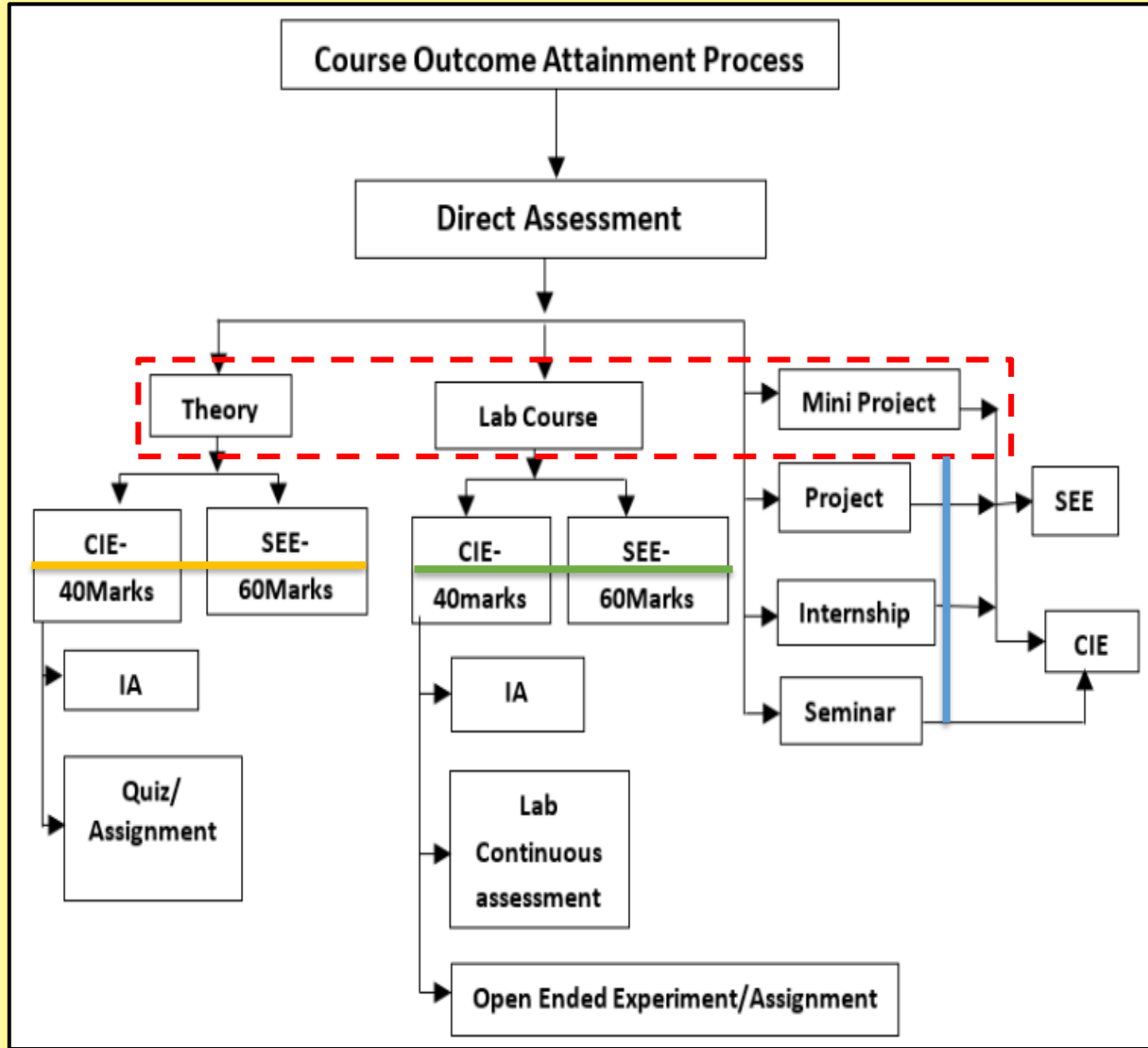
Attainment Level 3	60% Students Must Score 65% Marks and Above
Attainment Level 2	55% Students Must Score 65% Marks and Above
Attainment Level 1	50% Students Must Score 65% Marks and Above

### 2017-21 and 2018-22 BATCH:

Attainment Level 3	60% Students Must Score 60% Marks and Above
Attainment Level 2	55% Students Must Score 60% Marks and Above
Attainment Level 1	50% Students Must Score 60% Marks and Above

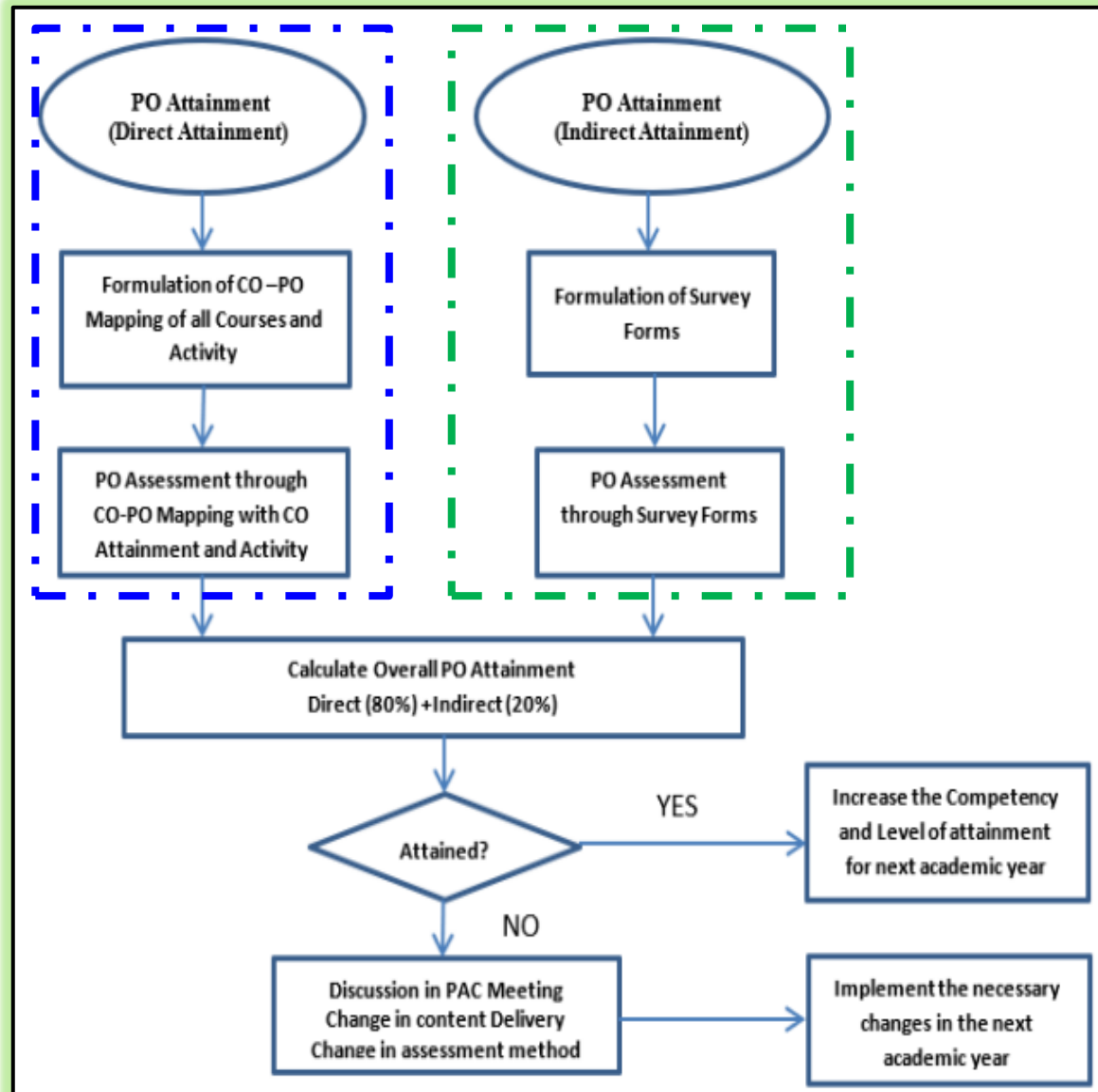


# The Process followed for Course Outcomes Attainment





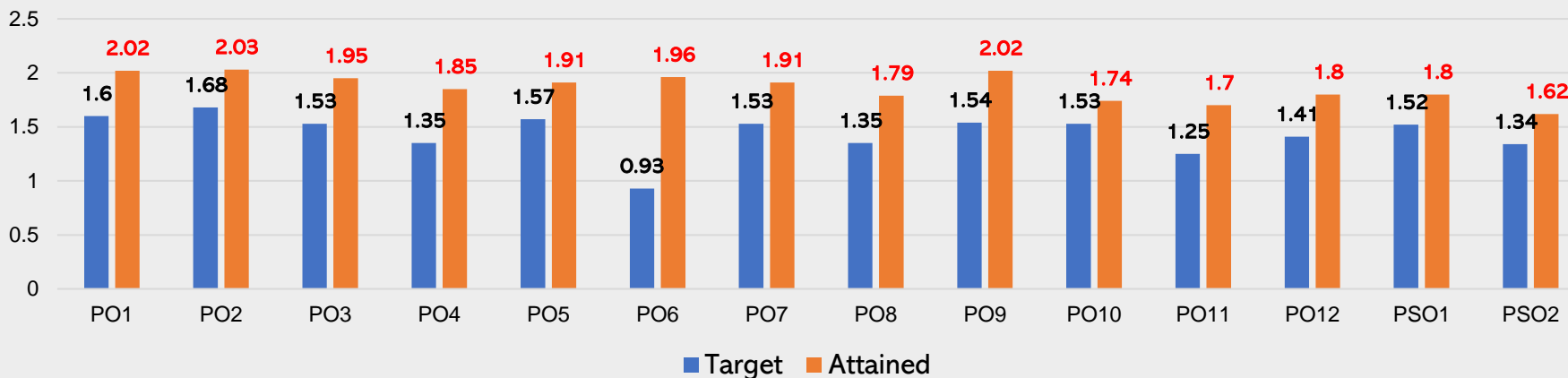
# The Process followed for Program Outcomes Attainment



