## CRITERION 2

| S NO. | PROGRAM CURRICULUM AND TEACHING – LEARNING PROCESSES | MARKS (120) | PAGE NUMBER |
|---|---|---|---|
| 2.1 | Program Curriculum | 20 | 24 |
| 2.1.1 | State the process used to identify extent of compliance of the University curriculum for attaining the program outcomes(PO) and Program specific outcomes(PSOs), identified the curricular gaps, if any | 10 | 24 |
| 2.1.2 | State the delivery details of the content beyond the syllabus for the attainment of Pos and PSOs | 10 | 43 |
| 2.2 | Teaching-Learning Processes | 100 | 55 |
| 2.2.1 | Describe the Process followed to improve quality of teaching learning | 25 | 55 |
| 2.2.2 | Quality of internal semester Question papers, Assignments and Evaluation | 20 | 74 |
| 2.2.3 | Quality of student projects | 25 | 85 |
| 2.2.4 | Initiatives related to industry interaction | 15 | 94 |
| 2.2.5 | Initiatives related to industry internship/ summer training | 15 | 98 |

## CRITERION 2 Program Curriculum and Teaching – Learning Processes 120

## 2.1 Program Curriculum

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

S.A. ENGINEERING COLLEGE is an Autonomous Institution Affiliated under Anna University Chennai. Our college is granted as autonomous by the year 2020. The B.E Computer Science and engineering curriculum is framed as per the suggestions given by the expert members of Board of Studies and is approved by the same. Before being autonomous our curriculum is as per the scheme and syllabus of affiliated university. Generally our Curriculum maintains the well balanced composition of **Humanities and Social Sciences(HS):** Soft skills, Value Education & Professional Ethics, Languages, NSS/ Yoga etc, Maths & **Basic Sciences(BS):** including Maths, Physics, Chemistry, Environmental Science, **Professional Core (PC)** & **Professional Electives (PE):** subjects under Core Engineering, relevant to the chosen specialization/branch and Employment Enhancement courses (EEC).Analysis is done for attaining the PO/PSO's through the curriculum. Then the curriculum and syllabus are presented to the Board of Studies expert members for approval. The final approval of curriculum and syllabus is done by the Institute Academic Council Committee, as and when required.

**Step-1:** Program Assessment Committee (PAC) prepares draft curriculum / curricular changes based on the following:

- Department Vision and Mission.
- Program Educational Objectives.
- Inputs obtained from stakeholders.
- Conclusions drawn from analysis of attainment of COs, POs, PSOs.
- Curriculum of educational institutions including NITs, IITs and affiliated University.
- Guidelines of statutory bodies, such as, AICTE / UGC.

**Step-2:** Conduct Pre-Board of Studies (pre-BoS) meeting to discuss the draft curriculum and recommend necessary changes.

