VIDYA JYOTHI
Institute of Technology
AN AUTONOMOUS INSTITUTION

DEPARTMENT OF INFORMATION TECHNOLOGY

Welcome to NBA Expert Committee

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYA JYOTHI Institute of Technology
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- ✓ **PART 1**
- ➢ **Department Profile**
- ➢ **Faculty & Student Achievements**
- ➢ **Criteria 1 - Vision, Mission & PEO's**
- ➢ **Criteria 2 - Program Curriculum and Teaching - Learning Processes**
- ➢ **Criteria 3 - Course Outcomes and Program Outcomes**
- ➢ **Criteria 4 - Students' Performance**
- ➢ **Criteria 5 - Faculty Information and Contributions**
- ➢ **Criteria 6 - Facilities and Technical Support**
- ➢ **Criteria 7 - Continuous Improvement**
- ✓ **PART 2**
- ➢ **Outcome Based Education**

Department Profile

- Department of IT is Established in the year 2000
- Accredited by NBA in 2011 & Re-Accredited in 2018 under Outcome-Based Education (OBE)

Department Achievements

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- Two ***Centers of Excellence*** **-** Virtusa & Qlik

  (Software Testing & Data Analytics)

- Organized International Conference–**ICCIDE'19** during **July 2019**
- **Established Incubation Centre in association with Data Ready Technology Corporation, Canada**
- ***R&D Zonal Center, Bennett University***
- Faculty **Published/Granted 7 Patents** in Emerging areas during Assessment period

Qlik Centre of Excellence in Data Analytics

Virtusa Centre of Excellence in Software Testing

Faculty Achievements:

Books Published & Course Content Delivery

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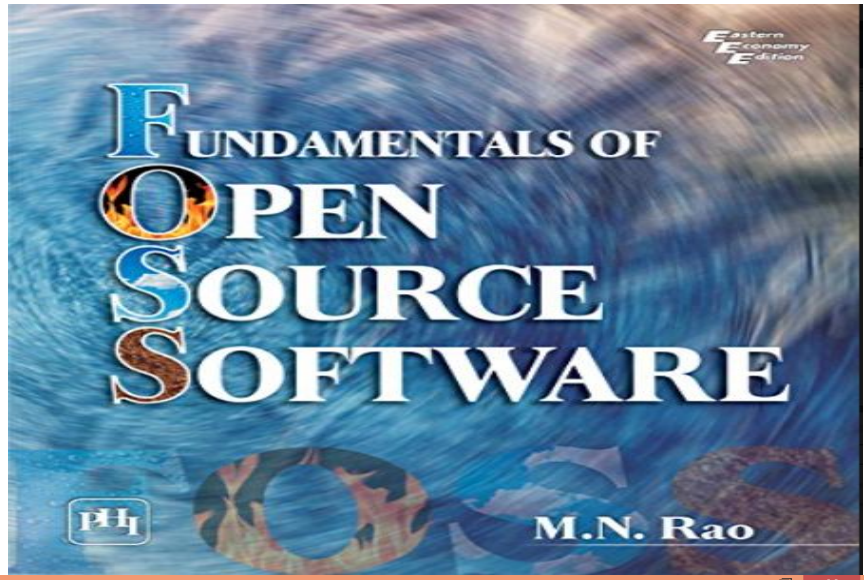

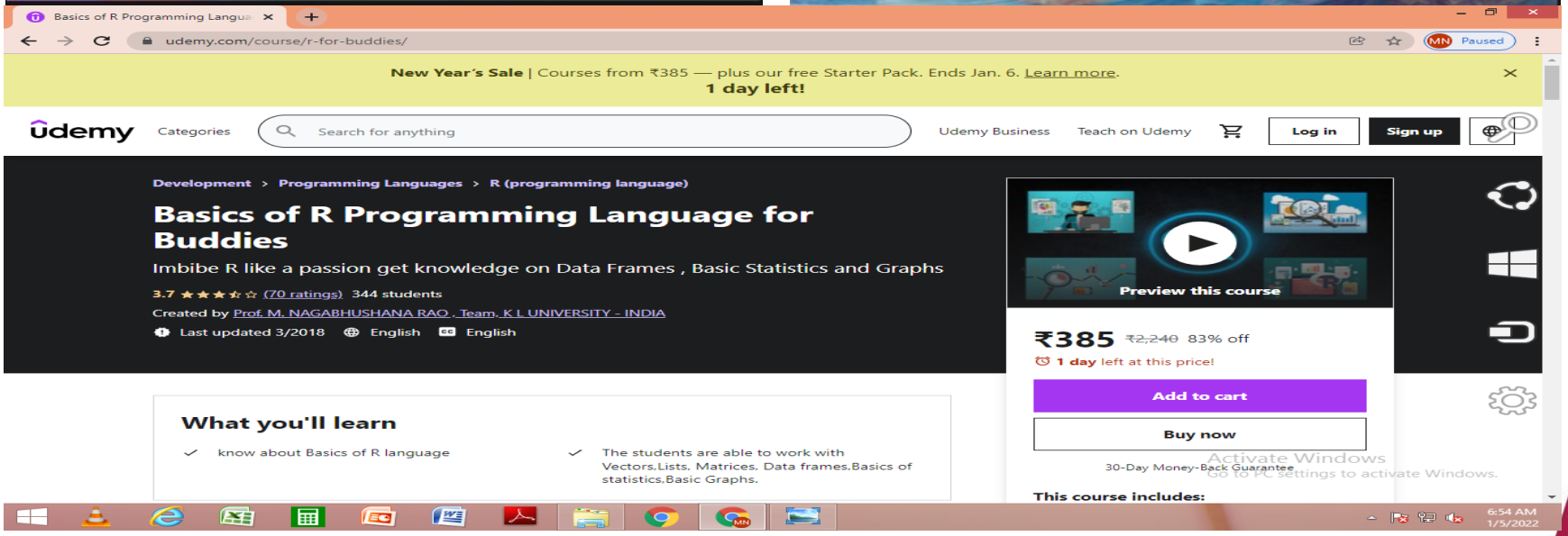

Student Achievements

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- **Mr. Prabhu Sai, 2019** passed out student got offers from **6 Companies.**

  (Infosys, TCS, Wipro, Capgemini, Acheron, CtrlS)

- **Mr. Konka Karthik,** reported a security related vulnerability to **Facebook** and rewarded **$3000 USD**
- **Mr P. Anirudh,** elected as Vice-chairman for SPEED-INDIA (2017-2020)
- **Ms K Himaja** completed 2 Internet-of-things projects in association with Imbuedesk-2019
- **Ms. Saanya Gandhi** selected as **Google Student Ambassador, 2018**
- **Mr. K Manideep,** 2018 passed out started his own company **Project1**

Student Achievements (Cont..)

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- **Mr. G.Venkat Naveen Reddy**, 2015 Passed out started his own company **Opcode Solutions**
- **Ms. B. Yugandhari and K. Himaja** awarded 2nd Prize in ChatBot Hackathon sponsored by IBM and were offered internship from Smart Bridge
- **Mr. Akshath Dalmia** and team of II B. Tech awarded 2nd prize in the 36-hour Hackathon on '**Smart Machines for Industries 4.0**' organized by **J-Hub in December 2020**

Student Achievements

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Mr. Kalyan Gouru,
2021 - **Byjus** with
10 LPA

Ms. Y Yugandhari,
2020 - **Amazon** with
12 LPA

Mr. G Nischal Reddy,
2018 **Microsoft** with
14 LPA

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Criteria 1-

Vision, Mission and Program Educational Objectives

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Vision

To be a centre of excellence in the field of Information Technology through multidisciplinary learning that promotes global competent professionals

Mission

- To empower students in developing systems and innovative products for solving real time problems.
- To achieve academic excellence and promote research by imparting knowledge in emerging technologies

Process for Defining Vision and Mission

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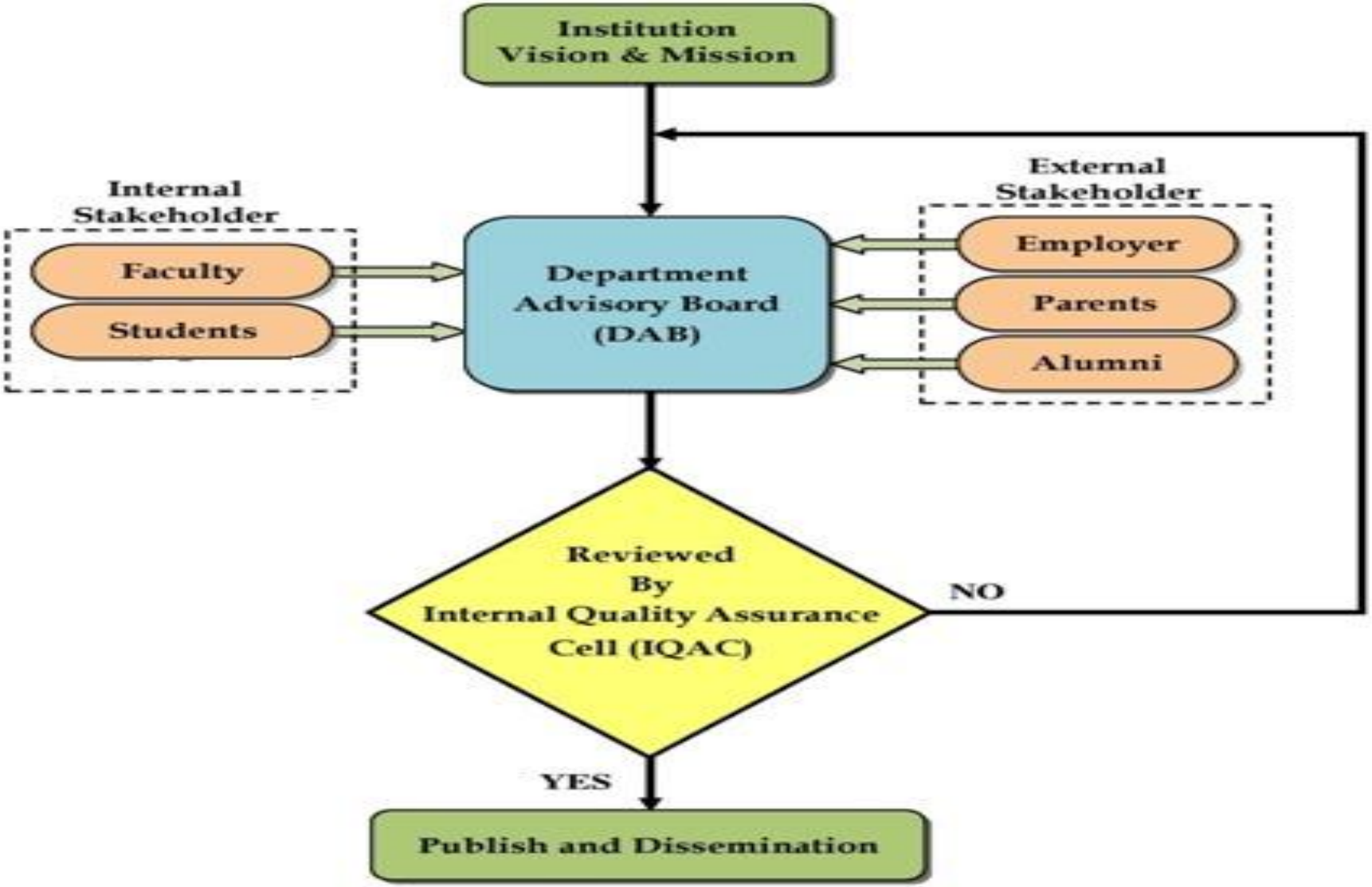