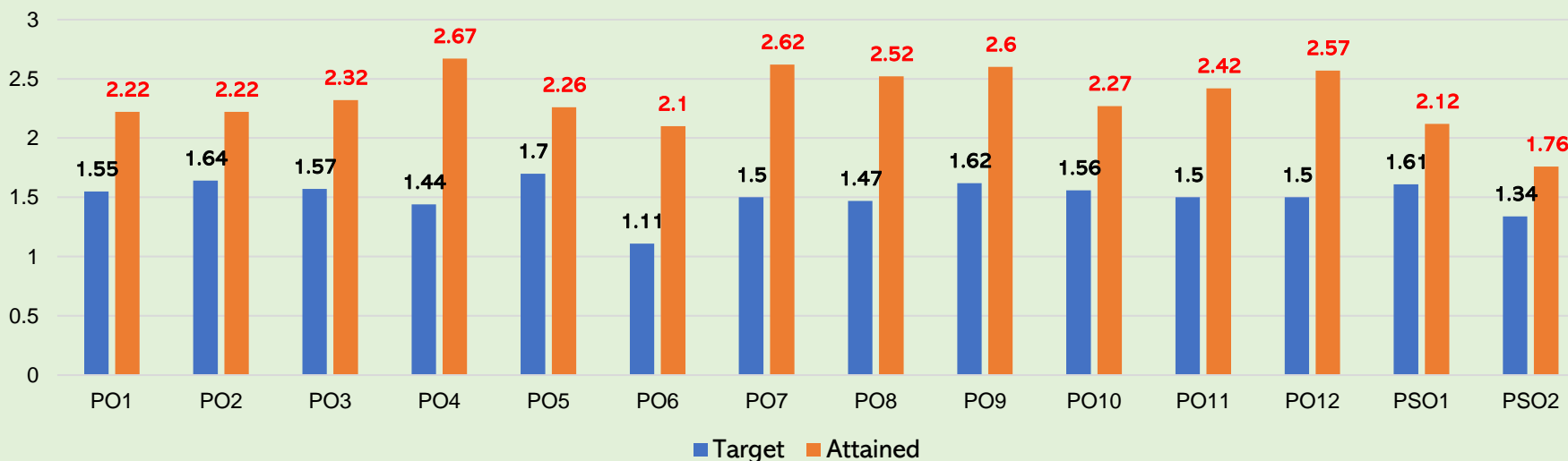


## PO Attainment Versus Target Set

### POs and PSOs Attainment Level Vs Target (60%) – BATCH 2017-21



### POs and PSOs Attainment Level Vs Target (60%) – BATCH 2018-22

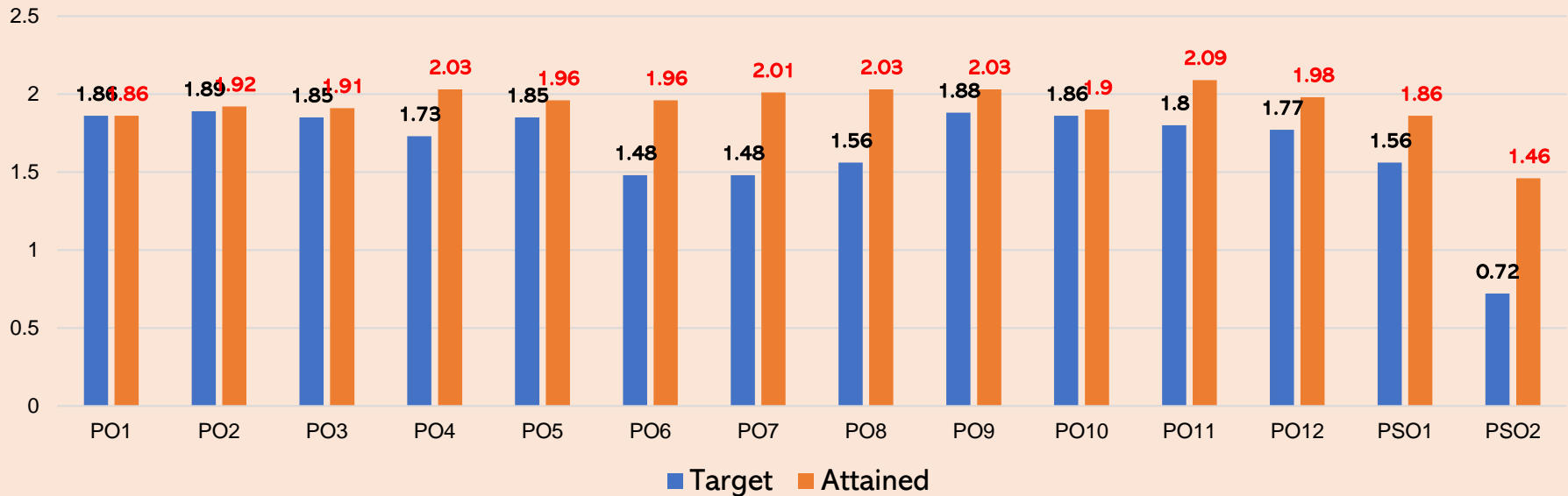






## PO Attainment Versus Target Set ( Cont...)

POs and PSOs Attainment Level Vs Target (65%) – BATCH 2019-23





## Criterion - 4 Students' Performance



## Students Admission

Item <i>(Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)</i>	2023 - 24 (CAY)	2022-23 (CAY m1)	2021-22 (CAYm2)	2020 -21 (CAYm3)	2019-20 (LYG)	2018-19 (LYGm1)	2017-18 (LYG m2)
Sanctioned intake of the program ( <i>N</i> )	240	180	180	180	180	120	60
Total number of students admitted in first year <i>minus</i> number of students migrated to other programs/institutions plus no. of students migrated to this program ( <i>N1</i> )	256	196	199	199	198	145	74
Number of students admitted in 2nd year in the same batch via lateral entry ( <i>N2</i> )		18	18	18	23	12	7
<b>Total number of students admitted in the Program (<i>N1 + N2</i>)</b>	<b>256</b>	<b>214</b>	<b>217</b>	<b>217</b>	<b>221</b>	<b>157</b>	<b>81</b>

## Enrolment Ratio

Batch	N	N1	Enrolment Ratio (%)
2023-24 (CAY)	240	251	105
2022-23 (CAYm1)	180	196	109
2021-22 (CAYm2)	180	199	110



## Success Rate without Backlog

ITEM	Latest Year of Graduation, LYG (2019-20)	Latest Year of Graduation, LYGm1(2018- 19)	Latest Year of Graduation, LYGm2 (2017-18)
Number of students admitted in the corresponding <b>First Year + admitted in 2nd year</b> via lateral entry and separate division, if applicable	221	157	81
Number of students who have graduated without backlogs in the stipulated period	125	93	48
<b>Success Index (SI)</b>	<b>0.57</b>	<b>0.59</b>	<b>0.59</b>
<b>Average SI</b>	<b>0.58</b>		

Success rate without backlogs in any year of study =  $25 \times \text{Average SI}$   
=  $25 \times 0.58 = 14.5$

Last NBA – Success rate without backlog – Average SI = 0.50



## Success Rate With Backlog In Stipulated Period

ITEM	Latest Year of Graduation, LYG (2019-20)	Latest Year of Graduation, LYG m1(2018-19)	Latest Year of Graduation, LYG m2 (2017-18)
Number of students admitted in the corresponding First Year +admitted in 2nd year via lateral. entry and separate division, if applicable	221	157	81
Number of students who have graduated in the stipulated period	213	142	71
Success Index (SI)	0.96	0.90	0.88
Average SI	0.91		

$$\begin{aligned} \text{Success rate with backlogs in any year of study} &= 15 \times \text{Average SI} \\ &= 15 \times 0.91 = 13.7 \end{aligned}$$

Last NBA – Success rate with backlog – Average SI = 0.77



## Academic Performance in 3<sup>rd</sup> Year

<i>Academic Performance</i>	<i>2020-2021 (CAYm3)</i>	<i>2019-2020 (LYG)</i>	<i>2018-2019 (LYGm1)</i>
<i>Mean of CGPA or Mean Percentage of all successful Students (X)</i>	7.2	7.02	7.5
<i>Total no. of Successful Students(Y)</i>	209	217	143
<i>Total no. of Students appeared in the examination (Z)</i>	210	217	143
<i>API=X*(Y/Z)</i>	7.17	7.02	7.5
<i>Average API</i>	7.23		

$$\begin{aligned}\text{Average Performance} &= 1.5 * \text{Average API} \\ &= 1.5 * 7.23 = 10.85\end{aligned}$$

Last NBA – 3<sup>rd</sup> Year Academic Performance – Average API = 6.27



## Academic Performance in 2<sup>nd</sup> Year

<i>Academic Performance</i>	<i>2021-2022 (CAYm2)</i>	<i>2020-2021 (CAYm3)</i>	<i>2019-2020 (LYG)</i>
<i>Mean of CGPA or Mean Percentage of all successful Students (X)</i>	<i>8.1</i>	<i>6.74</i>	<i>6.94</i>
<i>Total no. of Successful Students(Y)</i>	<i>218</i>	<i>209</i>	<i>217</i>
<i>Total no. of Students appeared in the examination (Z)</i>	<i>218</i>	<i>215</i>	<i>220</i>
<i>API=X*(Y/Z)</i>	<i>8.1</i>	<i>6.67</i>	<i>6.68</i>
<b><i>Average API</i></b>	<b><i>7.18</i></b>		

$$\text{Academic Performance} = 1.5 * 7.18 = 10.78$$

Last NBA – 2<sup>nd</sup> Year Academic Performance – Average API = 5.63



## Placement, Higher Studies and Entrepreneur

ITEM	2019-2020 (LYG)	2018-2019 (LYGm1)	2017-2018 (LYGm2)
Total No. of Final Year Students (N)	215	143	72
No. of students placed in companies or Government Sector (x)	181	122	63
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	5	7	5
No. of students turned entrepreneur in engineering/technology(z)	-	1	1
<b>x + y + z =</b>	<b>186</b>	<b>130</b>	<b>69</b>
Placement Index: (x + y + z)/N	P1=0.86	P2=0.91	P3=0.96
<b>Average Placement= (P1 + P2 + P3)/3</b>	<b>0.91</b>		

**Assessment Points=40\*Average Placement=40 x 0.91=36.4**

**Last NBA – Average Placement Index = 0.78**





## Professional Societies / Chapters Events

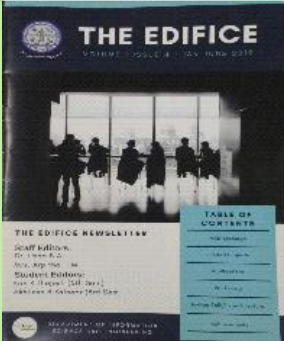
Professional Chapter	2022-23 No. of Activity	2021-22 No. of Activity	2020-21 No. of Activity
CSI	2	2	5
IEEE	10	3	41



### Photo Gallery



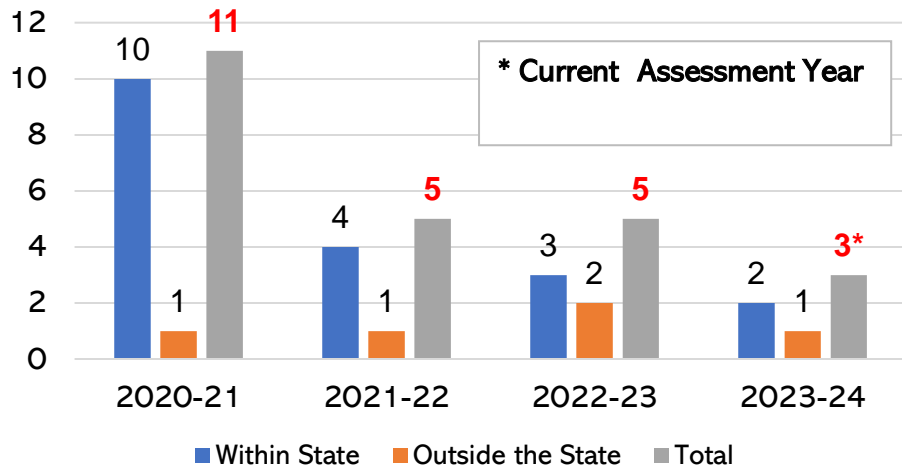
Publication of  
Technical Magazines,  
Newsletters



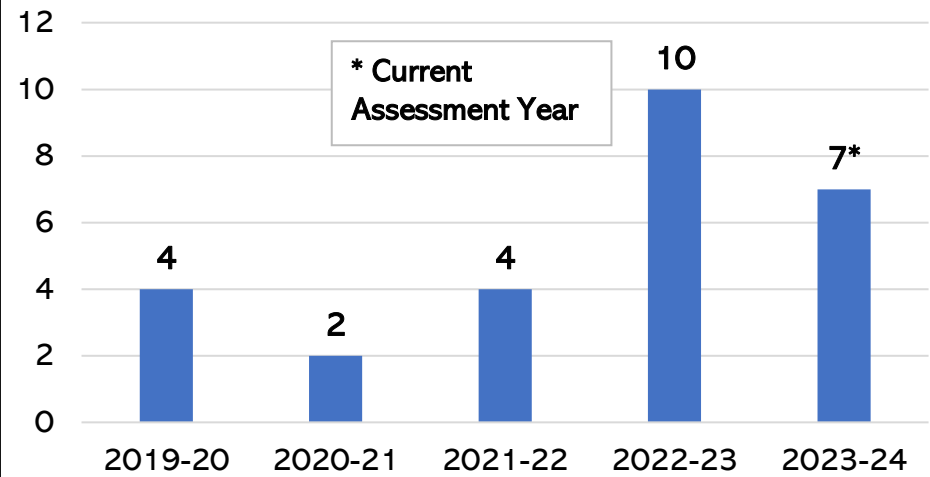


## Students Participation in Activities and Publications

### Students Participation in Activities



### Number of Student Paper Publications





## Participation in Inter – Institute Event by our Students - Sample



Events > NPCI BLOCKCHAIN HACKATHON



Congratulations!

WINNER



CERTIFICATE OF ACHIEVEMENT

This certificate is proudly presented to

**Aishwarya Manjunath**

for securing 3<sup>rd</sup> Position in Game of Stocks a Trading Simulation Competition in association with StockGro organized by Avenues – IIT Bombay from 11<sup>th</sup> Oct'21 to 22<sup>nd</sup> Oct'21



RUNNERS-UP 2020



TCS TECH BYTES

₹ Forty Thousand Only

₹ 40,000/-

Ajay Lakhota  
Founder, StockGro

**Rohit Kumar**



**Agneya**



## Criterion - 5 Faculty Information and Contribution



## Faculty Profile

Photo	Name and Designation
	<b>Dr. Manjunath T. N</b> Professor and HOD  <b>Specialization:</b> Data Management
	<b>Dr. Pushpa S. K</b> Professor  <b>Specialization:</b> Data Science
	<b>Dr. Sudhamani M V</b> Professor  <b>Specialization:</b> AI & ML
	<b>Dr. Usha B.A</b> Professor  <b>Specialization:</b> Cyber Security
	<b>Dr. Anjan K</b> Professor  <b>Specialization:</b> Cyber Security
	<b>Dr. Sheila K</b> Associate Professor  <b>Specialization:</b> Software Engineering
	<b>Dr. Surekha K B</b> Associate Professor  <b>Specialization:</b> Networks: WSN

	<b>Dr. Geeta A P</b> Associate Professor  <b>Specialization:</b> Cloud Computing
	<b>Dr. Rakesh N</b> Associate Professor  <b>Specialization:</b> Internet of Things (IoT)
	<b>Dr. Veena N</b> Associate Professor  <b>Specialization:</b> AI & ML
	<b>Dr. Shobha M</b> Associate Professor  <b>Specialization:</b> AI & ML
	<b>Dr. Prakash G L</b> Associate Professor  <b>Specialization:</b> Cloud Computing
	<b>Dr. Drakshaveni G</b> Assistant Professor  <b>Specialization:</b> Data Science
	<b>Mrs. Chethana C</b> Assistant Professor  <b>Specialization:</b> AI & ML
	<b>Mrs. Mahalakshmi S</b> Assistant Professor  <b>Specialization:</b> Robotic Process Automation