**Step-3:** Conduct Board of Studies (BoS) meeting to finalize the curriculum and syllabi.

**Step-4:** Conduct post BoS meeting to ensure the incorporation in curriculum and syllabi.

**Step-5:** Submit the final curriculum for approval to the Academic Council.

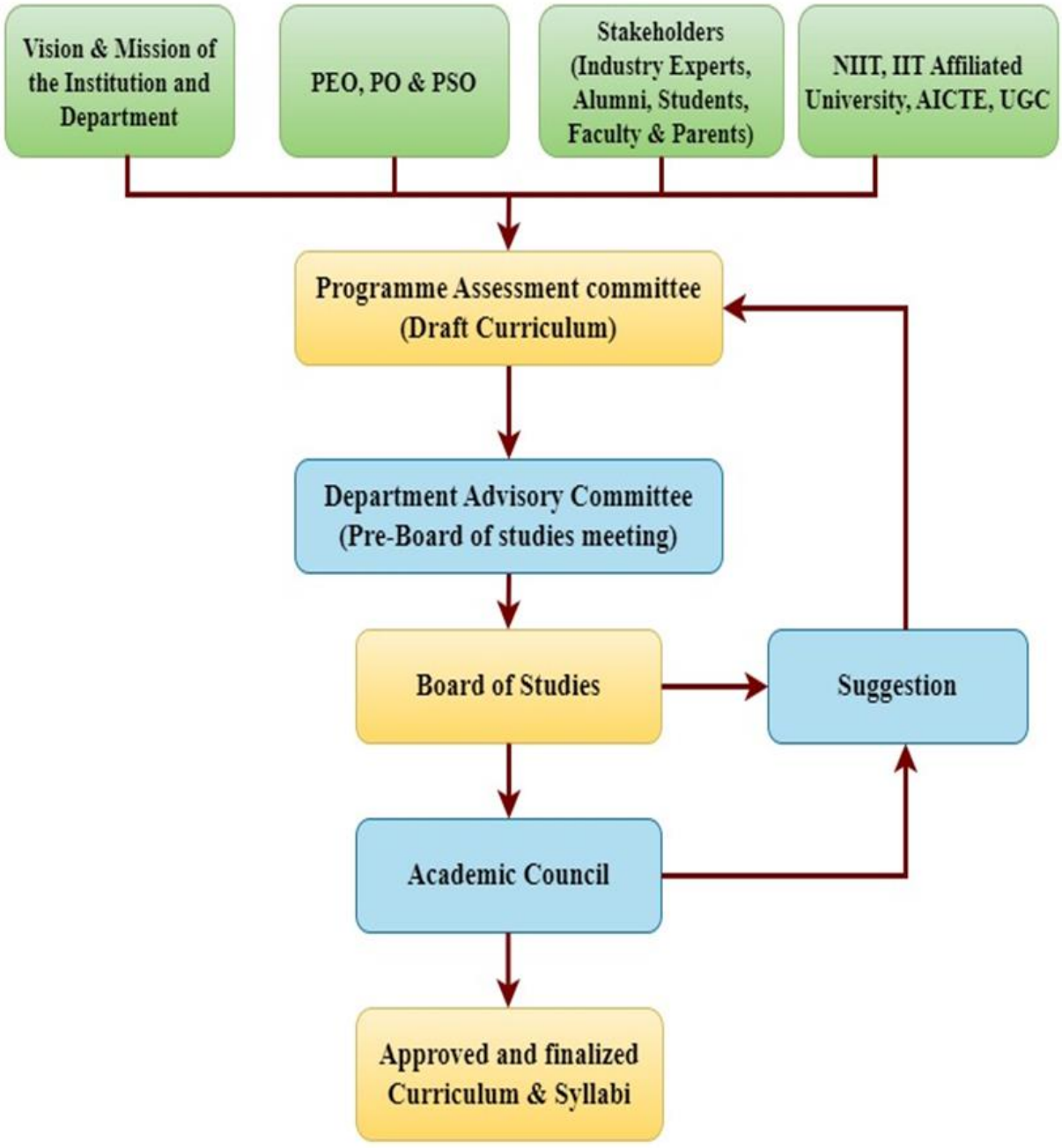



**Figure 2.1: Designing Programming Curriculum**

**Committees/ Cells:**

1. Programme Assessment Committee
2. Department Advisory Committee
3. Academic Excellence Committee

**Department Advisory Committee**

Members: Director, Principal, HoD, Professors, Senior faculty, Employers,
Experts from Industry, Parents, Alumni
Criteria of selection: The members are qualified and eminent personalities in their fields.
Responsibilities

- Taking key decisions for improving the Programme.
- Vivacious in administering Vision, Mission and PEOs
- Periodic review of the Programme.
- Provide insights to bridge the Curricular Gap

**Programme Assessment Committee**

Members: Programme Coordinator, HOD, Senior Faculty Members of the Department.
Role: This committee is responsible for coordinating the activities of outcome-based education.
Responsibilities

- Drafts the PEOs and POs, PSOs and COs.
- Formulate various assessment methods
- Formulate survey mechanisms with questionnaires.
- Summarize the results of Direct and Indirect Survey.
- Calculate the attainment of PEOs, POs,PSOs and COs.

**Academic Excellence Committee**

Members: HOD, Senior Faculty Members of the Department.

Role: Assessing the accomplishment of Curriculum and Monitor the implementation of Curriculum.

Responsibilities

- Collects evaluation and recommendation sheets of courses.
- Collecting the Course End Survey from students
- Identify the supplementary topics in the course for bridging the Curricular Gap.