Program Educational Objectives

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- **Core Capabilities / Competence:** Impart profound knowledge in humanities and basic sciences along with core engineering concepts for practical understanding and project development
- **Career Advancement:** Enrich analytical and industry based technical skills through ICT for accomplishing research, higher education and entrepreneurship
- **Life-Long Learning:** Infuse life-long learning, professional ethics, adaptation to innovation and effective communication skills with a sense of social awareness

Process for Defining the PEOs

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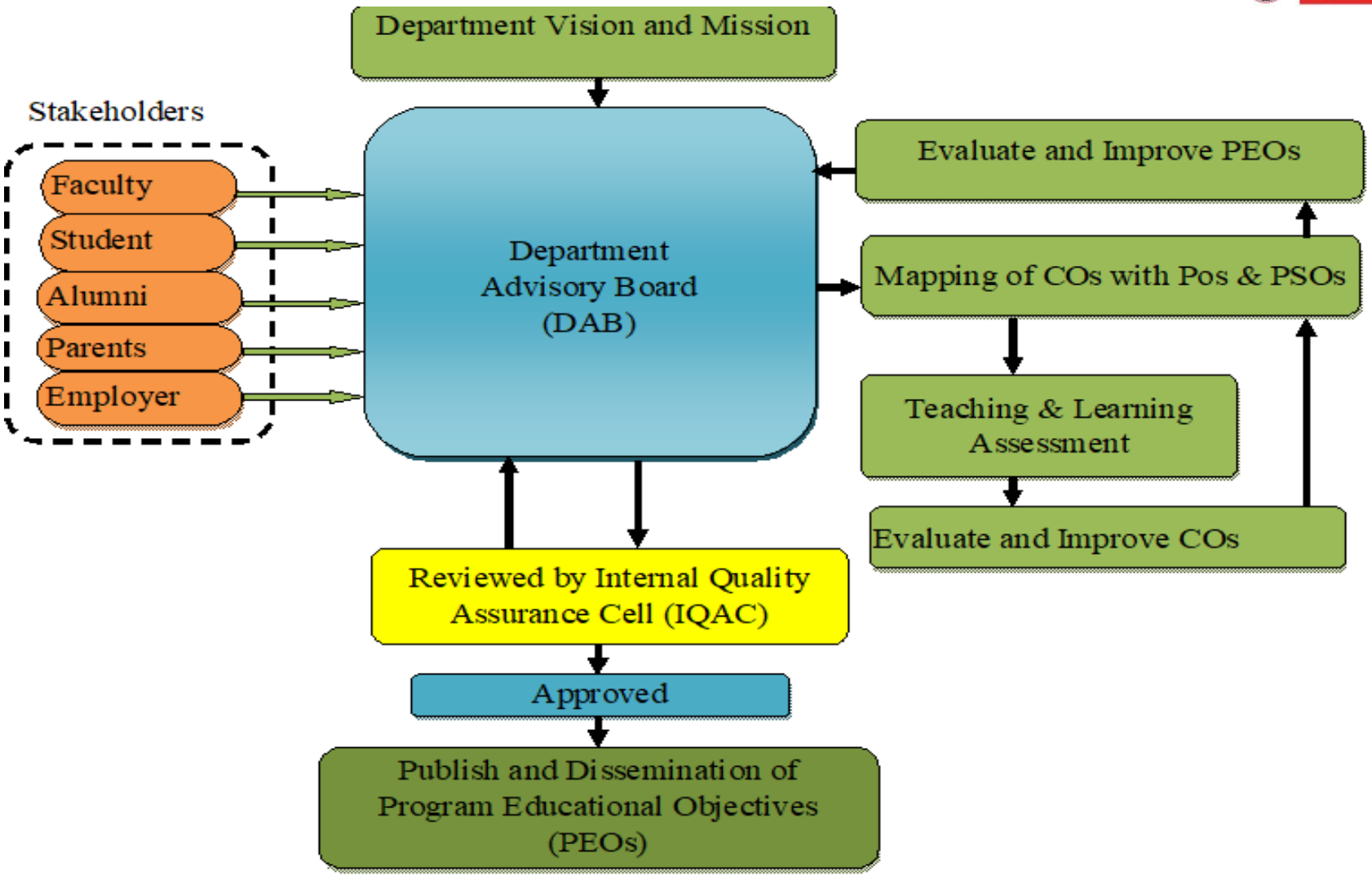

Dissemination of Vision, Mission and PEOs

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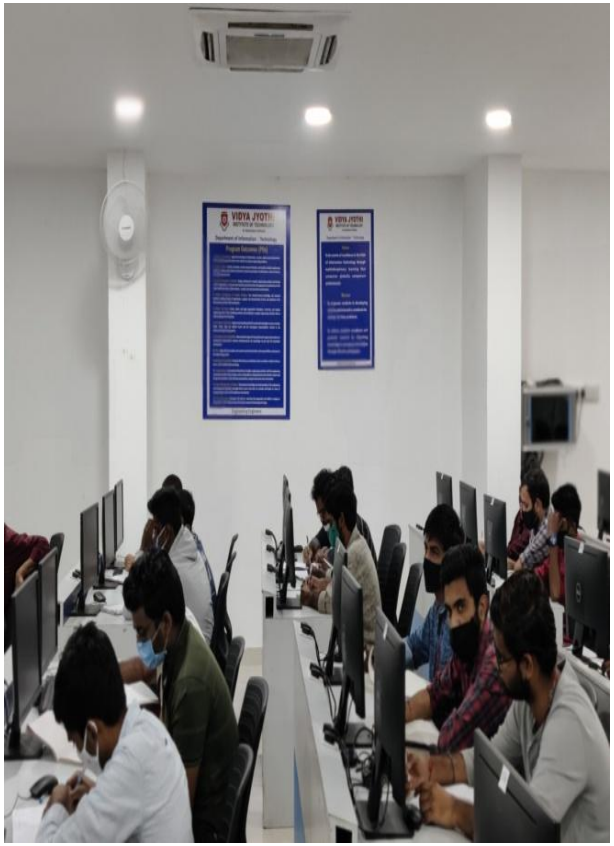
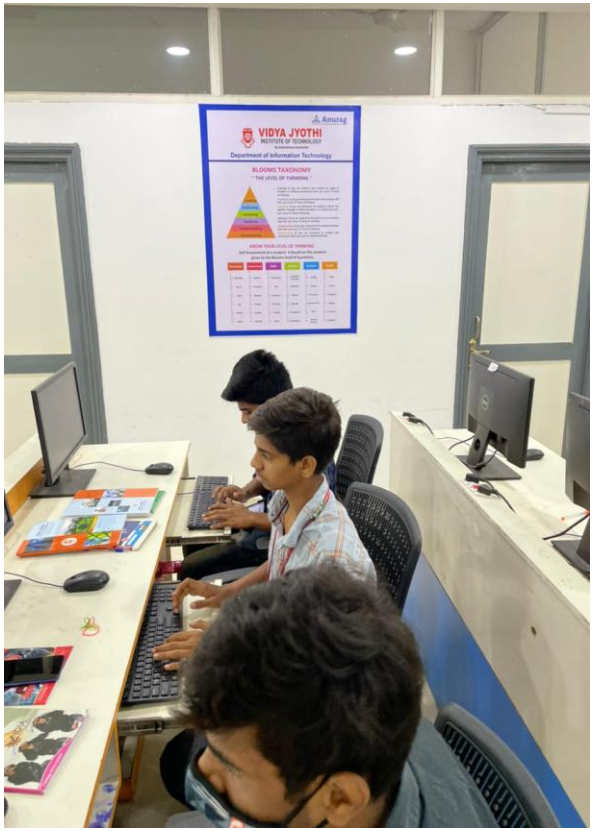
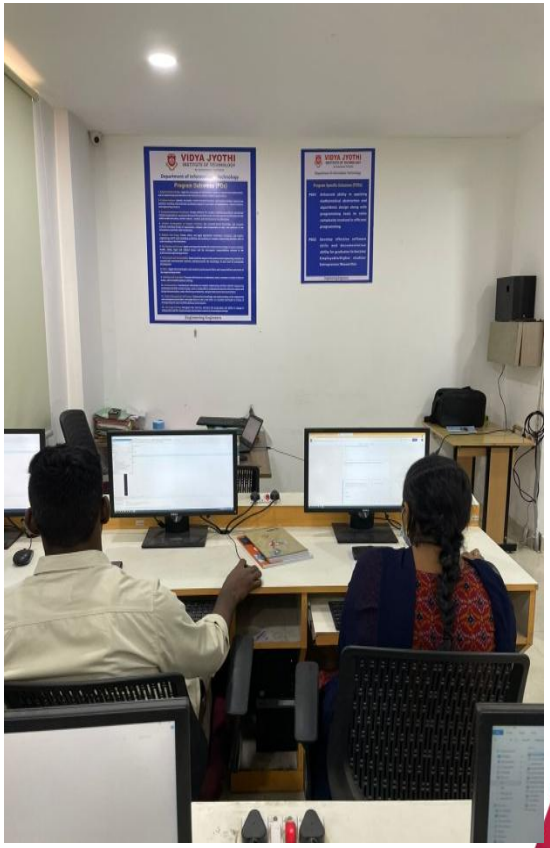
- Website https://vjit.ac.in/it
- News Letters
- E- Mails
- Published in Syllabus books
- Displayed in the Department Library
- Displayed in HOD Chamber, Staff Rooms & Class Rooms
- Displayed in Department Laboratories
- Displayed in Corridors of the Department