	<b>Dr. Shanthi D L</b> Assistant Professor  <b>Specialization:</b> Networks: WSN
	<b>Dr. Chandrashekar K T</b> Assistant Professor  <b>Specialization:</b> AI & ML
	<b>Dr. Sudarsanam P</b> Assistant Professor  <b>Specialization:</b> AI & ML
	<b>Dr. Gireesh Babu</b> Assistant Professor  <b>Specialization:</b> Data Science
	<b>Dr. Ambika R S</b> Assistant Professor  <b>Specialization:</b> AI & ML
	<b>Dr. Swetha M S</b> Assistant Professor  <b>Specialization:</b> Cyber Security
	<b>Dr. Vinutha K</b> Assistant Professor  <b>Specialization:</b> AI & ML



## Faculty Profile (Cont...)

	<p><b>Dr. Ravi Kumar B N</b> Assistant Professor</p> <p><b>Specialization:</b> Software Engineering</p>		<p><b>Dr. Kshama S B</b> Assistant Professor</p> <p><b>Specialization:</b> Robotic Process Automation</p>
	<p><b>Dr. Narasimha Murthy M S</b> Assistant Professor</p> <p><b>Specialization:</b> Internet Of Things (IoT)</p>		<p><b>Dr. Kantharaju V</b> Assistant Professor</p> <p><b>Specialization:</b> Networks: WSN</p>
	<p><b>Dr. Mohan B A</b> Assistant Professor</p> <p><b>Specialization:</b> Internet Of Things (IoT)</p>		<p><b>Dr. Kalai Vani Y S</b> Assistant Professor</p> <p><b>Specialization:</b> AI &amp; ML</p>
	<p><b>Dr. Anil Kumar</b> Assistant Professor</p> <p><b>Specialization:</b> AI &amp; ML</p>		<p><b>Dr. Harish Kumar N</b> Assistant Professor</p> <p><b>Specialization:</b> AI &amp; ML</p>
	<p><b>Dr. Savitha S</b> Assistant Professor</p> <p><b>Specialization:</b> Networks: WSN</p>		<p><b>Dr. Srinivas B V</b> Assistant Professor</p> <p><b>Specialization:</b> Cloud Computing</p>
	<p><b>Dr. Basavaraj G N</b> Assistant Professor</p> <p><b>Specialization:</b> Networks: WSN</p>		<p><b>Mrs. Bhavya G</b> Assistant Professor</p> <p><b>Specialization:</b> AI &amp; ML</p>
	<p><b>Dr. Karthik S A</b> Assistant Professor</p> <p><b>Specialization:</b> AI &amp; ML</p>		



## Technical Staff Profile

Photo	Name and Designation
	<p>Mr. Ashok Kumar P Assistant Instructor</p> <p><b>Labs Handling:</b> C Language Data Structure Lab Mobile Application</p>
	<p>Mr. Raju T Assistant Instructor</p> <p><b>Labs Handling:</b> Java DBMS Data Visualization</p>
	<p>Mr. Liju C Assistant Instructor</p> <p><b>Labs Handling:</b> Python Operating System Design and Analysis Algo</p>
	<p>Mr. Harish S Assistant Instructor</p> <p><b>Labs Handling:</b> Web Design Computer Networks File Structure</p>
	<p>Mr. Sharath Kumar K Assistant Instructor</p> <p><b>Labs Handling:</b> Data Communication Software Testing Skill Lab</p>

	<p>Mr. Radhakrishna G K Assistant Instructor</p> <p><b>Labs Handling:</b> Analog and Digital AI &amp; ML Project Lab</p>
	<p>Mr. Sridhar B N Second Division Clerk (SDA)</p>
	<p>Mr. Gurulingappa Attender</p>



## Student Faculty Ratio (SFR)

Academic Year	2023-24 (CAY)	2022-2023 (CAY-m1)	2021-2022 (CAY-m2)
No. of Students in the Department	630	617	532
No. of Faculty Members	34	29	19
SFR	18.52	21.27	28
Average SFR	22.59		





## Faculty Cadre Proportion

Year	Professors		Associate Professors		Assistant Professors	
	Required	Available	Required	Available	Required	Available
2023-2024 (CAY)	3	5	7	7	21	23
2022-2023 (CAY-m1)	3	5	6	7	20	18
2021-2022 (CAY-m2)	2	3	5	6	17	10
Average	RF1=2.67	AF1=4.33	RF2=6	AF2=6.67	RF3=19.33	AF3=17

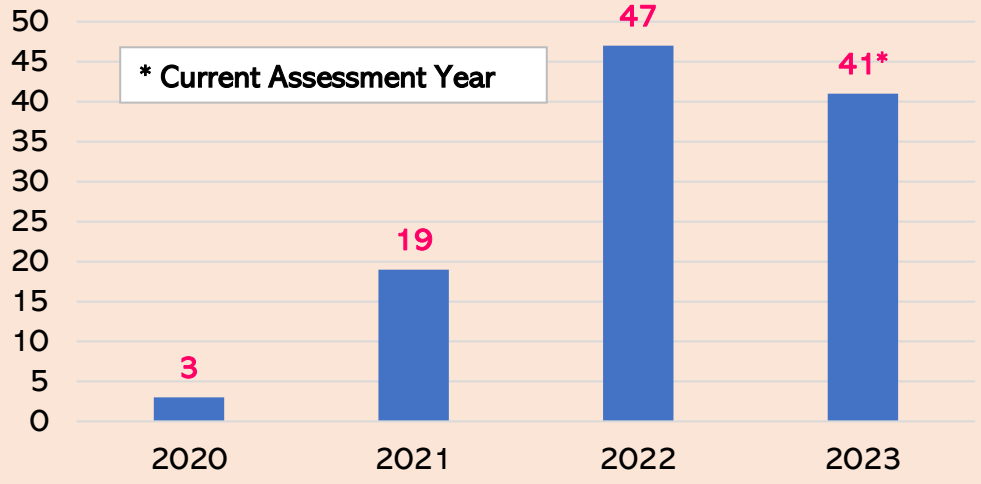
## Faculty Retention Percentage

Description	2022-23 (CAYm1)	2023-24 (CAY)
No of Faculty Retained	18	18
Total No. Faculty	19	19
% of Faculty Retained	95	95

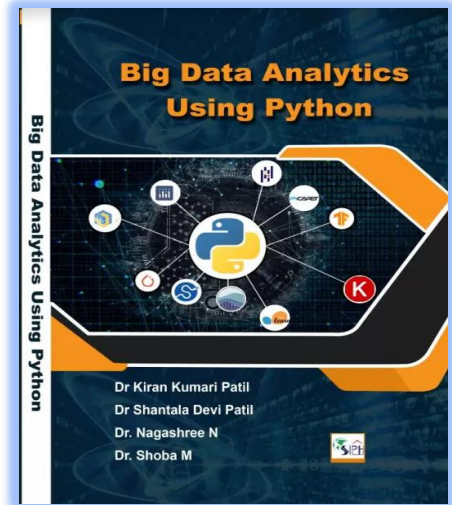
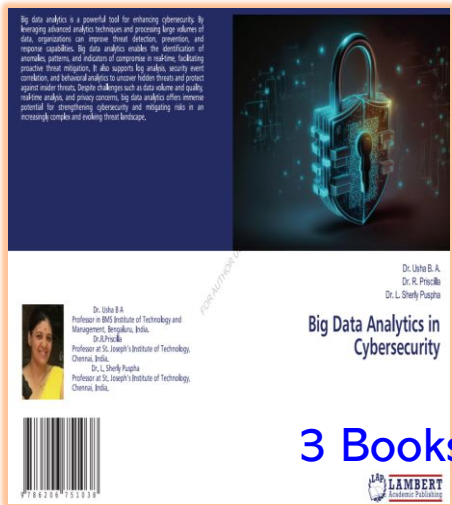
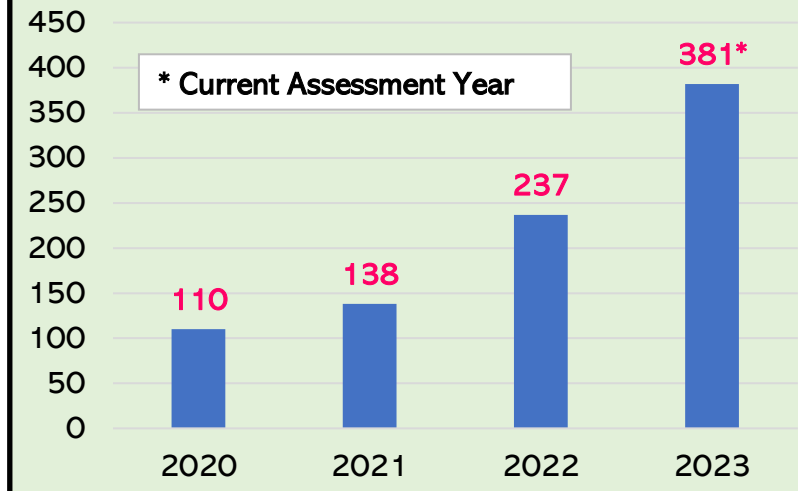


## Faculty Research Publications

### Scopus/Wos Publications



### Citations



3 Books are Authored by our Faculty Members



## Patents Filed / Granted

SL NO	NAME OF THE AUTHORS	TITLE OF THE PATENT	APPLICATION NUMBER	DATE OF APPLICATION/ PUBLICATION/GRANTED
1.	Dr. Veena N & Prof. S. Mahalakshmi	Security Technique in Energy Harvesting IoT Devices Using Slotted Aloha with Noma	2021100913	14-04-2021 GRANTED
2.	Prof. S. Mahalakshmi	Smart Artificial Intelligence Based Fleet Analytic System	2021106612	24-11-2021 GRANTED
3.	Dr. Girish Babu C N & Dr. Chandrashekhar K T	Novel Hybrid Lightweight Framework Logical Security Devices for Internet of Things	202141027418	02-07-2021
4.	Dr. Swetha M S	Indian Crop and Fertilizer Recommendation System Using Ai and Machine Learning Techniques	202141032290	23-07-2021
5.	Dr. Manjunath TN	An Alert System for Railway Track Breakage	201941044720	08-09-2020
6.	Dr. Vinutha K	Mobile Railway Track Fault Detection System with Internet of Thing and Machine Learning	202141000383	05-01-2021
7.	Dr. GireeshBabu C N	Machine Learning Algorithm-Based Automatic Sign Language Recognition System for Digital Hardware Implementation	202141047829	29-10-2021
8.	Dr. Pushpa S K	Blockchain Based Approach to secure the human ethical data from diagnostic center	202241007014	25-02-2022
9.	Dr. Swetha M S	Predicting the user preferences on ecommerce sites using machine Learning Approaches	202241003961	04-02-2022



## Consultancy Work Done

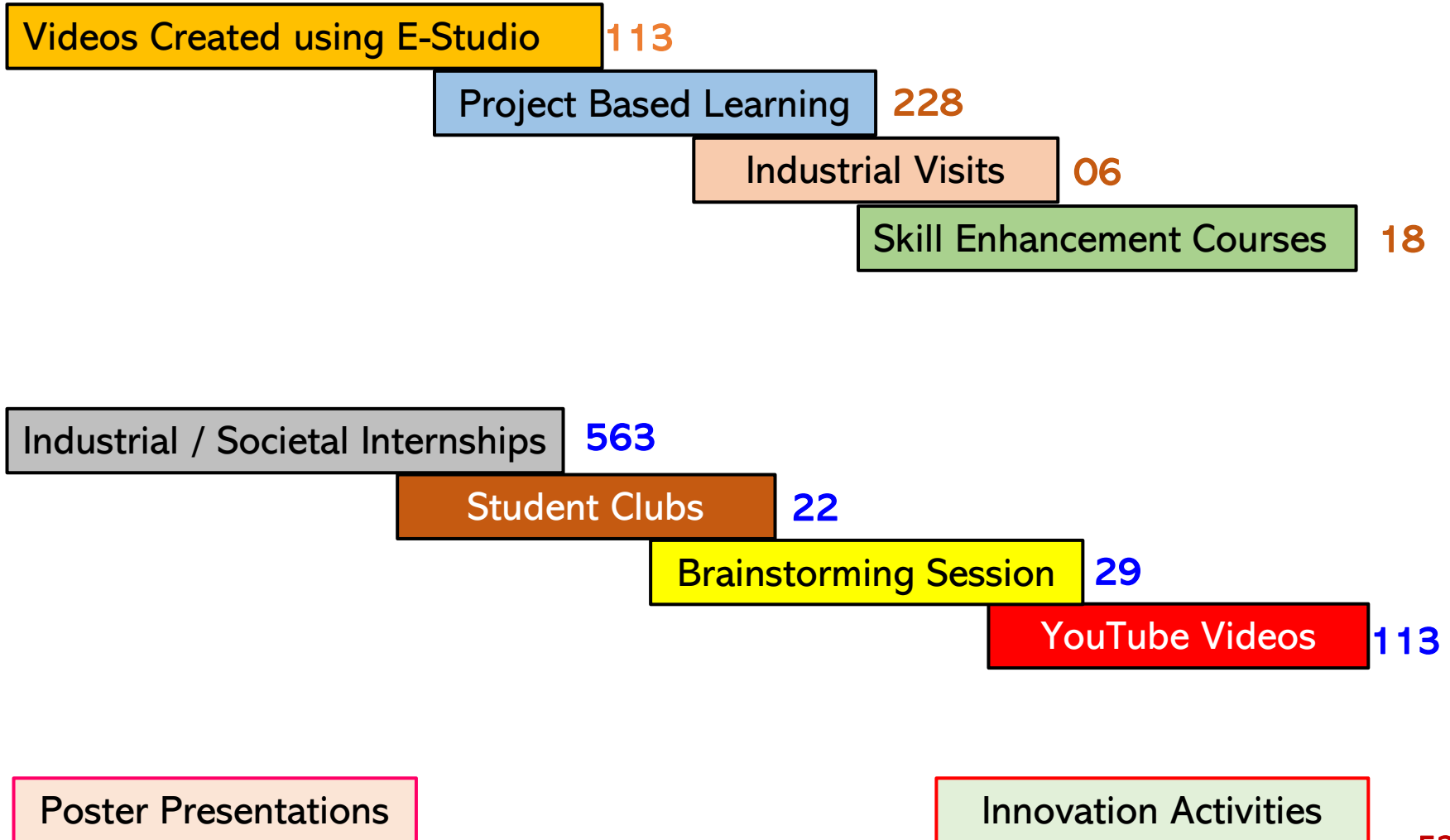
SL. NO.	NAME OF FACULTY	YEAR	TYPE / TITLE	COMPANY NAME	DURATION	AMOUNT (RS)
1	Dr. Manjunath T N	2021	Informatica - Data Migration	Technodysis Pvt. Ltd.	3 Months	Rs. 3,00,000/-
2	Dr. Gireesh Babu C N	2020	ILT Training Program	L&T, Mumbai	10 Day	Rs.82,500/-
3	Dr. Usha B A	2020	Training Program on AI	L&T, Mumbai	1 Day	Rs.12,000/-
<b>Total</b>						<b>Rs. 3,94,500/-</b>