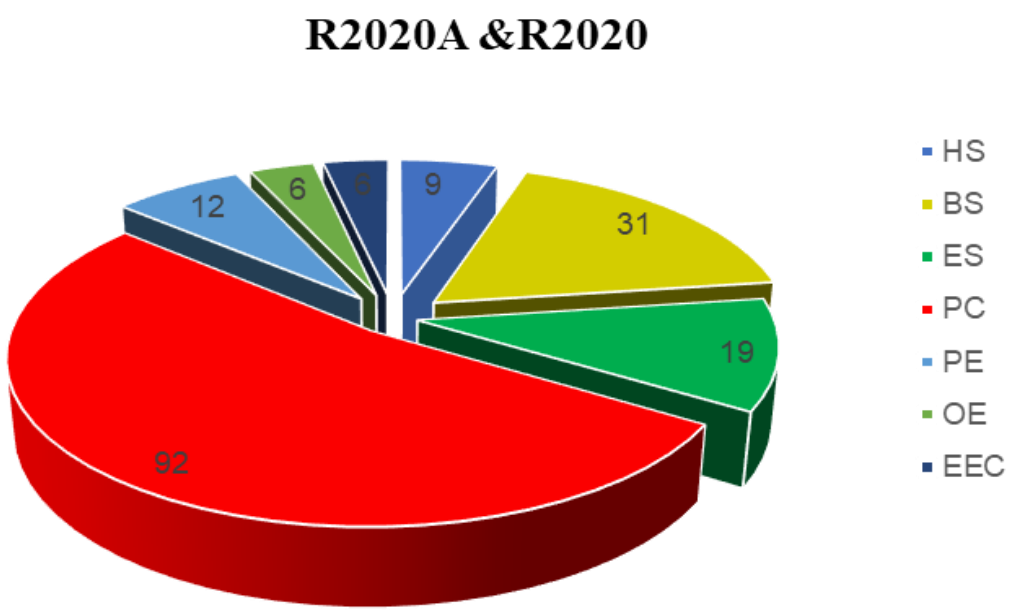
| B.E-BATCH-WISE YEAR | REGULATION |
|---|---|
| **19-23** | Regulation 2017 (ANNA UNIVERSITY) |
| **20-24** | Regulation 2020 (AUTONOMOUS) |
| **21-25** | Regulation 2020A (AUTONOMOUS) |
| **22-26** | Regulation 2020A (AUTONOMOUS) |

**B.E-COMPUTER SCIENCE & ENGINEERING:**

**Regulation 2020A:**

| SL.NO | Subject Area | Credits per semester | | | | | | | | Credits total | Percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | I | II | III | IV | V | VI | VII | VIII | | |
| 1 | HS | 3 | 3 | | | | | 3 | | 9 | 5.142 |
| 2 | BS | 12 | 7 | 4 | 4 | 4 | | | | 31 | 17.71 |
| 3 | ES | 8 | 5 | 3 | 3 | | | | | 19 | 10.85 |
| 4 | PC | | 9 | 13 | 17 | 16 | 17 | 13 | 7 | 92 | 52.57 |
| 5 | PE | | | | | | 3 | 3 | 6 | 12 | 6.85 |
| 6 | OE | | | | | 3 | | 3 | | 6 | 3.428 |
| 7 | EEC | | | 1 | 1 | | 4 | | | 6 | 3.428 |
| 8 | MC | | | | | | | | | | |
| TOTAL | | 23 | 24 | 21 | 25 | 23 | 24 | 22 | 9 | 175 | |