Dissemination in Laboratories







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Criteria 2

Program Curriculum and Teaching–Learning Process

Curriculum Design and Development Process

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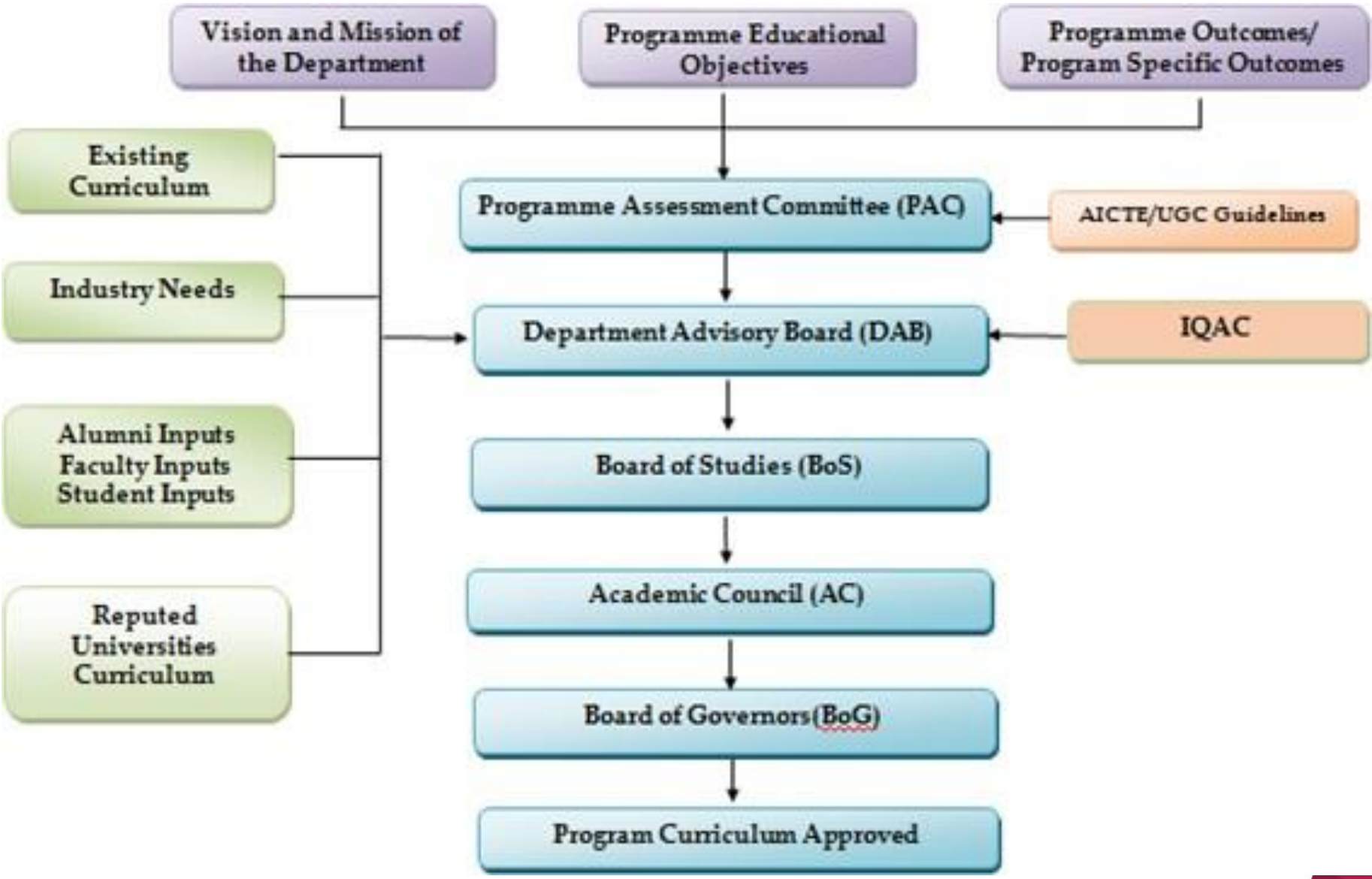

Components of Curriculum

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Course Component	Curriculum Content (% of total number of credits of the program)	Number of Credits
Humanities and Social Sciences (HS) Subjects, English, Management and the courses dealing with personality development	8.85	17
Basic Sciences (BS) Subjects including Mathematics, Physics and Chemistry	17.71	34
Engineering Sciences (ES), Engg. Workshop, Drawing, Fundamentals of computer Science and courses dealing with the basics of Electrical / Electronics/ Mechanical engineering	10.42	20
Professional Core (PC) Subjects, Courses dealing with the concerned engineering branch	42.19	81
Professional Elective (PE) Subjects. The students opt electives offered by the department	7.29	14
Open Elective (OE) Subjects. Courses offered by the other braches representing technically important subjects from emerging areas.	4.69	9
Project Work	6.77	13
Seminar and Comprehensive Viva	2.08	4
Mandatory Courses (MC)/Value added courses	-	0
Total No. of Credits		**192**

Salient Features of Curriculum

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- Open Elective Courses introduced
- Fast track Curriculum Scheme
- Product development through mini projects and Major projects
- Value added Courses according to the interest of Students and inclination
- Life skill courses
- Technical Seminars - Learning platform to enhance presentation and communication skills
- Self learning - Students are encouraged to participate in CISCO/NPTEL/ IIT Bombay Spoken Tutorial / Coursera online certification programs

Teaching Learning Process

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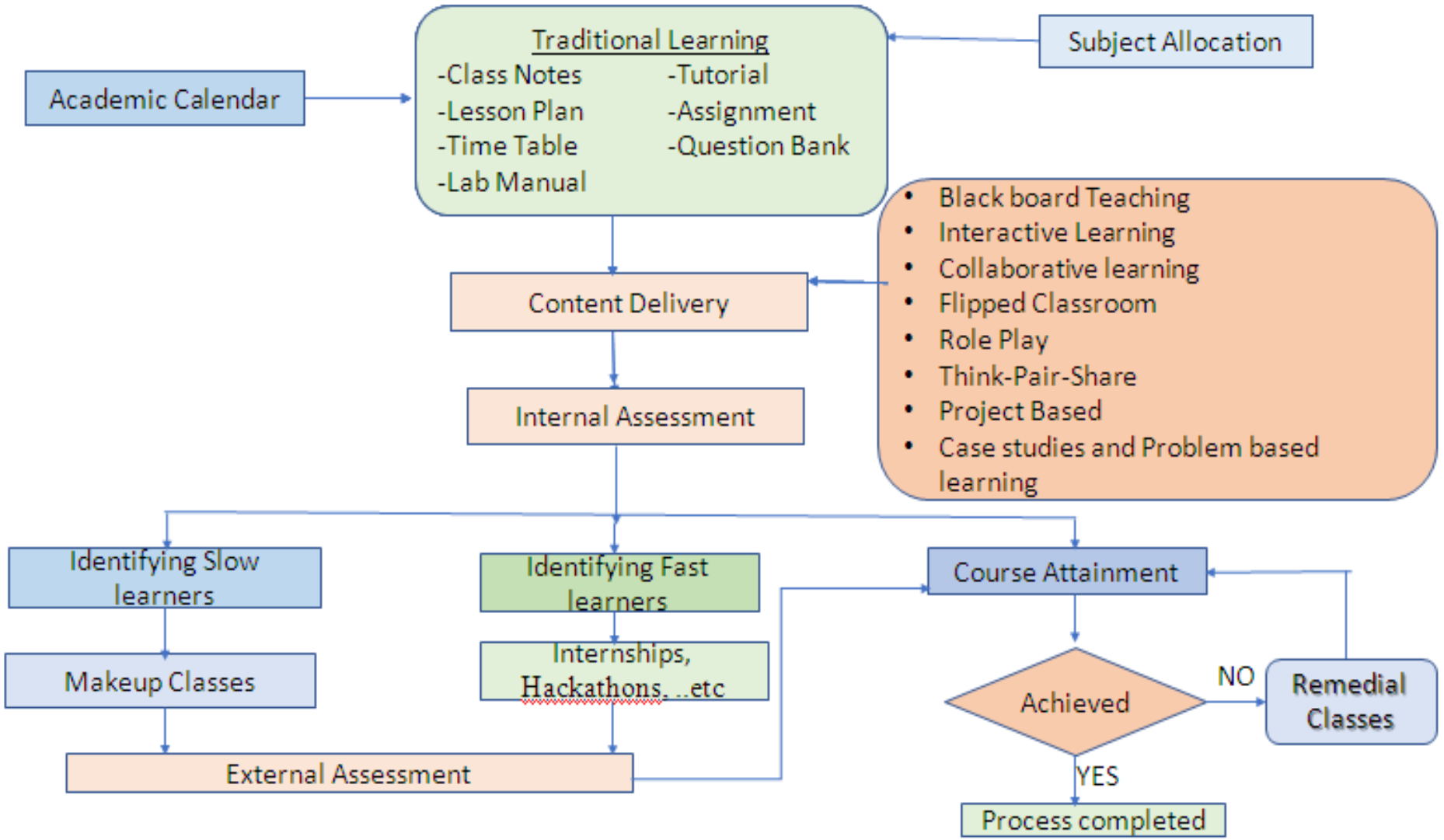

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Criteria 3

Program Outcomes & Course Outcomes

Program Outcomes

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PO1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
PO2	**Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO3	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO5	**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

Program Outcomes Contd..