## FDPs / Training / STTP Participated

Academic Year	FDPs / Training / STTP Participated
2023-24	11
2022-23	30
2021-22	19



## Innovations In Teaching & Learning





## Faculty Innovation/Product Development

SL. NO	NAME OF THE PRODUCT	DESCRIPTION
1	BMS Institute Mentoring System (BIMS)	It is the system is equipped with the management of all the student and faculty data right from the time they join college. The marks and daily attendance of students can be fed into the system and reports be generated at any point of time.
2	Accounts Software	The Accounts Software was developed to make the entire process of fee submission and other account related work more efficiently, Including Challan generation.
3	Admission Data Entry System	The Admission Data Entry system was developed with the motive to simplify admission process by reducing the queue of students and to maintain a single master database by capturing all the information of the students right from the time they join college.
4	Techsaransh	Techsaransh is an online project depository focused on automatizing the process of consolidating and printing the collection of all final year projects along with it's abstracts.
5	Online Portal for Faculty Recruitment	Online Portal for Faculty recruitment for BMSIT&M with various forms and parameters.



## Faculty Performance Appraisal and Development Systems (FPADS)

### Prerequisites:

### Faculty Industry Internship & Faculty Development Program

1. Personal Information
2. Results and Feedback
3. Research Publications, Sponsored Projects, Consultancy, Patents, FDP, Certificate Programs, Skill Development Programs, Product Development, Books
4. Contribution to the Department
5. Contribution to the Institutional Development

### Important Note:

**Minimum Marks** to be secured by faculty members in each criterion\*

	Asst.Professor	Assoc.Professor	Professor	HoD	Dean/VP
Results and Feedback	75% of Max Score (30/40)	75% of Max Score (22.5/30)	75% of Max Score (15/20)	75% of Max Score (15/20)	75% of Max Score (7.5/10)
Research/ Consultancy/EDP	15/65	22.5/65	25/65	20/65	17.5/65
Contributions to the Department	10/15	10/15	10/25	--	-
Institutional Development	05/10	05/20	10/20	25/45	35/55
	100	100	100	100	100

\*Associate Professor with HoDs Responsibility will be considered under HoDs category

**Note:** The evidences for having met the pre-requisites, achieved the above mentioned claims and participated in the events shall be uploaded by the faculty member on to the FIMS portal as soon as the event is completed, as those data for PBAS may be drawn from FIMS. The data is frozen on monthly basis and there may not be any scope for adding data at later date.

  
PRINCIPAL

  
15/19

- Head of the Department will evaluate the self-appraisal form
- Review by the Reviewing Officer (Principal)
- Establishment Section will Implement the salary increment



## Criterion - 6

# Facilities and Technical Support



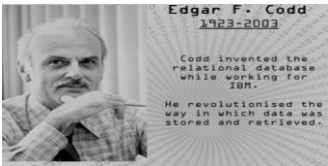


## Computing Resource and Technical Manpower

Sl. No	Laboratory Name	System and Accessories Configuration	Laboratory Courses Handled	Technical Manpower Support	
				Name of the Technical Staff and Qualification	Designation
1.	Linus Torvalds Lab	Computers with i7/15 Processor, 1 TB/500 GB hard Disk, 8/16/32 GB RAM 256/512 GB SSD 11 <sup>th</sup> Generation, LAN Switch :48 port switch (Manageable), Make: Extreme Printer: HP laserjet M1136 Projector: Optoma Projector	<ul style="list-style-type: none"> <li>1. Computer Programming</li> <li>2. Data Structures</li> <li>3. Operating System</li> <li>4. Python Programming</li> </ul>	Mr. Liju C Dip (CSE)	Asst. Instructor
2.	Tim Berners Lee Lab	Computers with i7 Processor 1 TB hard Disk, 8/16/32 GB RAM 512GB SSD, 6 <sup>th</sup> /10 <sup>th</sup> /11 <sup>th</sup> Generation LAN Switch :48 port switch (Manageable), Make: Extreme Printer: HP MFP M1005 printer laserjet. Projector: Optoma Projector	<ul style="list-style-type: none"> <li>1. Database Management</li> <li>2. Web Programming</li> <li>3. Data Visualization</li> <li>4. Software Testing</li> </ul>	Mr. Raju T B.E (CSE)  Mr. Harish S B.E(ISE)	Asst. Instructor
3	Guido van Rossum Lab	Computers with i7 Processor 1 TB hard Disk, 16/32 GB RAM 512GB SSD, 10 <sup>th</sup> Generation/12 <sup>th</sup> Generation LAN Switch :48 port switch (Manageable), Make: Extreme Printer: HP MFP M1005 printer LaserJet, Optoma Projector	<ul style="list-style-type: none"> <li>1. C Language</li> <li>2. Data Structure Lab</li> <li>3. OOPs with JAVA</li> <li>4. Robotic Process Automation</li> </ul>	Mr. Ashok Kumar P Dip (CSE)	Asst. Instructor
4	Dennis Ritchie Laboratory	Computers with i7 Processor 1 TB hard Disk, 32 GB RAM 512GB SSD, 11 <sup>th</sup> Generation, LAN Switch :48 port switch (Manageable)	<ul style="list-style-type: none"> <li>1. Operating System Lab</li> <li>2. Data Communication Lab</li> </ul>	Mr. Sharath Kumar K Dip (CSE)	Asst. Instructor
5	Edgar F Codd Laboratory	Computers with i7 Processor 1 TB hard Disk, 32 GB RAM 512GB SSD, 11 <sup>th</sup> Generation, LAN Switch :48 port switch (Manageable)	<ul style="list-style-type: none"> <li>1. Database Management Lab</li> <li>2. Data Communication Lab</li> <li>3. Project Work</li> </ul>	Mr. Radha Krishna G K B.E(CSE)	Asst. Instructor



## Types of Software Used



Edgar F Codd



Tim Burners Lee



Dennis Ritchie

SI No	Software / OS used	Open source /Licensed Software's	
1	Windows 10/11	CASA Agreement	
2	Matlab2022b	Licensed	
3	Office 365	CASA Licensed	
5	Oracle	Licensed	
6	Ubuntu	Open source	
7	Fedora 10	Open source	
8	Network Simulator	Open source	
9	JDK 1.8	Open source	
10	Java Eclipse Neon	Open source	
11	Python	Open source	
12	LAMP	Open source	
13	XAMPP	Open source	
14	VMware	Open source	
15	Ui Path Studio	Open source (Partnered ship with Academic Alliance)	
16	MariaDB	Open source	
17	XILINX	Open Source	
18	hadoop	Open Source	



Linus Torvalds



Guido Van Rossum



## Additional facilities created to enhance POs

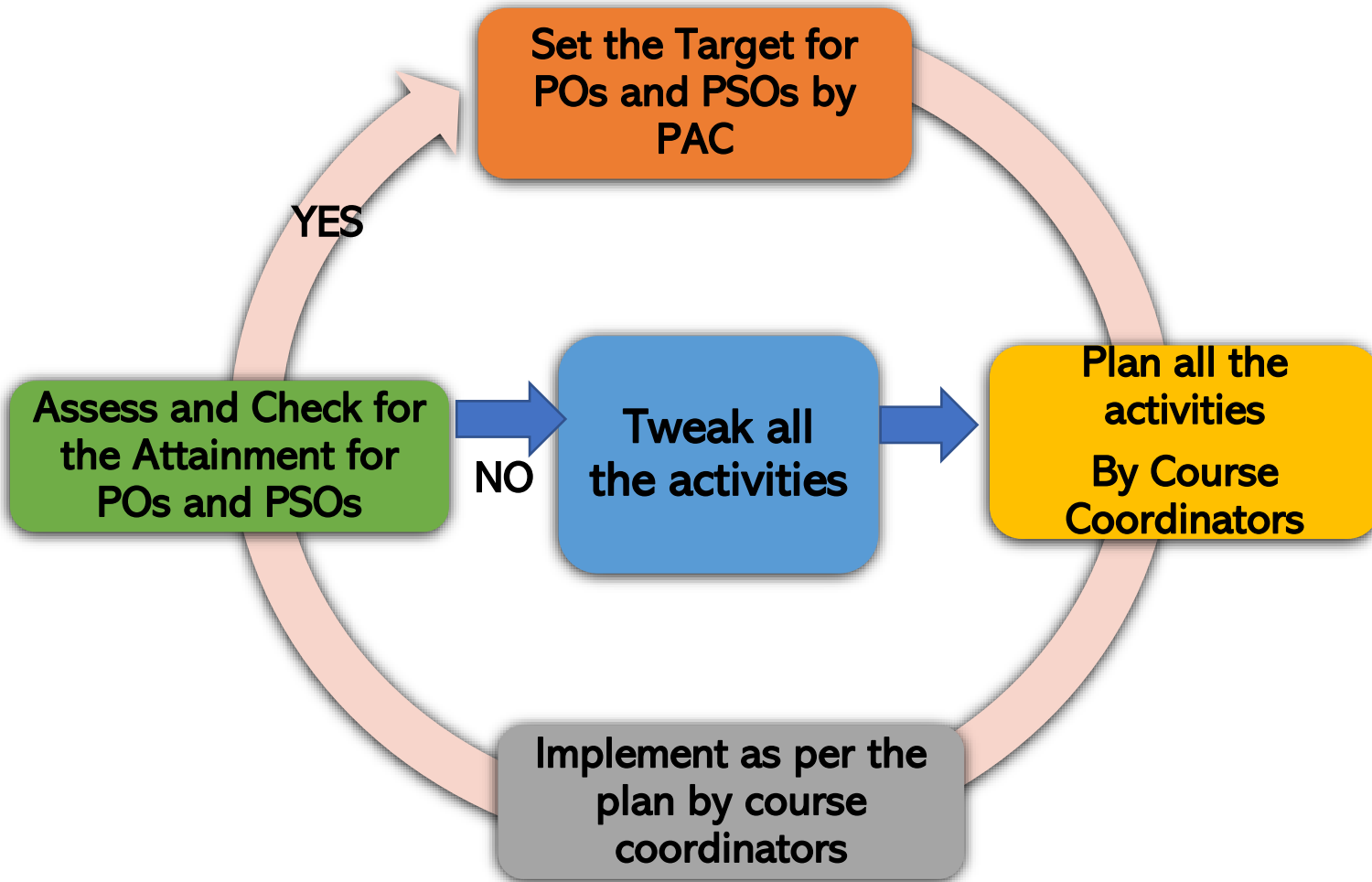
SI No	Facility name	Details	Reason(s) for creating facility	Areas of Projects
1	IOT Kits	Helps students and faculty to develop IoT applications	Students do projects	IoT projects
2	E-Studio	Helps Faculties to Record their Lectures which helps students access from anywhere anytime	Facility to create online Materia	online access to material
3	Arohan Lab/BICEP	Helps Students and researchers to develop applications and to explore Entrepreneurship	Resources Sharing (All hardware Components are available)	Resource sharing (Hardware Kits)
4	Ui Path Studio	Helps Students and Faculty to develop automation projects	Provides a platform for developing automation Projects	automation projects
5	Drone	Students can create Drone projects	Provides a platform to work on drone projects	Drone projects
6	Hadoop Cluster	Students and researchers do projects on Big data	To Provide a platform for students and researchers to work on Big data	Big data
7	MATLAB R2022b	Help Students and faculties to develop programs	To provide a platform for students and researchers to work on programs	Image processing.
8	E-Yantra	Help Students and faculties to develop projects	To provide a platform for students and researchers to work on programs	Multidisciplinary Projects
8	Selenium and Jira	Helps students and researchers to do testing and divide the work based on the tasks	To provide an online platform for students and researchers to work on automated testing environment	Automated testing environment
9	Maria DB on Cloud	Helps students and researchers to work on SQL Queries'	To provide an online platform to students	Online platform
10	Oracle Academy	Help Students and faculties to execute SQL Queries	To provide a platform to execute SQL queries	Database
11	Automation Anywhere	Helps Students and Faculty to develop automation projects	Provides a platform for developing automation Projects	Automation projects
12	CUDA Jetson Kit	Students and researchers do projects in parallel programming, Machine Learning	To provide a platform to students/ Researchers with latest tools and technologies	Parallel Processing
13	Skill Lab	To give Exposure to the Basic Skills upto NSQF Level 3 with basic engineering skills	Basic Engineering Skills	Engineering Skills