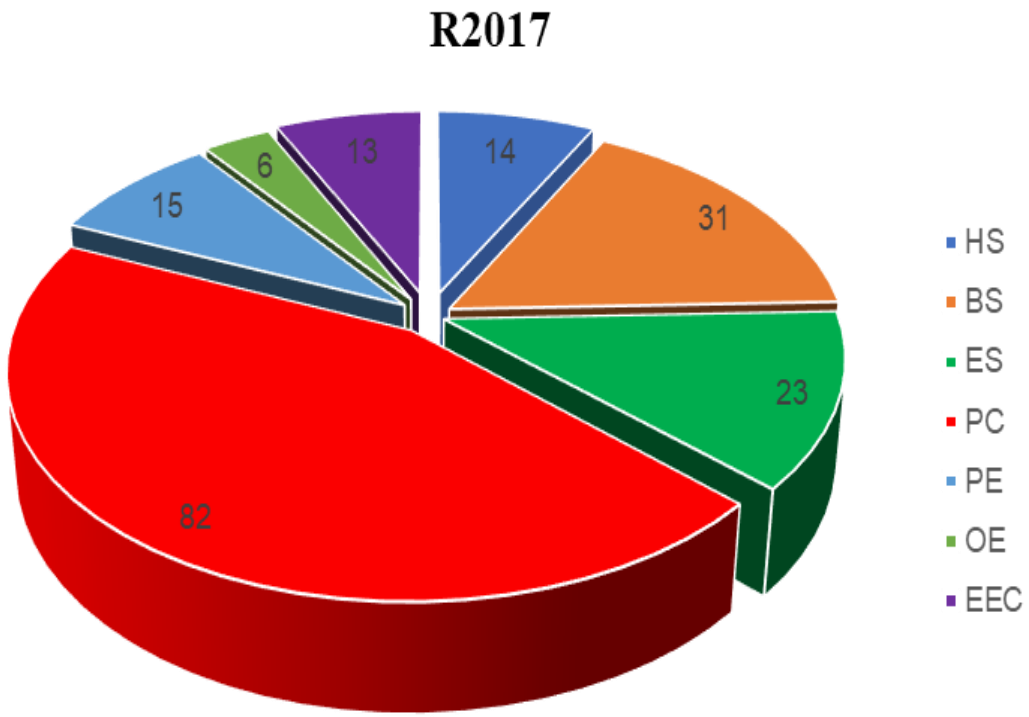
**Table 2.1: PO & PSO MAPPING FOR REGULATION 2020 & 2020A**




**Regulation 2017(Anna University):**

| S.No. | Subject Area | Credits As Per Semester | | | | | | | | Credits Total | Percentage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | I | II | III | IV | V | VI | VII | VIII | | |
| 1. | HS | 4 | 7 | | | | | 3 | | 14 | 7.60% |
| 2. | BS | 12 | 7 | 4 | 4 | 4 | | | | 31 | 16.8% |
| 3. | ES | 9 | 5 | 9 | | | | | | 23 | 12.5% |
| 4. | PC | | 5 | 10 | 19 | 18 | 20 | 10 | | 82 | 44.5% |
| 5. | PE | | | | | | 3 | 6 | 6 | 15 | 8.15% |
| 6. | OE | | | | | 3 | | 3 | | 6 | 3.3% |
| 7. | EEC | | | 1 | 1 | | 1 | | 10 | 13 | 7.65% |
| | Total | 25 | 24 | 24 | 24 | 25 | 24 | 22 | 16 | 184 | |
| 8. | Non Credit / Mandatory | | | | | | | | | | |

**Table 2.2: PO & PSO MAPPING FOR REGULATION 2017**




**IMPROVEMENTS IN CURRICULUM:**

| IMPROVEMENT BROUGHT IN | IMPROVEMENT S RECOMMENDED BY | REASON FOR RECOMMENDATION |
|---|---|---|
| UNIVERSAL HUMAN VALUES | AICTE | AWARENESS OF HUMAN VALUES AND LIVE WITH UNDERSTANDING |
| PROFESSIONAL READINESS FOR INNOVATION, EMPLOYABILITY AND ENTREPRENEURSHIP | NALAIYA THIRAN | TO ENHANCE PROJECT BASED LEARNING |
| CYBER SECURITY | BOS | FOR PLACEMENT |
| PROJECT WORK PHASE – I | BOS | EFFECTIVNESS FOR FINAL YEAR |
| PROJECT WORK PHASE – I | BOS | PROJECT WORK PHASE - I |
| OOAD THEORY INTEGRATED WITH LAB | BOS | MORE WEIGHTAGE TO LAB |

| | | |
|---|---|---|
| **COMPILER DESIGN THEORY INTEGRATED WITH LAB** | **BOS** | **MORE WEIGHTAGE TO LAB** |
| **FOR DESIGN AND ANALYSIS OF ALGORITHM (LAB IS INCLUDED)** | **BOS** | **TO IMPROVE STUDENTS ANALYSIS SKILLS FOR DIFFERENT ALGORITHMS(PLACEMENTS)** |
| **FUNDAMENTALS OF COMPUTING AND LABORATORY** | **BOS** | **TO ENRICH THE BASICS OF COMPUTER SCIENCE DOMAIN** |

**MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES FOR R2020 & 2020A:**

A broad relation between the Course Outcomes and Programme Outcomes is given in the following table

| | **Course Title** | **Programme Outcome(PO)** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **SEMESTER-I** | Technical English | | | | | | | | √ | √ | √ | | √ |
| | Calculus and its applications | √ | √ | √ | | | | | | √ | | | |
| | Applied Physics | √ | √ | √ | | | | | | | | | |
| | Engineering Chemistry | √ | √ | √ | | | | | | | | | |
| | Problem Solving and Python Programming | √ | √ | √ | | | | | | | | | |
| | Engineering Graphics | √ | √ | √ | | √ | | | √ | √ | √ | | √ |
| | Physics and Chemistry Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ |
| | Problem Solving and Python Programming Laboratory | √ | √ | √ | | √ | | | √ | √ | √ | | √ |
| | Indian Constitution | | | | | | | √ | | | √ | | √ |
| | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SEMESTER-II** | English for Communication | | | | | | | | √ | √ | √ | | √ | |
| | Complex Variables and Transforms | √ | √ | √ | | | | | | √ | | | | |
| | Material Science | √ | √ | √ | | | | | | | | | | |
| | Basic Electrical, Electronics and Measurement Engineering | √ | √ | √ | | | | | | | | | | |
| | Programming in C | √ | √ | √ | | | | | √ | √ | √ | | √ | |
| | Fundamentals of Computing | √ | √ | √ | | √ | | | | | | | √ | |
| | Programming in C Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ | |
| | Engineering Practice Laboratory | √ | √ | √ | √ | √ | √ | | √ | √ | √ | | √ | |
| | Fundamentals of Computing Laboratory | √ | √ | √ | √ | √ | | | | √ | √ | √ | √ | |
| | Environmental Science and Engineering | √ | √ | √ | | | | √ | √ | √ | √ | | √ | |

**PROGRAMME OUTCOME(PO)**

| | | **COURSE TITLE** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **YEAR-II** | **SEMESTER-III** | Discrete Mathematics | √ | √ | √ | | | | | | √ | | | |
| | | Object Oriented Programming | √ | √ | √ | | | | | | | | | |
| | | Data Structures | √ | √ | √ | | | | | | | | | |
| | | Digital Principles and System Design | √ | √ | √ | | | | | | | | | |
| | | Software Engineering | √ | √ | √ | | √ | √ | | √ | √ | √ | | √ |
| | | Object Oriented Programming Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Data Structures Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ |
| | | Interpersonal Skills Laboratory | | | | | | | | √ | √ | √ | | √ |
| | | | | | | | | | | | | | | |
| | **SEMESTER-IV** | Probability and Statistics | √ | √ | √ | | | | | | √ | √ | | √ |
| | | Computer Architecture | √ | √ | √ | | | | | | | | | |
| | | Database Management Systems | √ | √ | √ | | | | | | | | | |
| | | Design and Analysis of Algorithms | √ | √ | √ | | | | | | √ | √ | | √ |
| | | Universal Human Values | | | | | | √ | √ | √ | | | | √ |
| | | Object Oriented Analysis and Design | √ | √ | √ | | | √ | | | | | | |
| | | Database Management Systems Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ |
| | | Design and Analysis of Algorithms Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ |
| | | Employability And Soft Skills Laboratory | | | | | | | | | √ | √ | √ | √ |

| **PROGRAMME OUTCOME(PO)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **YEAR-III** | **SEMESTER-V** | **COURSE TITLE** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| | | Algebra and Number Theory | √ | √ | √ | | | | | | √ | | | |
| | | Computer Networks | √ | √ | √ | | | | | | | | | |
| | | Operating Systems | √ | √ | √ | | | | | | | | | |
| | | Theory of Computation | √ | √ | √ | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Embedded System | √ | √ | √ | | | √ | √ | | | | | | |
| | | Open Elective I | | | | | | | | | | | | | |
| | | Networks Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ | |
| | | Operating Systems Laboratory | √ | √ | √ | | | | | √ | √ | √ | | √ | |
| | | | | | | | | | | | | | | | |
| | **SEMESTER-VI** | Internet Programming | √ | √ | √ | | | | | √ | √ | √ | | √ | |
| | | Compiler Design | √ | √ | √ | | | | | √ | √ | √ | | √ | |
| | | Artificial Intelligence | √ | √ | √ | | | | | | | | | | |
| | | Cryptography and Network Security | √ | √ | √ | | | | | | | | | | |
| | | Professional Elective I | | | | | | | | | | | | | |
| | | Internet Programming Laboratory | √ | √ | √ | | √ | | | √ | √ | √ | | √ | |
| | | Professional Readiness for Innovation, Employability and Entrepreneurship | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | |
| | | Security Laboratory | √ | √ | √ | | √ | √ | | √ | √ | √ | | √ | |
| | | Professional Communication Laboratory | | | | | | √ | | | | √ | | √ | |