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PO7	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO9	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO11	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Program Specific Outcomes

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PSO1	Enhanced ability in applying mathematical abstraction and algorithmic design along with programming tools to solve complexity involved in efficient programming
PSO2	Develop effective software skills and documentation ability for graduates to become Employable/ Higher studies/Entrepreneur researcher

Sample CO's of Data Structures

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CO1	Analyze the representation of various data structures and implement the mechanisms of Stacks and Queues with their applications
CO2	Implement the operations like searching, insertion, deletions and traversing mechanisms on Binary Trees
CO3	Implement various advance concepts of trees with real time applications
CO4	Implement various algorithms on graph data structures, including finding the minimum spanning tree, shortest path with real time applications, etc.
CO5	Outline the concepts of hashing, collision and its resolution methods using hash function

CO Attainment Process

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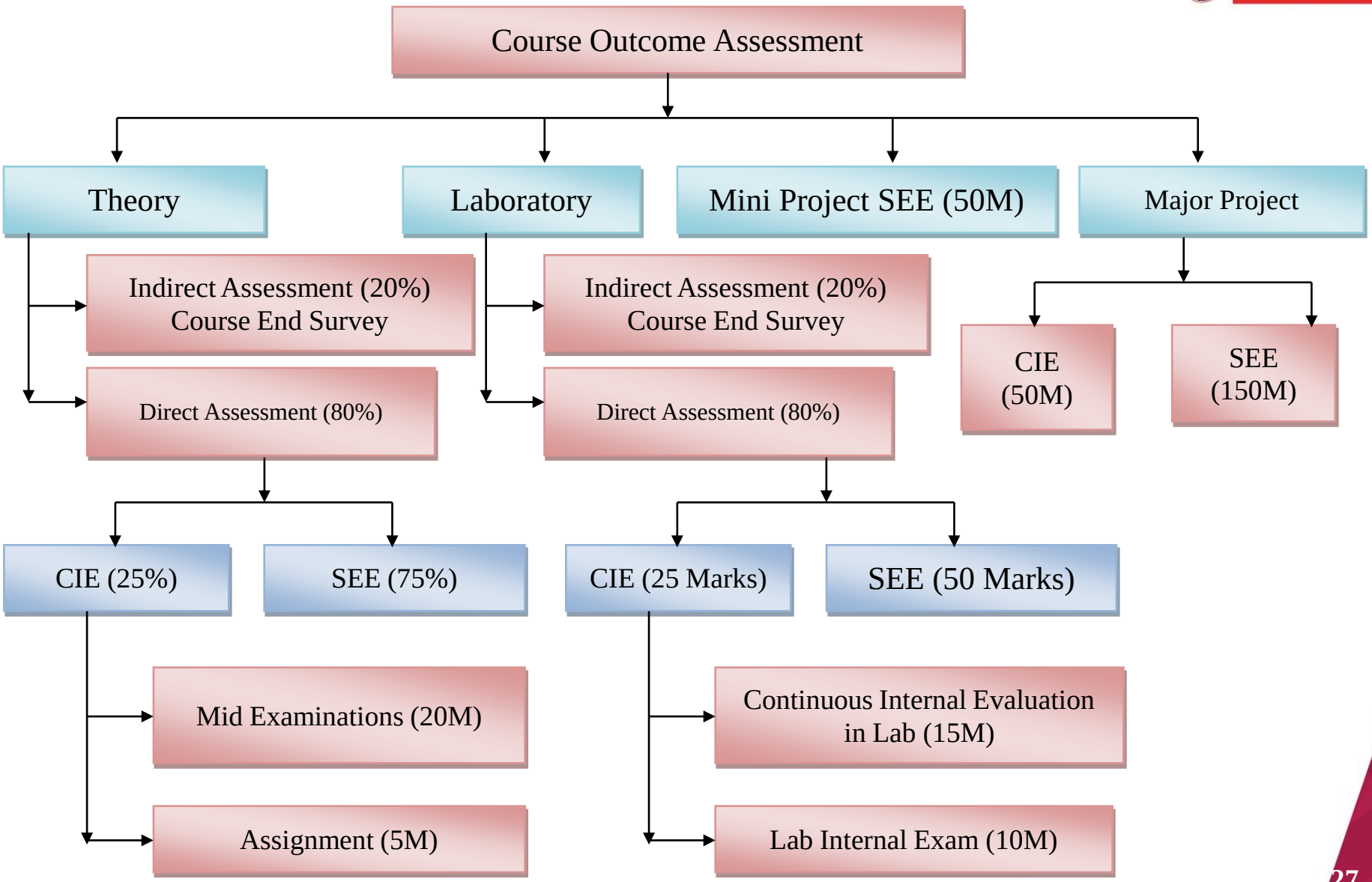

Overall PO & PSO Attainment

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BATCH 2016-20														
Attainment	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
Direct Attainment	2.41	2.29	2.20	2.05	2.00	1.76	1.63	1.62	1.96	1.92	1.86	1.99	2.23	1.91
Indirect Attainment	2.97	2.68	2.97	2.94	2.82	2.86	2.65	2.82	2.88	2.92	2.97	2.92	2.55	2.85
POs Attainment (80% of DA + 20% of IDA)	2.52	2.37	2.36	2.23	2.17	1.98	1.83	1.86	2.14	2.12	2.08	2.18	2.27	2.09

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Criteria 4

Students' Performance

Student Admission Details

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Academic Year	Total Intake	Total Admitted	Enrollment Ratio
2020-2021 (CAY)	180	179	99.44
2019-2020 (CAYm1)	180	175	97.22
2018-2019 (CAYm2)	60	60	100.00

Students Who Have Successfully Graduated in Stipulated Period

VIDYA JYOTHI Institute of Technology
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Academic Year	Total No. of students admitted in the program	Number of students who have successfully graduated in stipulated period (with & without Backlogs)			
		I year	II year	III year	IV year
2020-2021 (CAY)	179				
2019-2020 (CAYm1)	189	174			
2018-2019(CAYm2)	66	58	57		
2017-2018(CAYm3)	60	55	53	49	
2016-2017(LYG)	60	60	57	56	54
2015-2016(LYGm1)	60	59	56	56	52

Students Centric Learning Initiatives

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- NPTEL Video Lectures
- IIT Bombay Spoken Tutorials
- Cisco Networking Academy
- Coursera
- Hacker Rank, Rank Sheet, E-Box
- Project-Based Learning
- Active Learning- MOOCs
- Digital Library

MoUs

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aws academy

CISCO Networking Academy

Qlik

RED HAT ACADEMY

virtusa | POLARIS

TASK

CODECHEF

Talentio

Placements & Higher Studies

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Academic Batch	No. of Final Year Students	No of Students Placed	Higher Studies	Highest Package (LPA)
2017-2021	50	32	6	10
2016-2020	56	36	5	12
2015-2019	56	32	9	4.8
2014-2018	48	27	6	14

Internships

Academic Year	No. of Internships
2020 – 2021	51
2019 – 2020	15
2018 - 2019	12

Students' Participation - Various Activities/Events

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Academic Year	No. of Students Participated
2020-2021	25
2019 - 2020	61
2018 - 2019	41

Activity/Events Participation

Academic Year	No. of Certifications
2020-2021	189
2019 - 2020	181
2018 - 2019	117

Student Certifications Details

Department News letter

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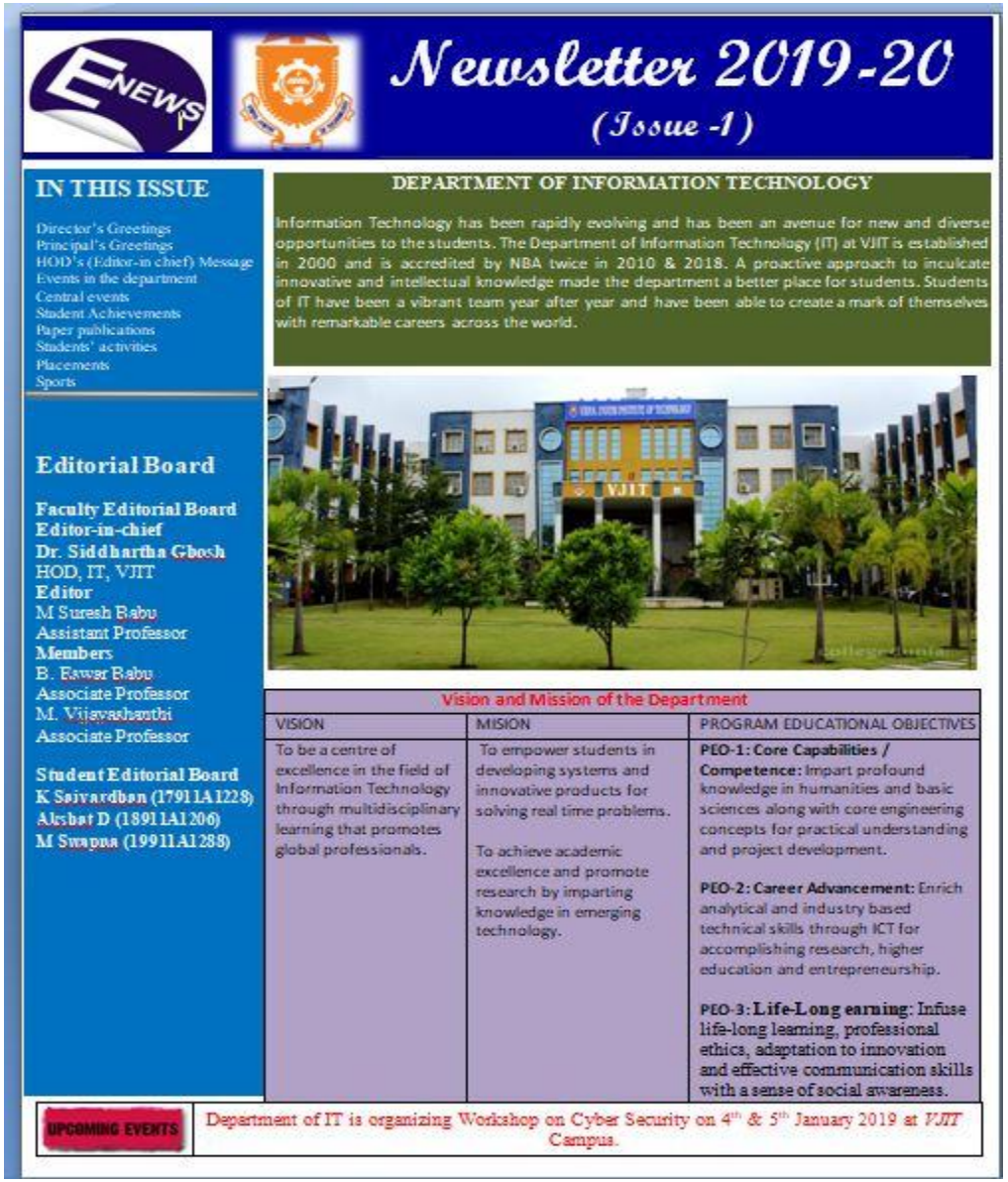