## Criterion - 7 Continuous Improvement

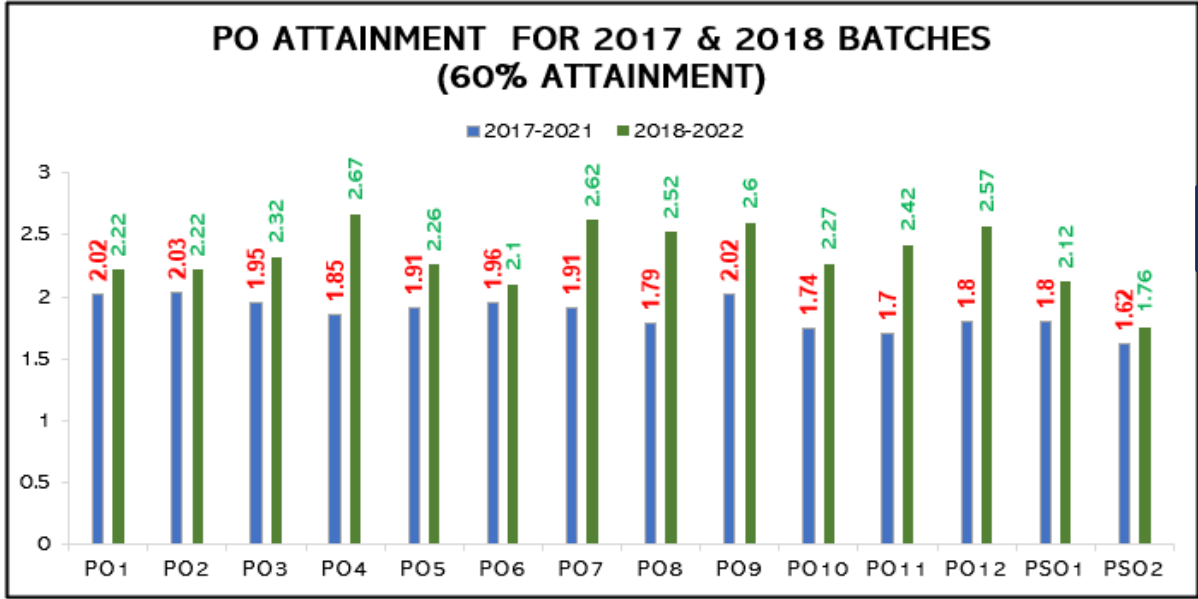


## The Continuous Improvement Process

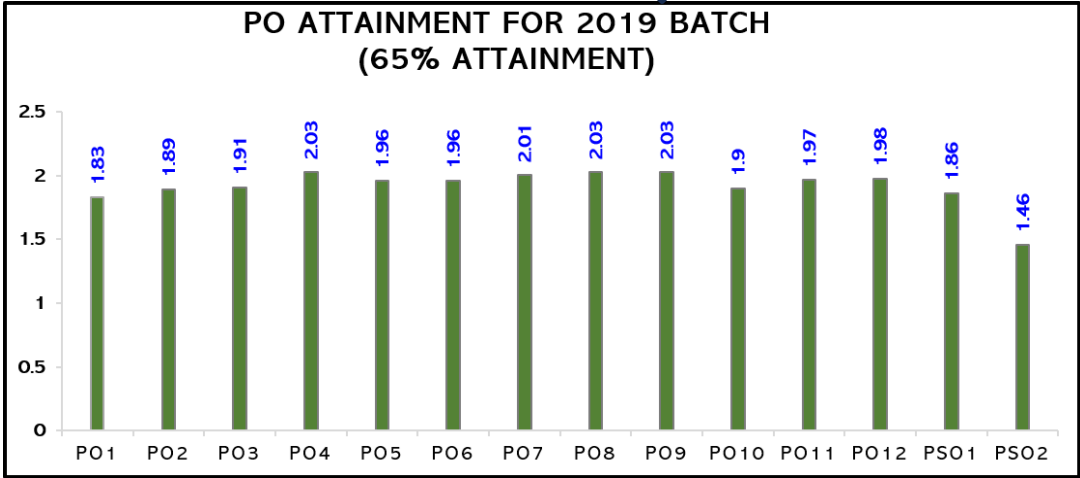




## PO Attainment Levels



Target is revised to 65%





## Academic Audit and Action Taken

### Assessment Criteria:

- Teaching & Learning
- Result Analysis
- Attainment of course outcomes and programme outcomes
- Industry participation
- Workshops/FDPs/Seminars/Conferences conducted/Attended
- Research, consultancy and quality publications
- Department budget utilization



### Frequency:

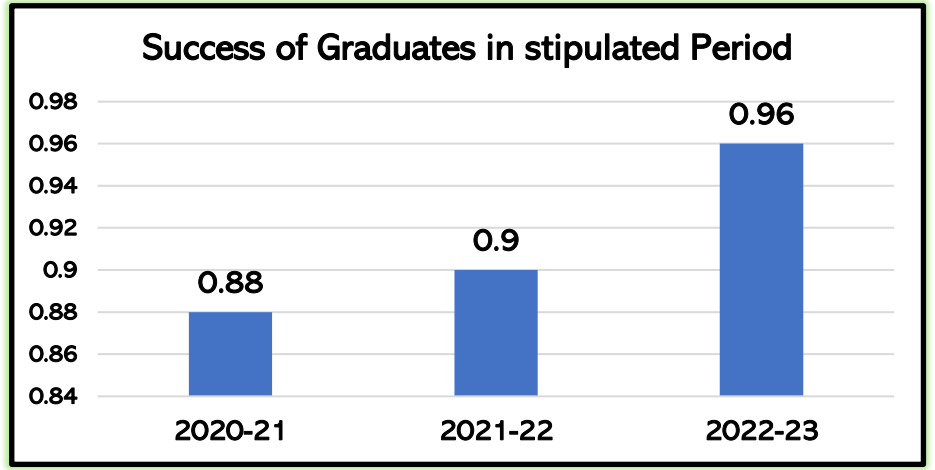
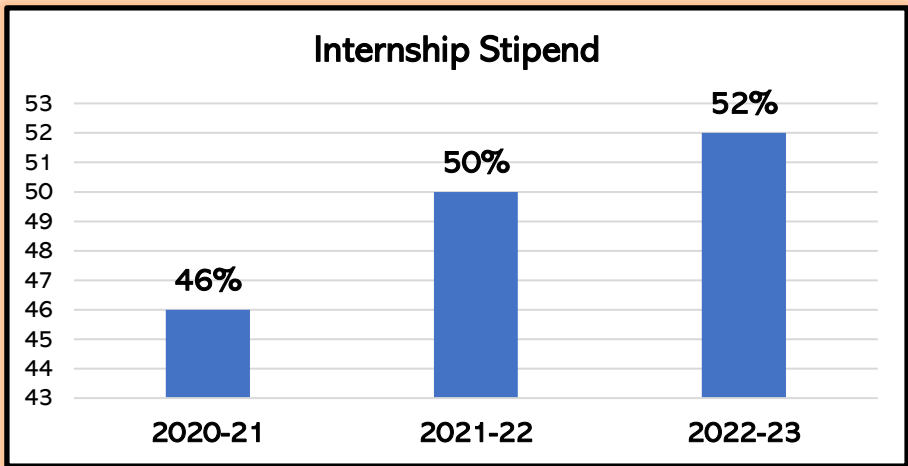
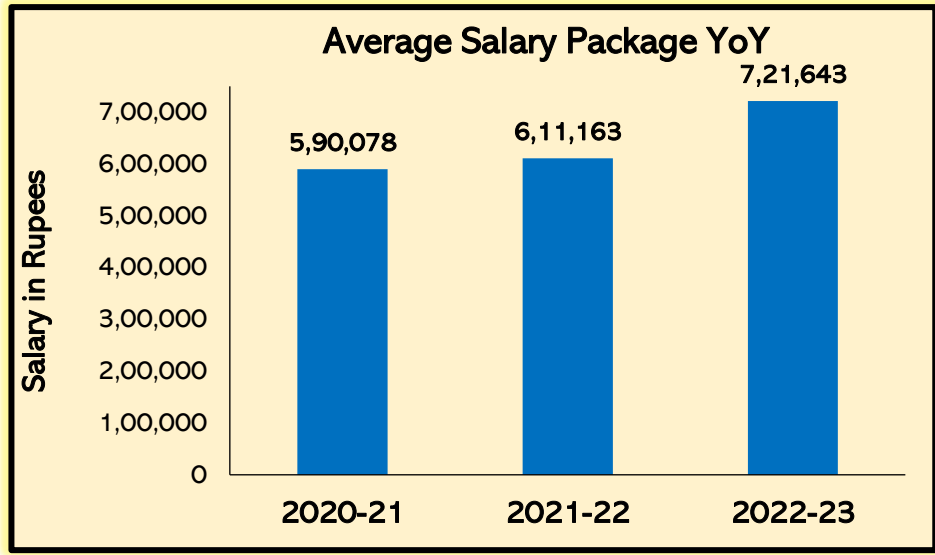
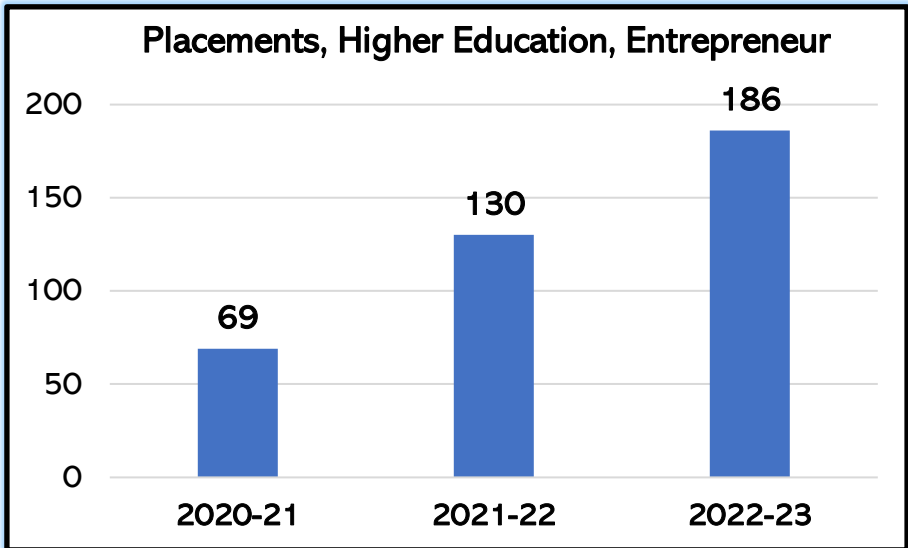
- Internal Audit is done every semester
- External Audit is done by inviting expert from another Institute – Dean(A) Office



Compliance Report After Every Audit Process to the Dean (A) Office



## Placements, Higher Studies and Entrepreneurship







## Improvement in the students admitted to the program

Item		CAY 2023-24	CAYm1 2022-23	CAYm2 2021-22	
National Level Entrance Examination (COMEDK)	No. of Students admitted	66	47	50	
	Opening Score/Rank	4420	5203	3495	
	Closing Score/Rank	19917	14053	5679	
State/University/ Level Entrance Examination/ Others	CET	No. of Students admitted	105	73	75
		Opening Score/Rank	5970	4392	5059
		Closing Score/Rank	31762	14829	8291
	SNQ	No. of Students admitted	11	9	9
		Opening Score/Rank	6567	5249	5869
		Closing Score/Rank	7693	7982	8129
LATERAL ENTRY DETAILS (DCET)	No. of Students admitted	*	18	18	
	Opening Score/Rank	-	860	1274	
	Closing Score/Rank	-	6047	9011	
	Average percentage	-	71.54%	72.30%	
Average CBSE/Any other Board Result of admitted students (Physics, Chemistry & Maths)		84.56%	81.34%	82.04%	



## Improvement in Student Performance & Faculty

Faculty Profile	NBA -2018	Current
Number of Faculty	11	35
Number of Faculty with Ph.Ds.	02	31
Number of Faculty Pursuing Ph.D.	09	04

Sl. No	Parameter	Last NBA -2018	Current
1	Success rate Without Backlog	0.5	0.58
2	Success rate with Backlog	0.77	0.91
3	3 <sup>rd</sup> Year Academic Performance	6.27	7.23
4	2 <sup>nd</sup> Year Academic Performance	5.63	7.18
5	Average Placement Index	0.78	0.91