ENEWS

Newsletter 2019-20

(Issue -1)

IN THIS ISSUE

Editorial Board

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DEPARTMENT OF INFORMATION TECHNOLOGY

Information Technology has been rapidly evolving and has been an avenue for new and diverse opportunities to the students. The Department of Information Technology (IT) at VJIT is established in 2000 and is accredited by NBA twice in 2010 & 2018. A proactive approach to inculcate innovative and intellectual knowledge made the department a better place for students. Students of IT have been a vibrant team year after year and have been able to create a mark of themselves with remarkable careers across the world.

Vision and Mission of the Department

VISION	MISION	PROGRAM EDUCATIONAL OBJECTIVES
To be a centre of excellence in the field of Information Technology through multidisciplinary learning that promotes global professionals.	To empower students in developing systems and innovative products for solving real time problems. To achieve academic excellence and promote research by imparting knowledge in emerging technology.	**PEO-1: Core Capabilities / Competence:** Impart profound knowledge in humanities and basic sciences along with core engineering concepts for practical understanding and project development. **PEO-2: Career Advancement:** Enrich analytical and industry based technical skills through ICT for accomplishing research, higher education and entrepreneurship. **PEO-3: Life-Long earning:** Infuse life-long learning, professional ethics, adaptation to innovation and effective communication skills with a sense of social awareness.

UPCOMING EVENTS Department of IT is organizing Workshop on Cyber Security on 4th & 5th January 2019 at *VJIT* Campus.

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Criteria 5

Faculty Information & Contributions

FACULTY INFORMATION

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Academic Year	Professors	Associate Professors	Assistant Professors	Total
2020-2021	3	1	14	18
2019-2020	2	1	11	14
2018-2019	2	0	11	13

- **No. of Faculty with Ph.D. : 04**
- **No. of Faculty Pursuing Ph.D. : 07**

Student-Faculty Ratio

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Description	CAY(2020-21)	CAYm1 (2019-20)	CAYm2 (2018-19)
Total no. of Students	320	186	180
No. of Faculty	18	14	13
Student Faculty Ratio(SFR)	**17.78**	**13.29**	**13.85**

❖ **Average Student-Faculty Ratio: 14.97**

Faculty Retention

VIDYA JYOTHI Institute of Technology
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Description	2020-2021	2019-2020
No. of Faculty Retained	12	12
Total no. of Faculty	13	13
% of Faculty Retained	**92**	**92**

- **Faculty Retention Average: 92**

Research and Development

VIDYA JYOTHI Institute of Technology
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Papers Publications

Academic Year	Number of Papers Published
2020 – 2021	7
2019 - 2020	17
2018 - 2019	14

Patents Published/Granted: 07

Faculty Participation in FDPs / STTPs

VIDYA JYOTHI Institute of Technology
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Academic Year	No. of FDPs / STTPs
2020 -2021	32
2019-2020	105
2018-2019	49
2017-2018	13

Faculty Certifications

VIDYA JYOTHI Institute of Technology
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S. No	Certifying Organization	No. of Certifications
1	Coursera	26
2	IIT Bombay	09
3	CISCO	06
4	NPTEL	05
5	Virtusa (Java & Testing)	02

Grants Received by Faculty

VIDYA JYOTHI Institute of Technology
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Project Title	Funding Agency	Amount (Rs.)
Mobile Phone Hardening	RCI DRDO	10,00,000.00
Inspire Internship Program	DST	9,75,000.00
Prerana	AICTE	8,49,000.00

Consultancy

VIDYA JYOTHI Institute of Technology
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Academic Year	Amount (Rs.)
2020-2021	10,29,906.00
2019-2020	4,34,262.00
2018-2019	2,55,920.00

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Criteria 6

Facilities and Technical Support – Teaching Labs

Laboratory Facilities

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- Data Structures and Python Programming Lab
- Database Management Systems Lab
- Java Programming Lab

- Computer Networks & Operating Systems Lab
- Web Technologies Lab
- Data Mining & Case Tools Lab

- Mobile Application Development Lab
- Big Data Analytics Lab/ Internet of Things Lab/ Data Science Lab/ R Programming Lab

Safety Measures in Laboratories

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- Installed Fire Extinguishers
- First Aid Boxes are kept in the laboratory
- All power cables are insulated to prevent electric shock and power interruptions.
- All Laboratories are under CCTV surveillance.
- Anti Virus Software is Installed
- The Lab programmers are instructed to switch off MCB's before leaving

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Criteria 7

Continuous Improvement

Comparison of PO & PSO Attainment Levels

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BATCH 15-19													
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
PO Attainment	2.48	2.35	2.32	2.17	2.15	1.94	1.82	1.85	2.15	2.08	2.15	2.17	2.24	2.08
BATCH 16-20														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
PO Attainment	2.52	2.37	2.36	2.23	2.17	1.98	1.83	1.86	2.14	2.12	2.08	2.18	2.27	2.09
BATCH 17-21														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
PO Attainment	2.52	2.39	2.37	2.26	2.22	2.00	1.88	1.88	2.20	2.16	2.18	2.20	2.32	2.10

Actions Initiated for PO & PSO Improvement

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- Students were encouraged to participate in inter college technical competitions, coding contests and Hackathons
- Soft skills training was imparted to the students to enhance communication through group discussions and presentations
- Teamwork is instilled during Industry visits, Internships and other extra cultural activities organized in the college
- Interactive sessions with distinguished alumni are arranged to inculcate ethics and values in the students

Improvement in Placement, Higher Studies and Entrepreneurship

Academic Year	Number of Final Year Students	Placements	Higher Studies	Entrepreneurship	Total	%
2020-2021	50	32	6	*	38	76%
2019-2020	56	36	5	0	41	73.2%
2018-2019	56	32	9	1	42	75%
2017-2018	48	27	6	0	33	68.75%