## Improvement in Research Profile

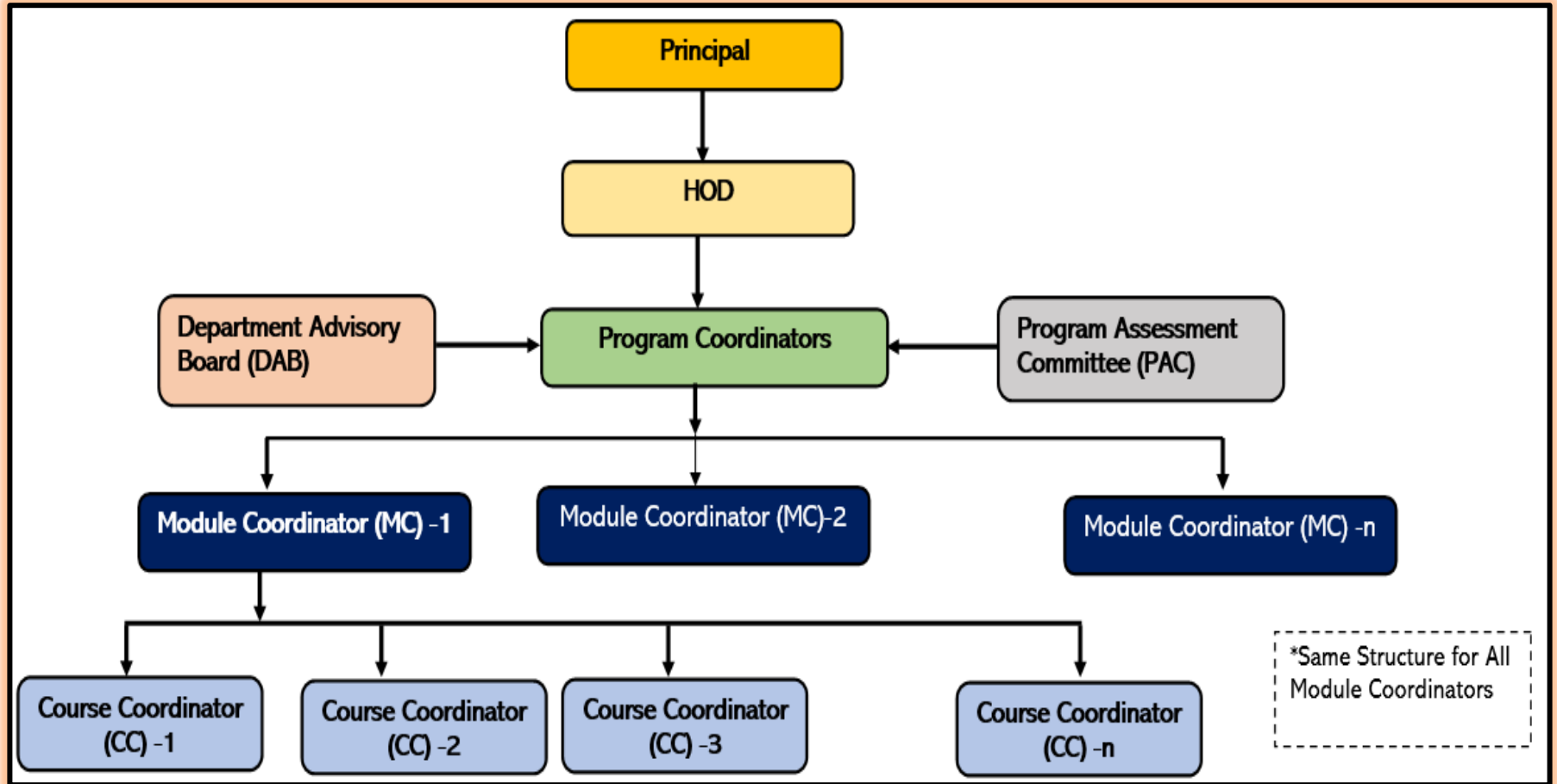
Research Profile	NBA -2018	Current
Number of Research Publications	03	107
Number of Patents	00	09 (02 Granted)
Books Written	00	03
Consultancy Amount Generated	00	3.94 Lakhs
Number of PhDs Awarded	00	18
Number of Research Scholars	03	28
Number of Research Supervisors	01	17
Number of Reviewers	01	19



# OBE Philosophy in the Department



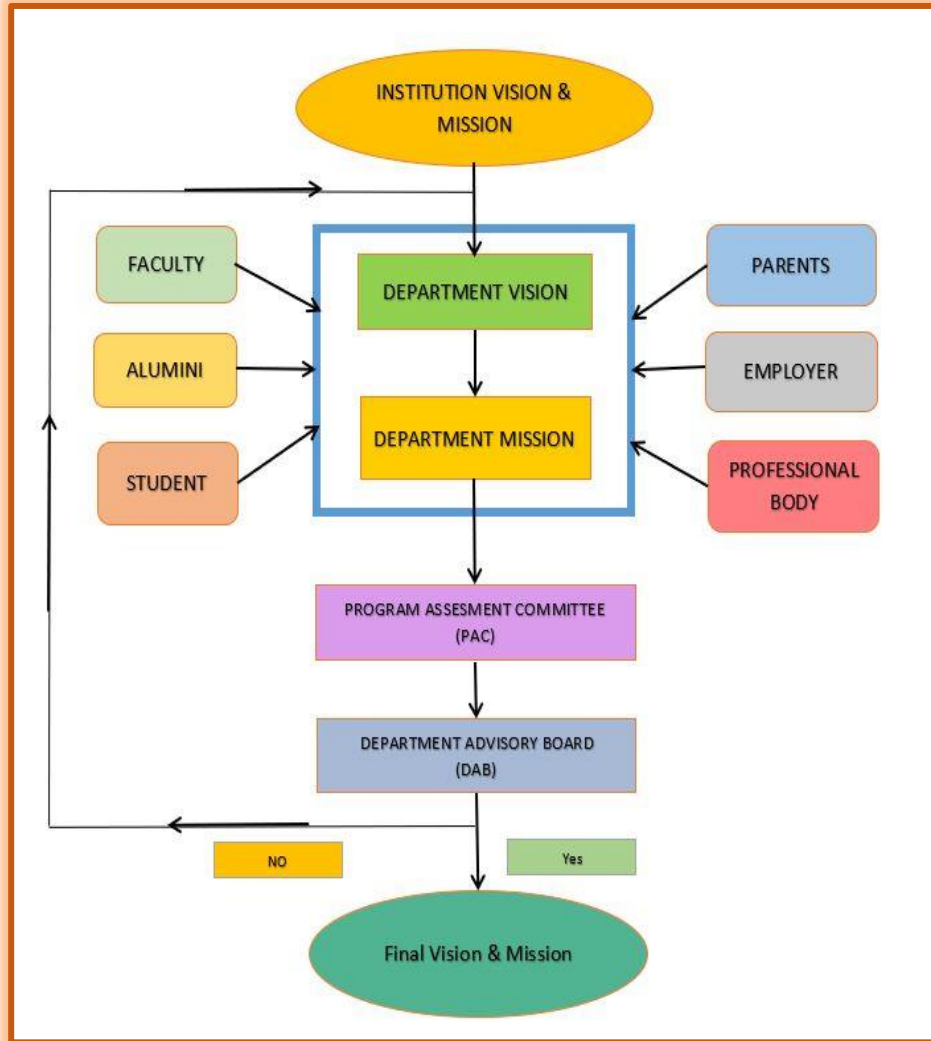
## OBE Administrative System at Our Department



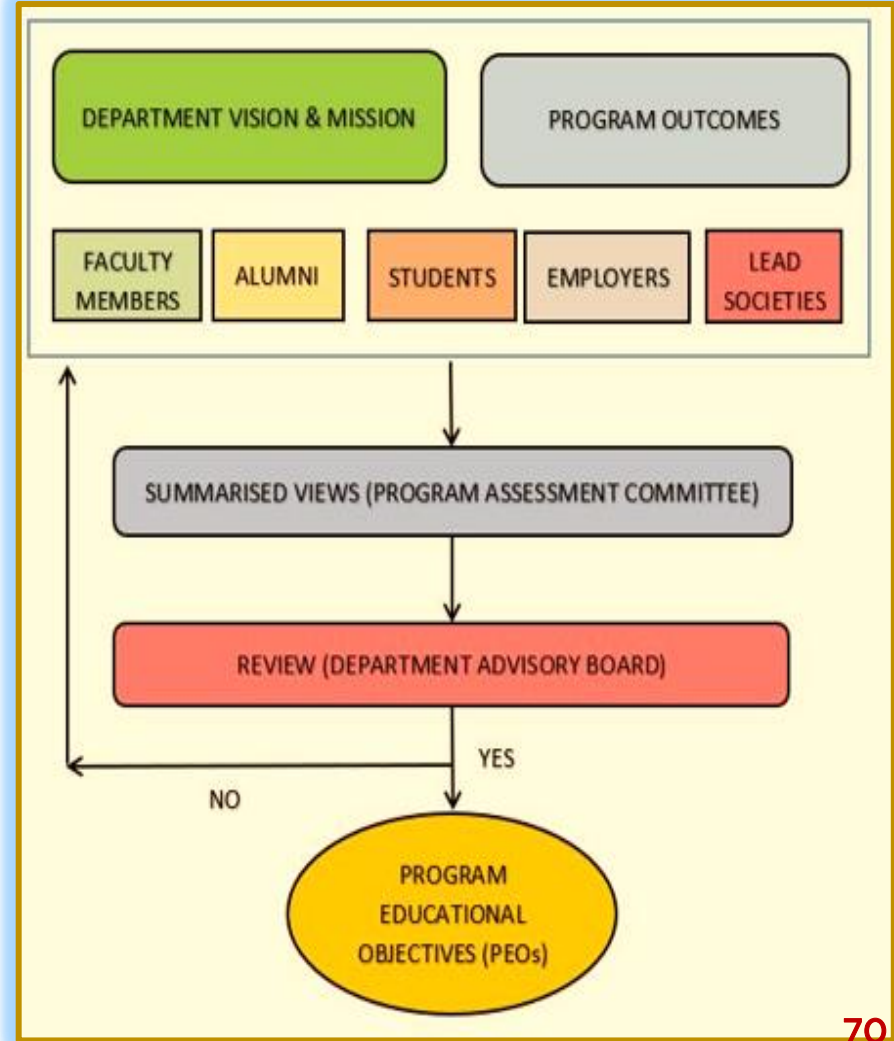
OBE Implementation Administrative Setup



## Process followed to formulate Vision and Mission

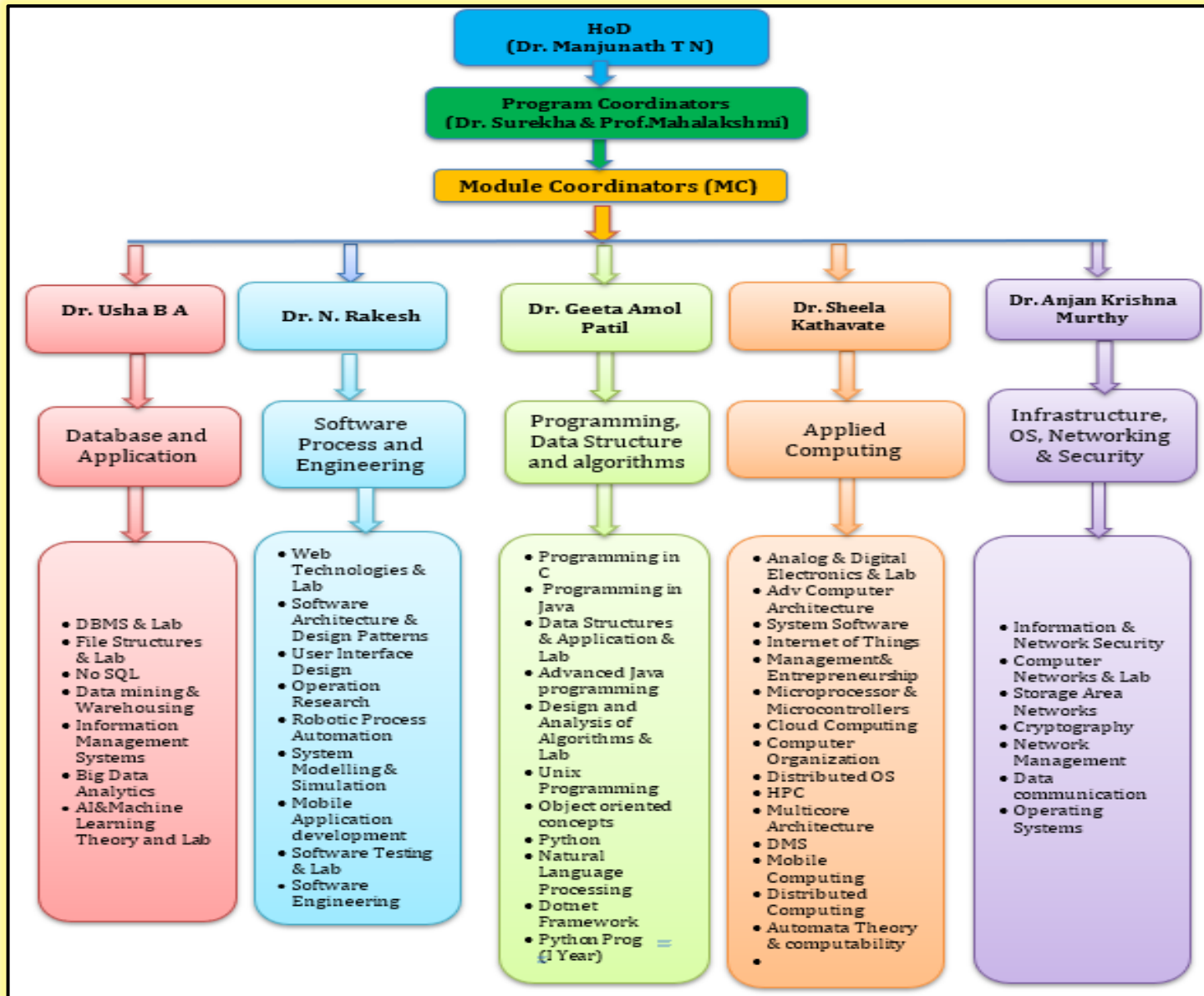


## Process followed to formulate PEOs



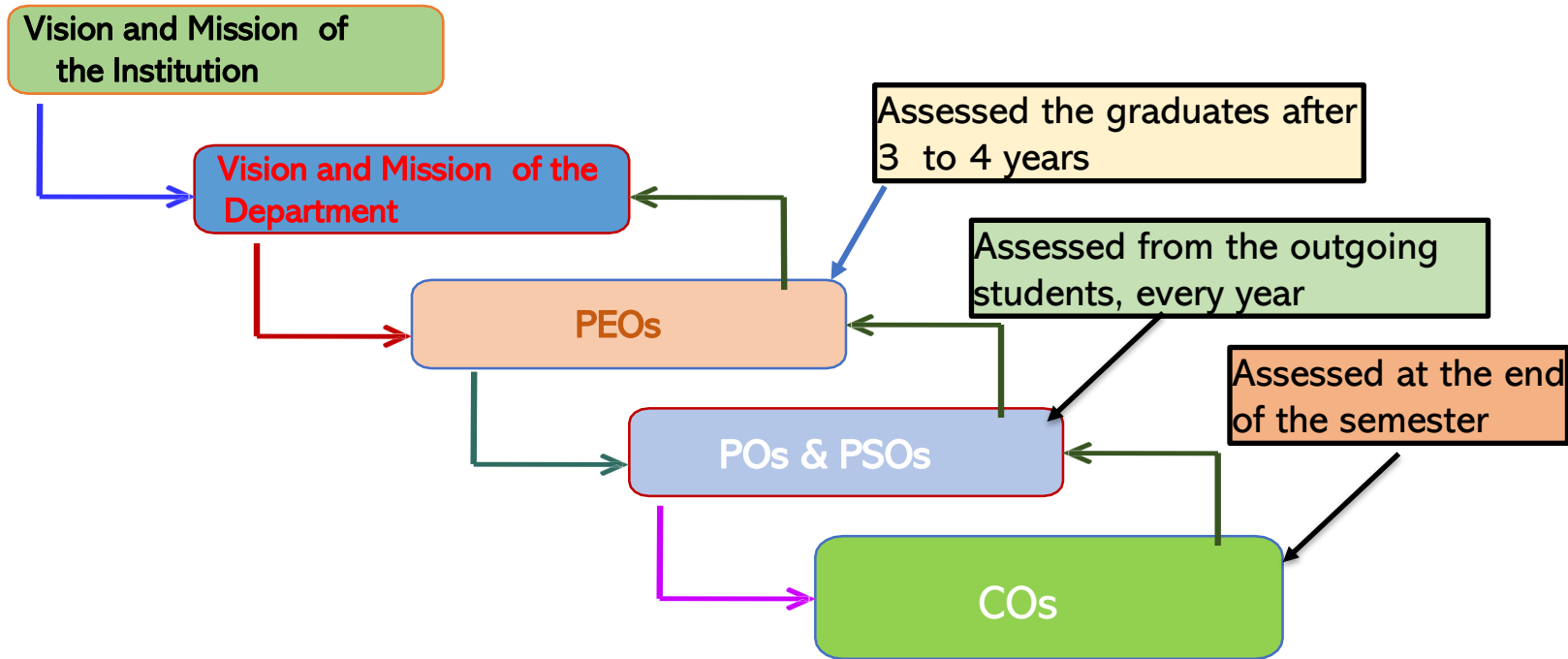


## ISE - Body of Knowledge (Mapped with curriculum)





# Outcome Based Education (OBE)







## Program Curriculum and Course Outcomes

The BMS Institute of Technology & Management, Bengaluru is affiliated to **Visvesvaraya Technological University, Belagavi**. Hence, the Department followed the curriculum **of Information Science Engineering as prescribed by the University**.

The **Course Outcomes (COs)** of each course were prepared based on what the learner will know and be able to do by the end of a course or program.

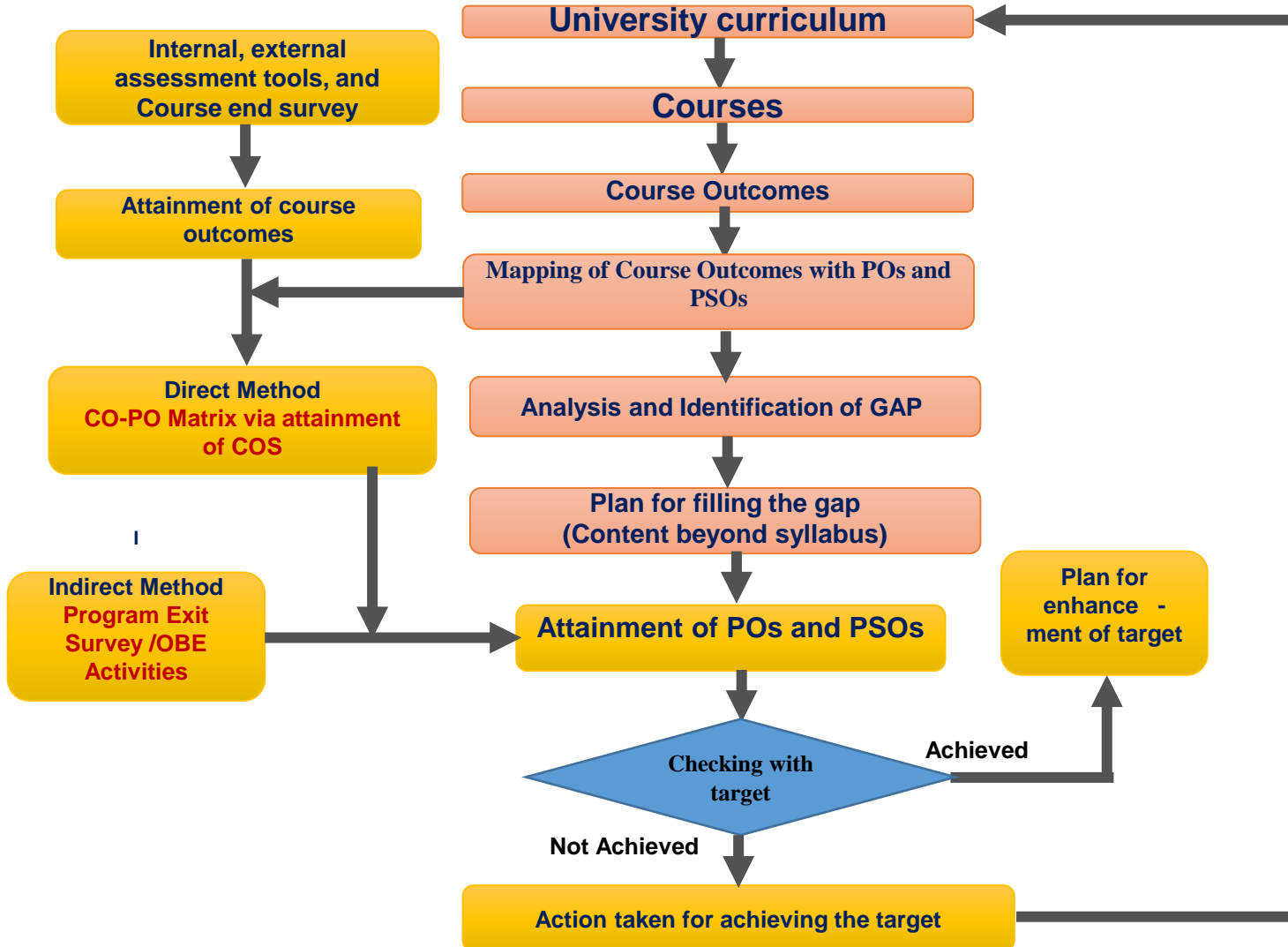
The **CO-PO & PSO mapping of all Courses** were prepared in **Matrix Form** and Identified the **curricular Gaps** and ensured these **gaps were addressed** through various **Skill Development Programs**.

The **CO-PO Attainments** were Calculated using **Various Assessment Tools** and **Weightages were given for CIE and SEE** appropriately and compared with the Targets Fixed for every graduating batch

**For Every Graduating Batch**, We find the **Success rate with and without backlog** and **3<sup>rd</sup> Year and 2<sup>nd</sup> year Performance**, Placement, Higher Education, Entrepreneur Index

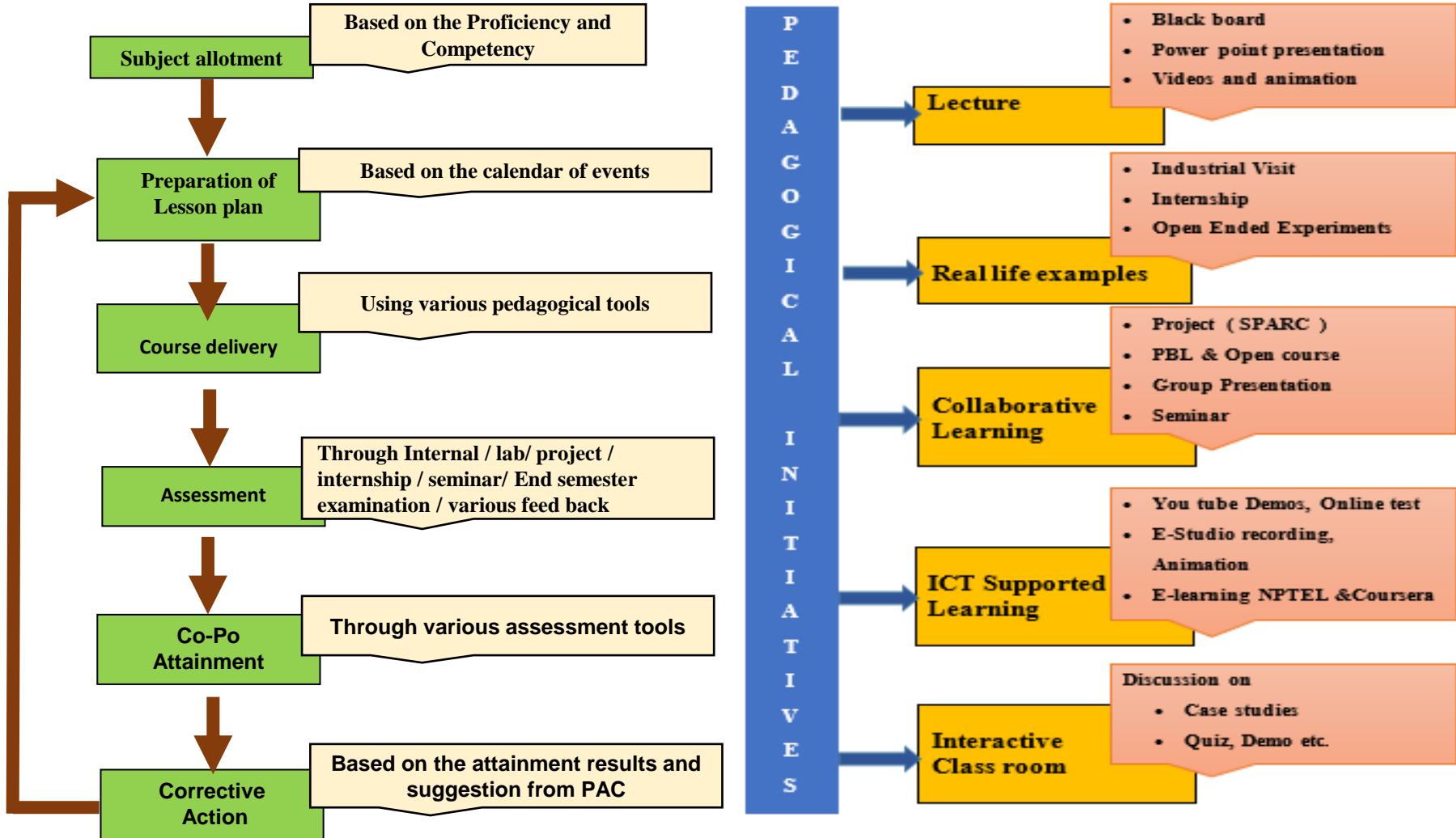


## Identification of Curriculum Gaps





## Course Delivery (Teaching Learning Process)





## Sample CO's

Course Name: Data Structures And Applications	C323	Course Year:	2021-22
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Item	Statement
C2 32.1	<b>Acquire</b> the fundamental knowledge on various data structures operations.
C2 32.2	<b>Apply</b> linear and nonlinear data structures in problem solving.
C2 32.3	<b>Analyse</b> various linear and nonlinear data structures for different applications.
C2 32.4	<b>Design</b> algorithms on representation and operations of data structures.
C2 32.5	<b>Interpret and select</b> suitable data structures for solving problems/real world applications.