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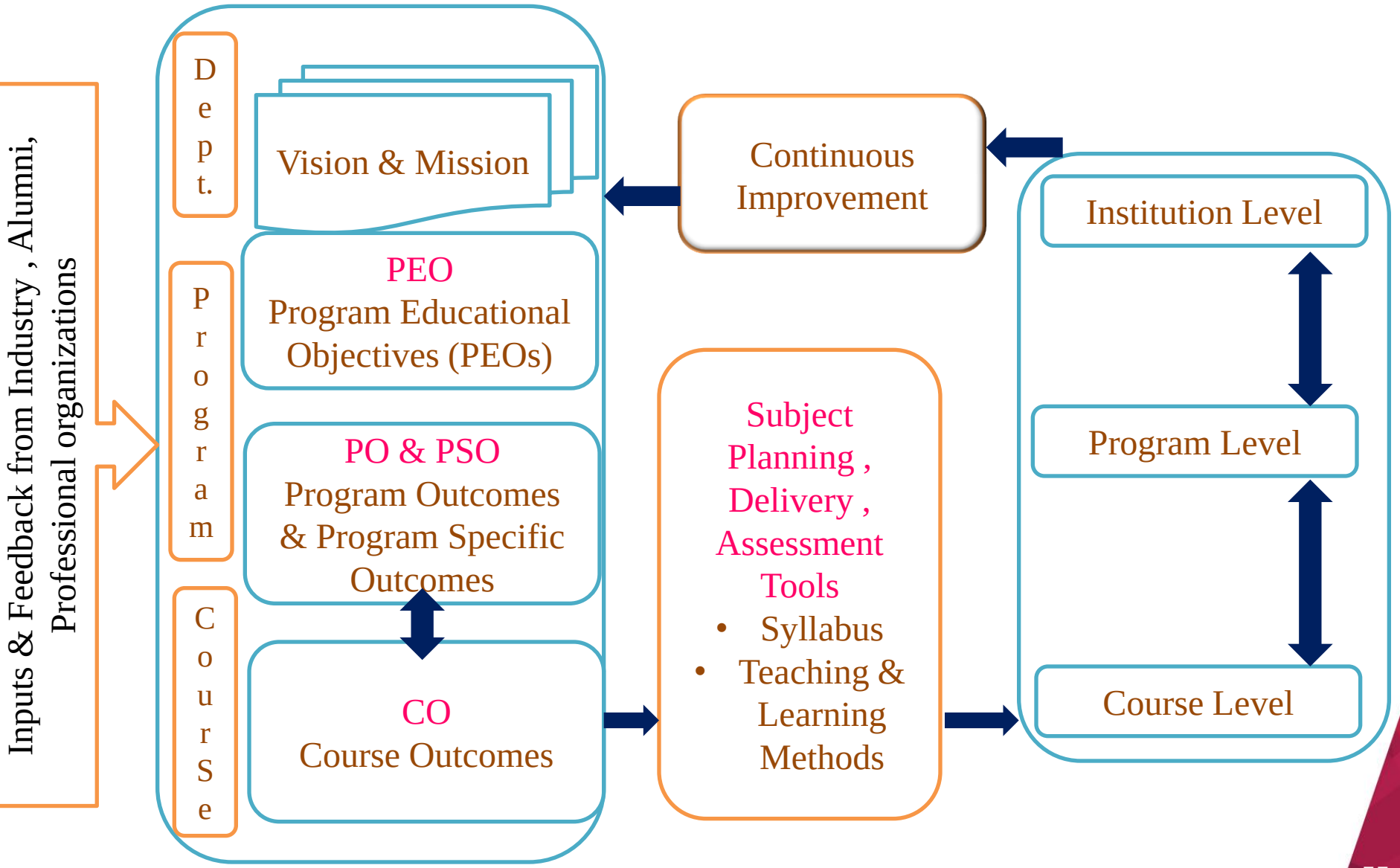
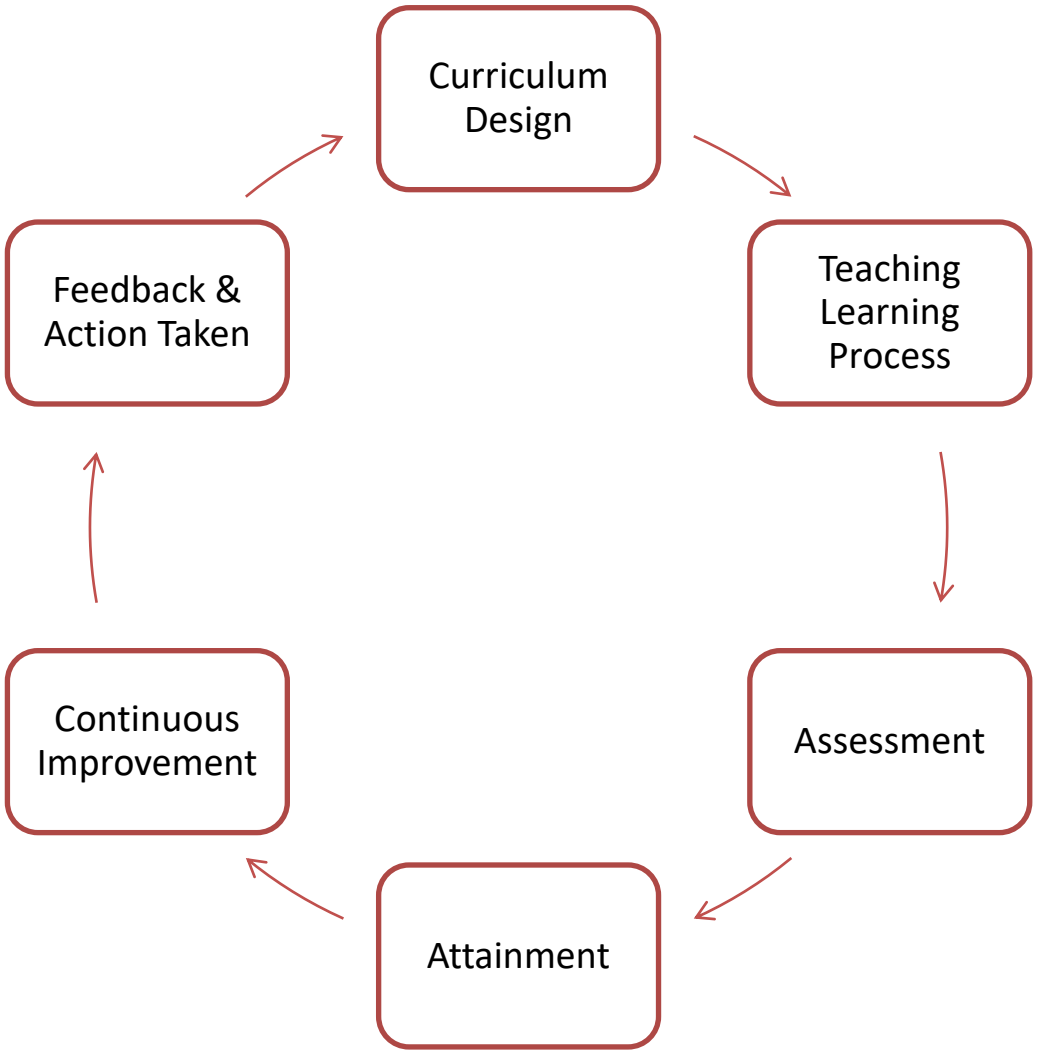
PART - 2

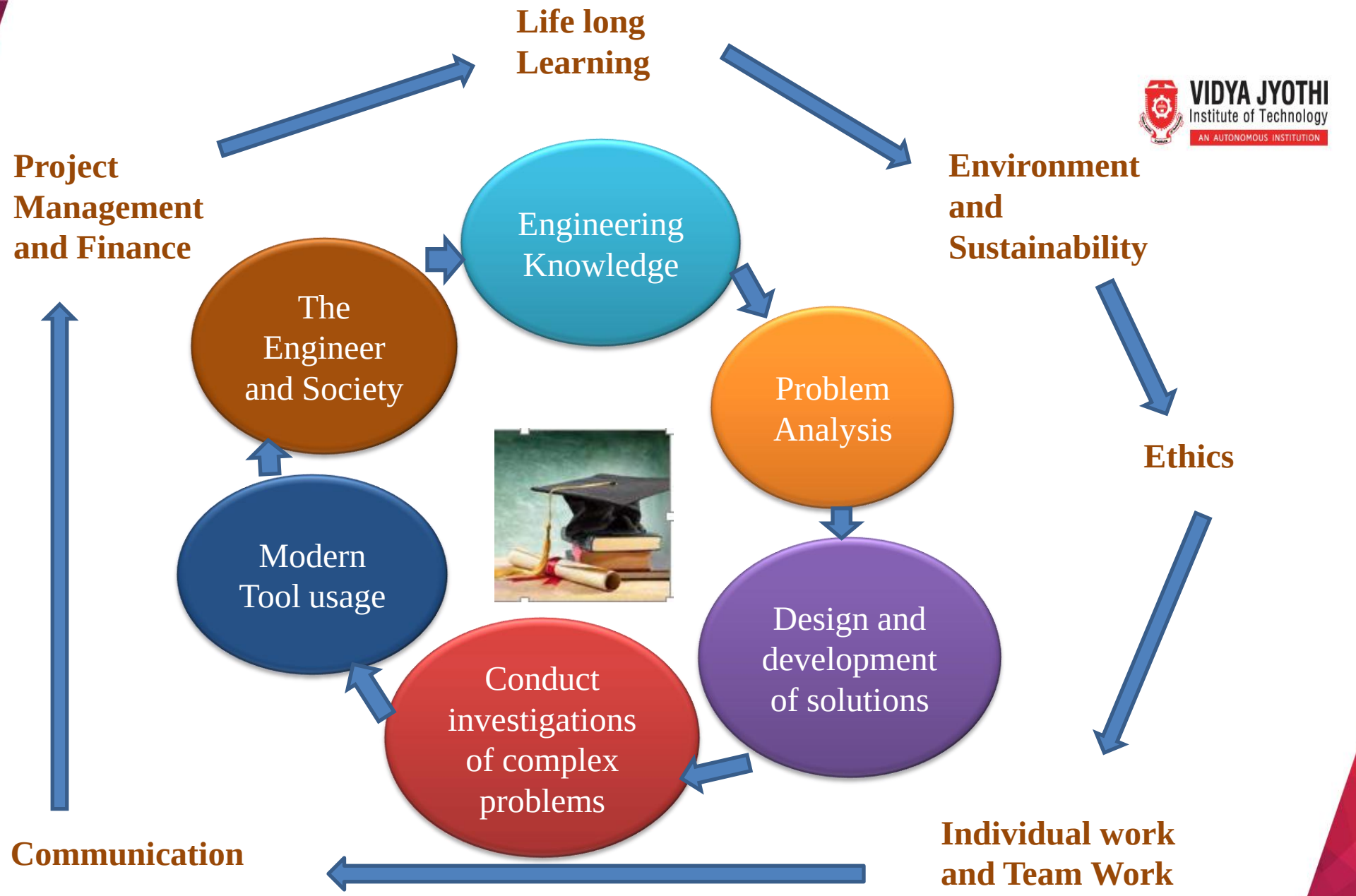
Outcome Based Education

OBE : Outcome Based Education in IT



OBE Cycle


Curriculum Design
Teaching Learning Process
Assessment
Attainment
Continuous Improvement
Feedback & Action Taken



Program Outcomes

Components of the Curriculum

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S. No.	Category	AICTE	Breakup of Credits
1	Humanities and Social Sciences including Management course	12	11
2	Basic Science Course	25	24
3	Engineering Science courses including workshop, drawing, basics of electrical/ mechanical/ computer etc.	29	22
4	Professional core courses	49	64
5	Professional Elective courses relevant to chosen specialization/ branch	18	13
6	Open subjects – Electives from other and/ emerging subjects	12	09
7	Project work, seminar and internship in industry or appropriate work place/ academic and research institutions in India/ abroad	15	17
8	Mandatory Courses (Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge)	Nil	Nil
Total no. of Credits			**160**

Course Outcomes–Database Management Systems

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CO1	Design Entity-Relationship Model for enterprise level databases
C02	Develop the database and provide restricted access to different users of database and formulate the Complex SQL queries
CO3	Analyze various Relational Formal Query Languages and various Normal forms to carry out Schema refinement
CO4	Use of suitable Indices and Hashing mechanisms for real time implementation
CO5	Analyze various concurrency control protocols and working principles of recovery algorithms

Sample Question Paper-DBMS

VIDYA JYOTHI Institute of Technology
AN AUTONOMOUS INSTITUTION

Vidya Jyothi Institute of Technology (Autonomous)

(Accredited by NAAC & NBA, Approved By A.I.C.T.E., New Delhi, Permanently Affiliated to JNTU, Hyderabad)
(Aziz Nagar, C.B.Post, Hyderabad -500075)

I, II, III & IV Year B.Tech II Semester 2nd Mid Exam

Branch: Information Technology Duration: 90Min

Sub: DBMS Marks: 20

Date: Session:

Course Outcomes:

1.Design Entity Relationship model for enterprise level databases
2.Develop the database and provide restricted access to different users of database and formulate the complex SQL queries
3. Analyze various relational formal query languages and various normal forms to carry out schema refinement
4.Use of suitable indices and hashing mechanisms for real time implementation
5. Ability to analyze various concurrency control protocols and working principles of recovery algorithms.