## CO-PO & PSO Mapping

Course Name: Data Structures and Application									C232		Course Year 2021-22			
CO-PO and CO-PSO Mapping														
COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C2 32.1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 32.2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
C2 32.3	-	3	-	-	-	-	-	-	-	-	-	-	-	-
C2 32.4	-	-	3	-	-	-	-	-	-	-	-	-	3	-
C2 32.5	-	-	-	2	3	-	-	-	3	3	-	3	3	-
<b>C2 32</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>-</b>

- 3** Represents for **STRONG**
- 2** Represents for **MODERATE**
- 1** Represents for **LOW**



## Attainment levels set for COs Weightage given is 60(SEE):40(CIE)

### 2017-21 and 2018-22 BATCH:

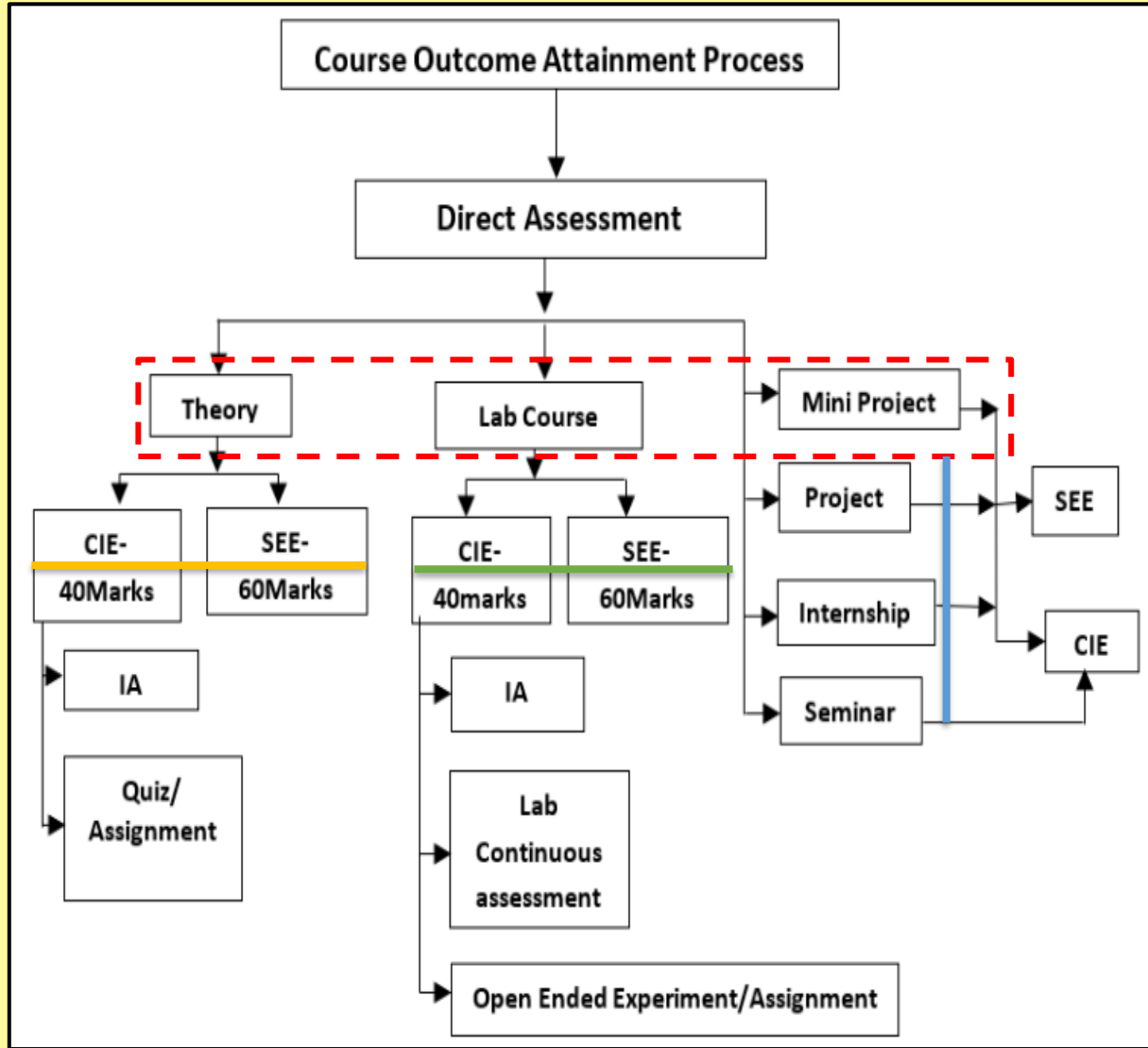
Attainment Level 3	60% Students Must Score 60% Marks and Above
Attainment Level 2	55% Students Must Score 60% Marks and Above
Attainment Level 1	50% Students Must Score 60% Marks and Above

### 2019-21 BATCH:

Attainment Level 3	60% Students Must Score 65% Marks and Above
Attainment Level 2	55% Students Must Score 65% Marks and Above
Attainment Level 1	50% Students Must Score 65% Marks and Above

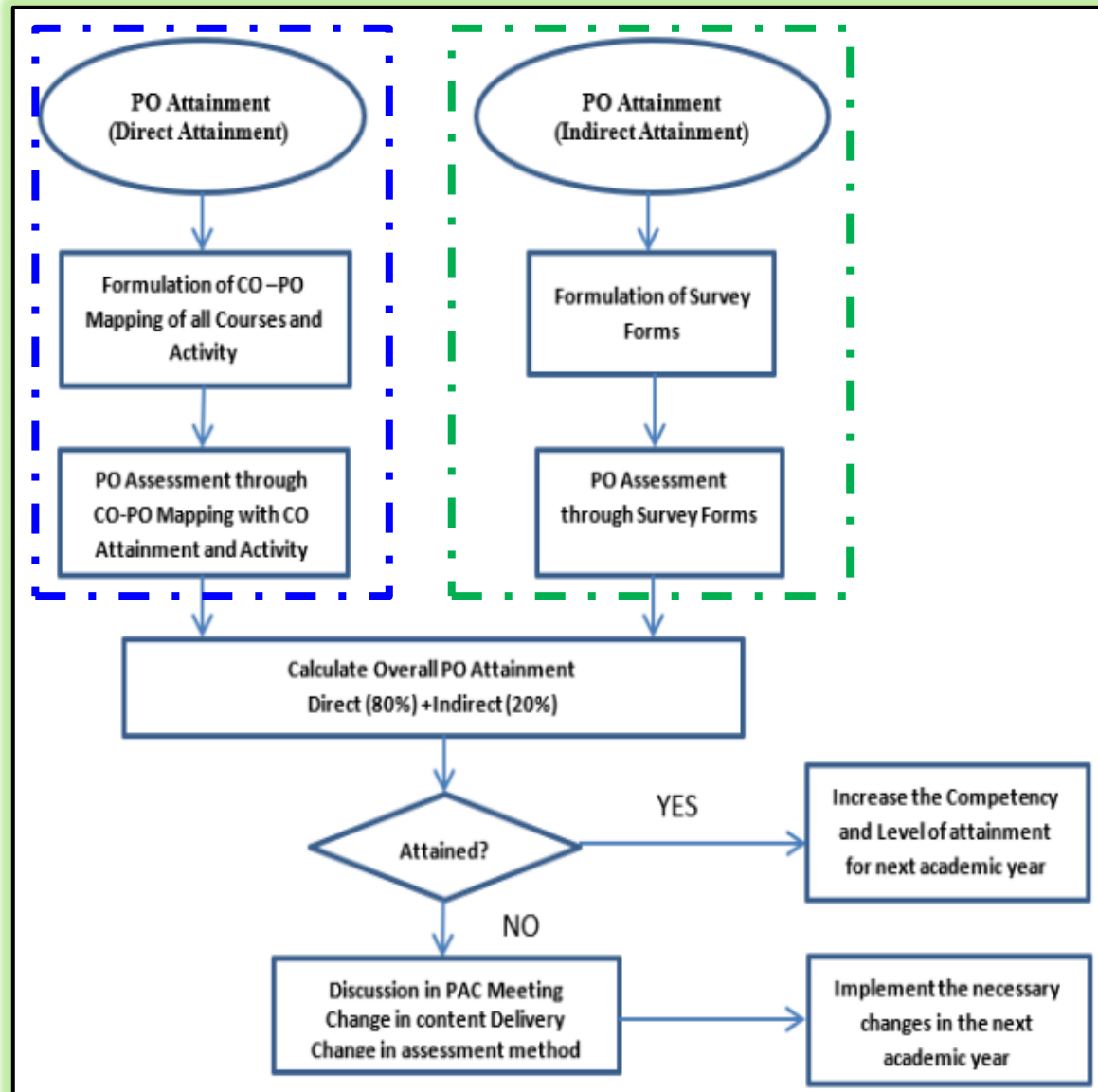


# The Process followed for Course Outcomes Attainment





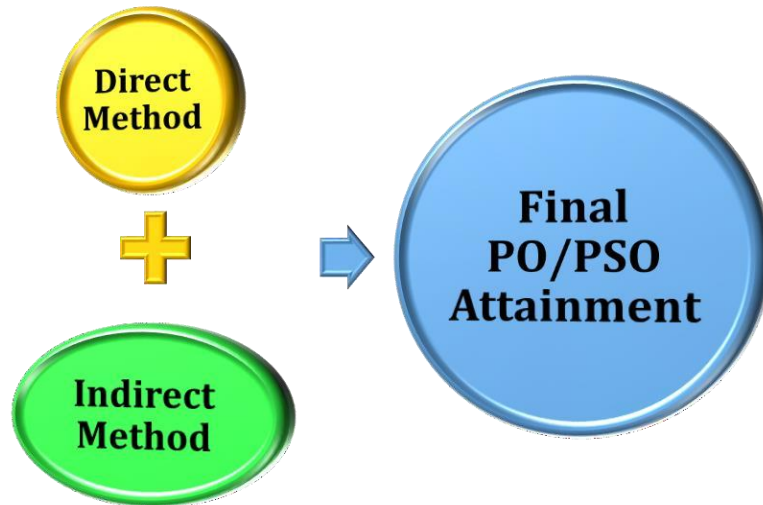
# The Process followed for Program Outcomes Attainment







## Attainment of PO's and PSO's



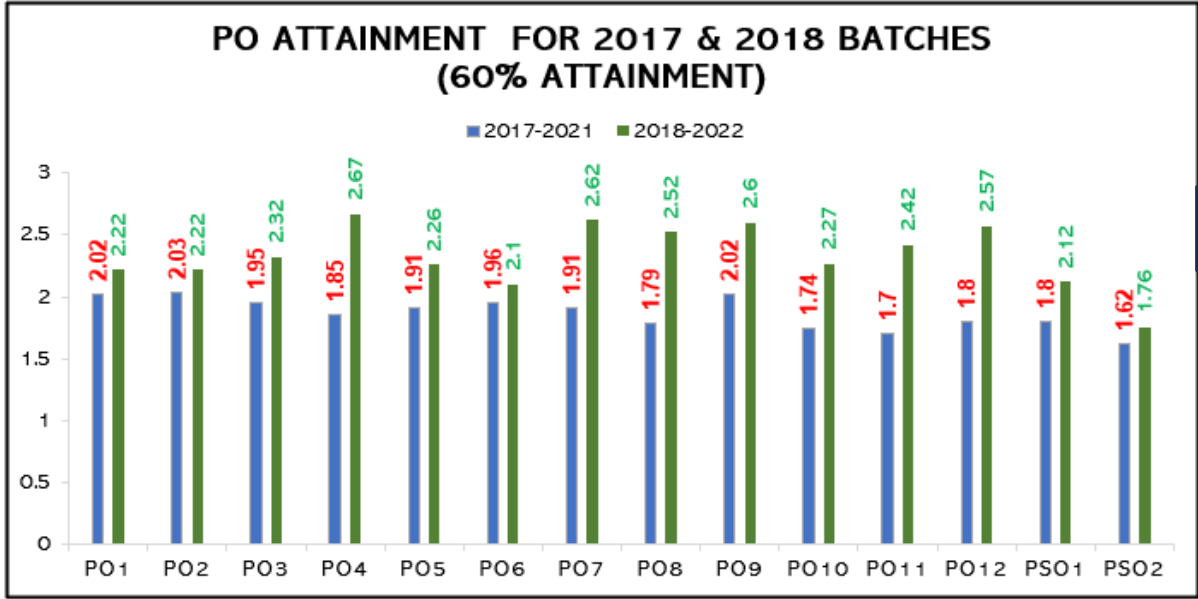
- Direct Method (80%)**
- Internal Assessment
  - University Assessment

- Indirect Method (20%)**
- OBE Activities
  - Graduate Survey

$$PO \text{ Attainment} = \frac{CO - PO \text{ Mapping Value} * \text{Actual CO Attainment Value}}{\text{Number of Attainment Levels (3)}}$$



## PO Attainment Levels



Target is revised to 65%