Bloom Levels:

Remember	I
Understand	II
Apply	III
Analyze	IV
Evaluate	V
Create	VI

PART-A (3Q×2M = Marks)		Course Outcomes		Bloom Levels	Marks
ANSWER ALL THE QUESTIONS		CO	PO		
1	Illustrate functional dependency with example.	3	1,2,3,4,5,8,10,11,12	3	2
2	Demonstrate Conflict Serializability.	4	1,2,3,11	3	2
3	Discuss in detail Multiple Granularity.	5	1,2,3,4,11	1	2

PART-B (4+5+5= 14 Marks)		Course Outcomes		Bloom Levels	Marks
ANSWER ALL THE QUESTIONS		CO	PO		
4.i)	What are the conditions are required for a relation to be 2 NF,3NF and BCNF explain with example.	3	1,2,3,4,5,8,10,11,12	1	4
	[OR]				
4.ii)	Which normal form is based on concept of transitive functional dependency? Explain.	3	1,2,3,4,5,8,10,11,12	2	4
5.i)	Explain View serializability and conflict searilizability with example.	4	1,2,3,11	2	5
	[OR]				
5.ii)	Explain insert and delete operation in B+ Trees.	4	1,2,3,11	2	5
6.i)	Analyze which of the following concurrency control protocols ensure both conflict serializability and freedom from deadlock? Explain the following: a. 2-phase locking b. Time-stamp ordering	5	1,2,3,4,11	4	5
	[OR]				
6.ii)	Explain 3 phases in ARIES algorithm.	5	1,2,3,4,11	2	5

VJIT(A)

Controller of Examinations **DIRECTOR**

CO – PO & PSO Mapping: DBMS

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CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO 1	3	3	3	2	2	2	2	2	3	3	2	2	3	3
CO 2	3	3	3	2	2	2	2	2	3	3	3	2	3	3
CO 3	3	3	3	3	2	2	2	2	3	3	2	2	3	3
CO 4	3	3	3	2	2	2	2	2	3	3	3	2	3	3
CO 5	3	3	3	3	2	2	2	2	3	3	2	2	3	3
Avg.	3	3	3	2.4	2	2	2	2	3	3	2.4	2	3	3

Attainment of Course Outcomes

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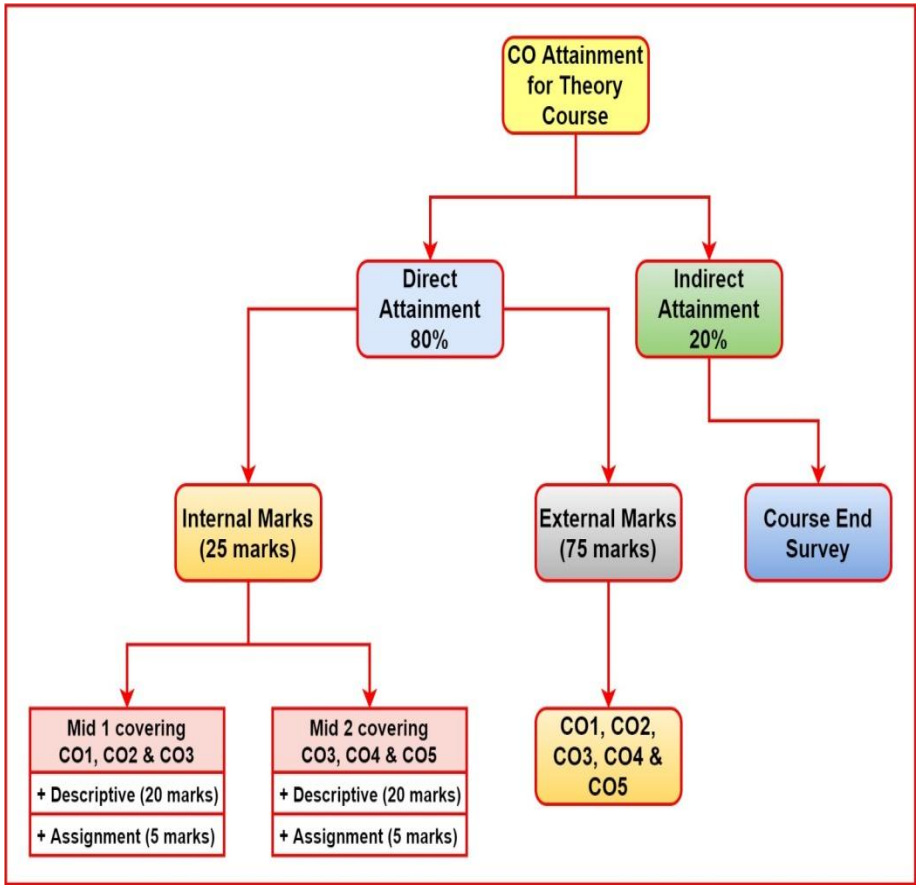

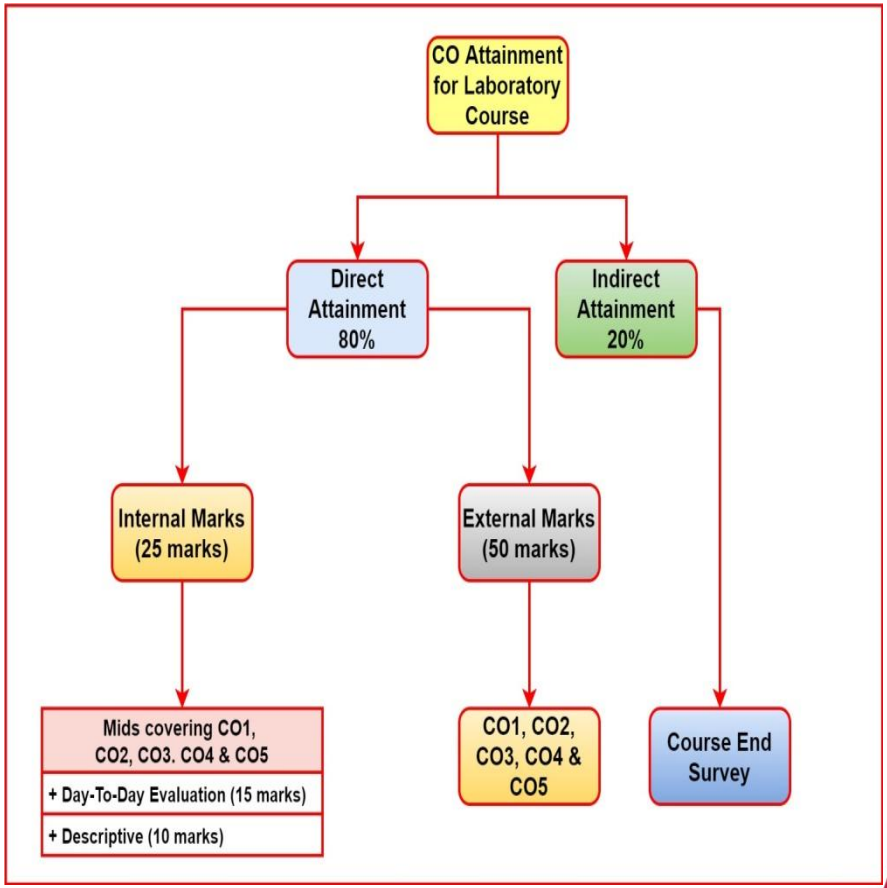

Sample CO Direct Attainment

VIDYA JYOTHI Institute of Technology
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Class: II year II sem **Course: DBMS** **Batch: 2016-20**

S.No	Reg.No	MID-1 Threshold 60%								MID-2 Threshold 60%								Threshold 60% (45M)
		Assignment1 (5M)	Theory (20M)	PART-B						Assignment2 (5M)	Theory (20M)	PART-B						End Exam (75M)
				M1- Q1 (2M) CO1	M1- Q2 (2M) CO2	M1- Q3 (2M) CO3	M1- Q4 (4M) CO1	M1-Q5 (5M) CO2	M1-Q6 (5M) CO3			M2- Q1 (2M) CO3	M2-Q2 (2M) CO4	M2- Q3 (2M) CO5	M2-Q4 (4M) CO3	M2-Q5 (5M) CO4	M2-Q6 (5M) CO5	
1	16911A1201	5	12	2	2	2	2	2	2	5	18	2	2	2	4	4	4	65
2	16911A1202	5	16	2	2	2	5	5	0	5	18	2	2	2	4	4	4	46
3	16911A1203	5	3	0	0	0	0	0	3	5	10	2	2	2	0	0	4	7
4	16911A1204	5	12	2	2	2	2	2	2	5	10	2	2	2	0	0	4	32
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	16911A1259	5	12	2	2	2	2	2	2	5	16	2	0	2	4	4	4	27
60	16911A1260	5	17	0	2	2	5	4	4	5	16	2	0	2	4	4	4	52
Average marks		5	12.9	1.4	1.5	1.7	3	2.6	2.6	5	14.5	1.7	1.7	1.8	3.1	3.1	3	45.9
No of students attemped		**59**	**58**	**58**	**58**	**58**	**58**	**58**	**58**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**	**59**
%of students scored 60% and above		**100**	**75.86**	**72.41**	**77.59**	**86.21**	**51.72**	**51.72**	**77.59**	**100**	**81.36**	**93.22**	**89.83**	**93.22**	**88.14**	**62.71**	**71.19**	**64.41**
CO ATTAINMENT LEVEL		**3**	**2**	**2**	**2**	**3**	**0**	**0**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**1**	**2**	**2**

Sample CO Direct Attainment

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COs	Method	value	CO Attainment	Assignments	CO Attainment (Internal - Theory)	CO Attainment (End Exam)	Overall CO Attainment
CO1	MI Q1	2.0	1.0	3.0	1.9	2.00	2.11
	MI Q4	0.0					
CO2	MI Q2	2.0	1.0				
	MI Q5	0.0					
CO3	MI Q3	3.0	2.8				
	MI Q6	2.0					
	M2 Q1	3.0					
	M2 Q4	3.0					
CO4	M2 Q2	3.0	2.0				
	M2 Q5	1.0					
CO5	M2 Q3	3.0	2.5				
	M2 Q6	2.0					

Sample CO Indirect Attainment

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DATABASE MANAGEMENT SYSTEMS

Are you able to design Entity-Relationship Model for enterprise level databases?

Slight	4
Moderate	4
Substantial	40

Are you able to develop the database and provide restricted access to different users of database and formulate the Complex SQL queries?

Slight	1
Moderate	5
Substantial	42

Are you able to analyze various Relational Formal Query Languages and various Normal forms to carry out Schema refinement?

Slight	1
Moderate	5
Substantial	42

Are you able to use of suitable Indices and Hashing mechanisms for real time implementation?

Slight	2
Moderate	5
Substantial	41

Are you able to analyze various concurrency control protocols and working principles of recovery algorithms?

Slight	1
Moderate	2
Substantial	45

Sample CO Indirect Attainment

VIDYA JYOTHI Institute of Technology
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CO	1	2	3	Total no. of Students	Average
CO1	4	4	40	48	2.75
CO2	1	5	42	48	2.85
CO3	1	5	42	48	2.85
CO4	2	5	41	48	2.81
CO5	1	2	45	48	2.92
Average					**2.84**

Overall CO Attainment

VIDYA JYOTHI Institute of Technology
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DIRECT ATTINMENT	2.11
INDIRECT ATTAINMENT	2.84
OVERALL ATTAINMENT	2.26

CO Attainment =(0.8*2.11)+(0.2*2.85)= 2.26

CO Articulation Matrix

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Course	CO Attainment	Mapping Level													
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
English-I	2.92	-	2.33	2.00	-	3.00	2.50	2.00	2.75	-	2.60	2.00	3.00	-	1.00
Mathematics - I	2.30	2.60	2.80	2.00	2.67	2.00	2.20	2.00	-	2.00	-	-	2.60	3.00	2.00
Engineering Physics – I	2.25	2.60	2.67	2.20	2.00	-	-	2.50	2.00	-	-	2.00	2.60	3.00	1.00
C Programming - I	2.16	2.80	2.80	2.80	3.00	2.00	-	-	-	-	-	2.00	2.75	3.00	3.00
Engineering Chemistry	2.21	3.00	2.67	2.50	2.00	2.00	2.00	2.00	-	-	-	2.20	2.40	2.00	1.00
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Design Patterns	2.97	3.00	1.80	1.60	1.60	1.40	1.30	1.00	1.00	1.20	1.00	1.20	1.00	3.00	3.00
E-Commerce	2.92	2.00	2.00	2.00	2.00	2.00	2.00	1.80	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Semantic Web and Social Networks	2.91	3.00	1.80	1.60	1.60	1.40	1.30	1.00	1.00	1.20	2.00	1.20	1.00	3.00	3.00
Technical Seminar	2.98	3.00	3.00	2.00	1.00	2.00	2.00	1.00	3.00		3.00	2.00	2.00	3.00	3.00
Comprehensive Viva-Voce	2.98	3.00	3.00	2.00	1.00	2.00	2.00	1.00	3.00	2.00	3.00	2.00	2.00	3.00	3.00
Major Project	2.98	3.00	3.00	2.00	1.00	2.00	2.00	1.00	3.00	3.00	3.00	2.00	2.00	3.00	3.00

PO & PSO Attainment

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Course Id	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C202	Mathematical Foundations of Computer Science	2.95	2.95	2.95	2.95	1.96	2.45	1.96	1.57	1.96	1.96	1.96	2.95	2.95	2.95
C203	Data Structures	2.91	2.91	2.91	2.91	2.91	0.97	0.97	0.97	2.91	1.94	1.94	1.94	2.91	2.91
C204	Digital Logic Design	2.71	2.48	2.48	2.25	2.03	1.26	-	0.9	2.03	1.58	2.03	2.03	2.71	1.8
C205	Object Oriented Programming	1.54	1.43	1.43	1.12	1.02	0.51	0.51	0.61	1.02	1.02	1.02	1.12	1.54	1.54
C206	Electronic Devices & Circuits	1.92	1.77	1.77	1.77	0.74	1.92	-	1.48	1.48	1.48	-	-	2.22	1.48
C207	Data Structures Lab	2.97	2.97	2.97	2.97	2.97	1.98	0.99	0.99	1.98	1.98	2.97	2.97	2.97	2.97

Overall PO & PSO Attainment

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BATCH 2016-20														
Attainment	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
Direct Attainment	2.41	2.29	2.20	2.05	2.00	1.76	1.63	1.62	1.96	1.92	1.86	1.99	2.23	1.91
Indirect Attainment	2.97	2.68	2.97	2.94	2.82	2.86	2.65	2.82	2.88	2.92	2.97	2.92	2.55	2.85
POs Attainment (80% of DA + 20% of IDA)	2.52	2.37	2.36	2.23	2.17	1.98	1.83	1.86	2.14	2.12	2.08	2.18	2.27	2.09

PO & PSO Attainment Levels – 2016-2020

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Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Target Attainment	2.25	2.25	2.25	2.25	2.25	2.10	2.10	2.10	2.25	2.10	2.25	2.10	2.25	2.25
PO Attainment	2.52	2.37	2.36	2.23	2.17	1.98	1.83	1.86	2.14	2.12	2.08	2.18	2.27	2.09

Comparison of PO & PSO Attainment Levels

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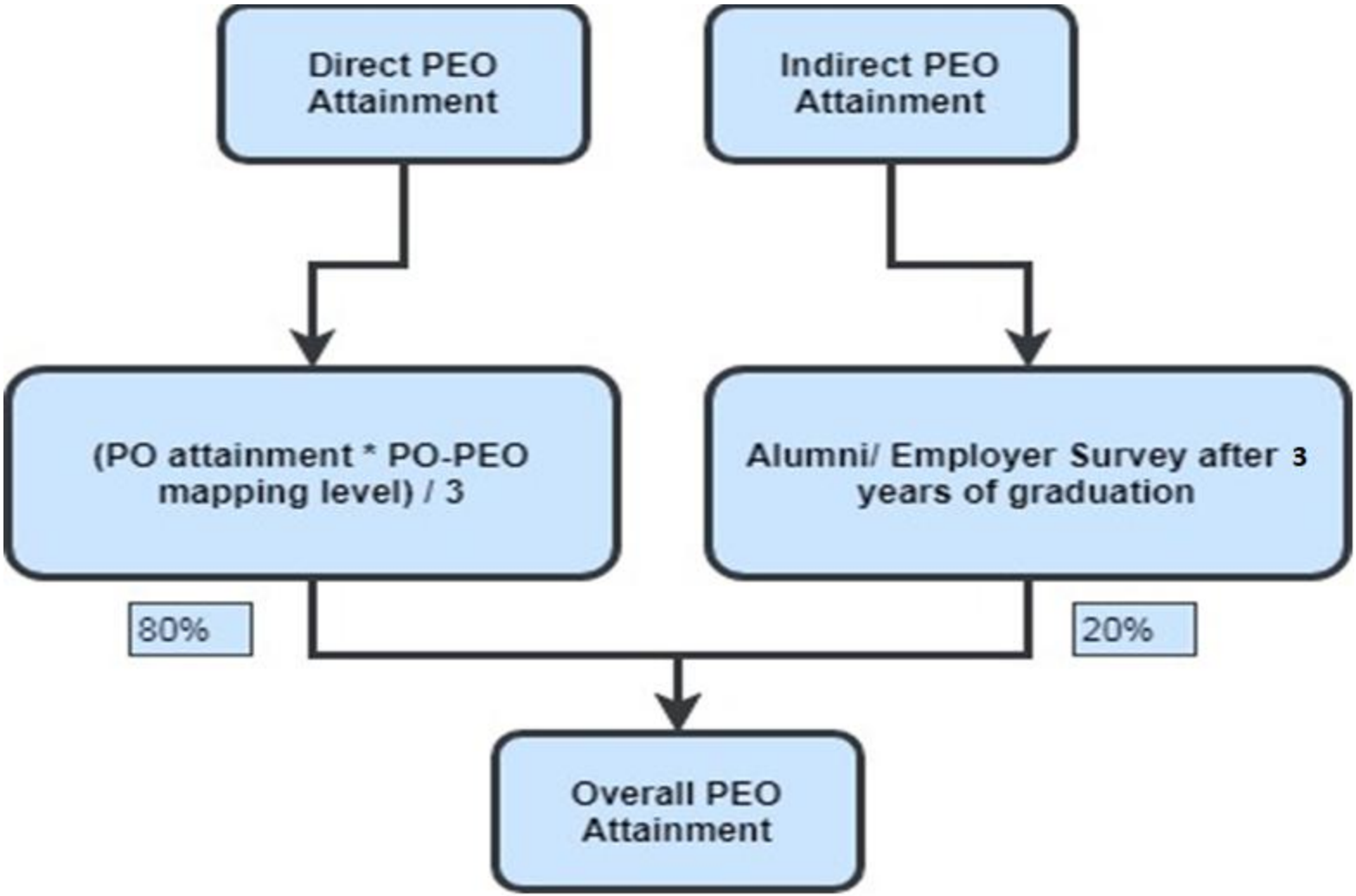
BATCH 15-19													
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
PO ATTAINMNENT	2.48	2.35	2.32	2.17	2.15	1.94	1.82	1.85	2.15	2.08	2.15	2.17	2.24	2.08
BATCH 16-20														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
PO ATTAINMNENT	2.52	2.37	2.36	2.23	2.17	1.98	1.83	1.86	2.14	2.12	2.08	2.18	2.27	2.09
BATCH 17-21														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
PO ATTAINMNENT	2.52	2.39	2.37	2.26	2.22	2.00	1.88	1.88	2.20	2.16	2.18	2.20	2.32	2.10

PEO Attainment



Comparison of PEO Attainment

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PEO's	2013-17	2012-16	2011-15
PEO1	2.508	2.472	2.1999
PEO2	2.516	2.482	2.215
PEO3	2.518	2.502	2.232


Thank You