| PROGRAMME OUTCOME(PO) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **YEAR-IV** | **SEMESTER-VII** | **COURSE TITLE** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | **10** | **11** | **12** |
| | | Distributed Systems and cloud computing | √ | √ | √ | | | | | | | | | |
| | | Machine Learning | √ | √ | √ | √ | √ | | | | | | | √ |
| | | Principles of Management | √ | √ | √ | | √ | | | | | | | |
| | | Open Elective II | | | | | | | | | | | | |
| | | Professional Elective II | | | | | | | | | | | | |
| | | Machine Learning Laboratory | √ | √ | √ | | √ | | | √ | √ | √ | | √ |
| | | Cloud Computing Laboratory | √ | √ | √ | | √ | | | √ | √ | √ | | √ |
| | | Project Work-I | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |
| | **SEMESTER–VIII** | Professional Elective III | | | | | | | | | | | | |
| | | Professional Elective IV | | | | | | | | | | | | |
| | | Project Work-II | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ | √ |

## PROFESSIONAL ELECTIVES

| EM | COURSE TITLE | PROGRAMME OUTCOME(PO) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| VI | Cyber Security | √ | √ | √ | √ | √ | | | √ | | | | √ |
| | Software Testing | √ | √ | √ | | √ | | | | √ | √ | | |
| | Agile Methodologies | √ | √ | √ | | | | | | | | | |
| | Graph Theory and Applications | √ | √ | √ | | | | | | | | | |
| | Data warehousing and Data mining | √ | √ | √ | | | | | | | | | |
| | Intellectual Property Rights | | | | | | √ | √ | √ | √ | √ | √ | √ |
| VII | Big Data Analytics | √ | √ | √ | √ | | | | | √ | √ | | |
| | Mobile Computing | √ | √ | √ | | | | | | | | | |
| | Computer Graphics and Multimedia | √ | √ | √ | | | | | | | | | |
| | Software Project Management | √ | √ | √ | | | √ | | √ | √ | √ | √ | √ |
| | Internet of Things (Intel Intelligent Systems Lab) | √ | √ | √ | | | | | | | | | |
| | Service Oriented Architecture | √ | √ | √ | | | | | | | | | |
| | Total Quality Management | √ | √ | √ | | | | | | | | √ | |
| | Multi-core Architectures and Programming | √ | √ | √ | | | | | | | | | |
| | Human Computer Interaction | √ | √ | √ | | | | | | | | | |
| | C# and .Net Programming | √ | √ | √ | | √ | | | | √ | √ | | |
| | Wireless Adhoc and Sensor Networks | √ | √ | √ | | | | | | | | | |
| | Advanced Topics on Databases | √ | √ | √ | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Foundation Skills in Integrated Product Development | √ | √ | √ | | | | | | | | | |
| | Human Rights | √ | √ | √ | | | | | | | | | |
| | Disaster Management | √ | √ | √ | | | | | | | | | |
| | Advanced Data Structure | | | | | | | | | | | | |
| VIII | Digital Image Processing | √ | √ | √ | | | | | | | | | |
| | Social Network Analysis | √ | √ | √ | | | | | | | | | |
| | Information Security | √ | √ | √ | | | | | √ | | | | |
| | Software Defined Networks | √ | √ | √ | | | | | | | | | |
| | Cyber Forensics | √ | √ | √ | | | | | √ | | | | |
| | Deep Learning | √ | √ | | √ | √ | | | | | | | √ |
| | Professional Ethics in Engineering | | | | | | √ | √ | √ | √ | √ | | √ |
| VIII | Information Retrieval Techniques | √ | √ | √ | | | | | | | | | |
| | Green Computing | √ | √ | √ | | | | | | | | | |
| | GPU Architecture and Programming | √ | √ | √ | | | | | | | | | |
| | Natural Language Processing | √ | √ | √ | | | | | | | | | |
| | Parallel Algorithms | √ | √ | √ | | | | | | | | | |
| | Block Chain Technology | √ | √ | √ | | | | | | | | | |
| | Fundamentals of Nano Science | √ | √ | √ | | | | | | | | | |

**GAP IDENTIFICATION AND RECOMMENDATION:**
**Flow chart showing identification of curriculum gaps**

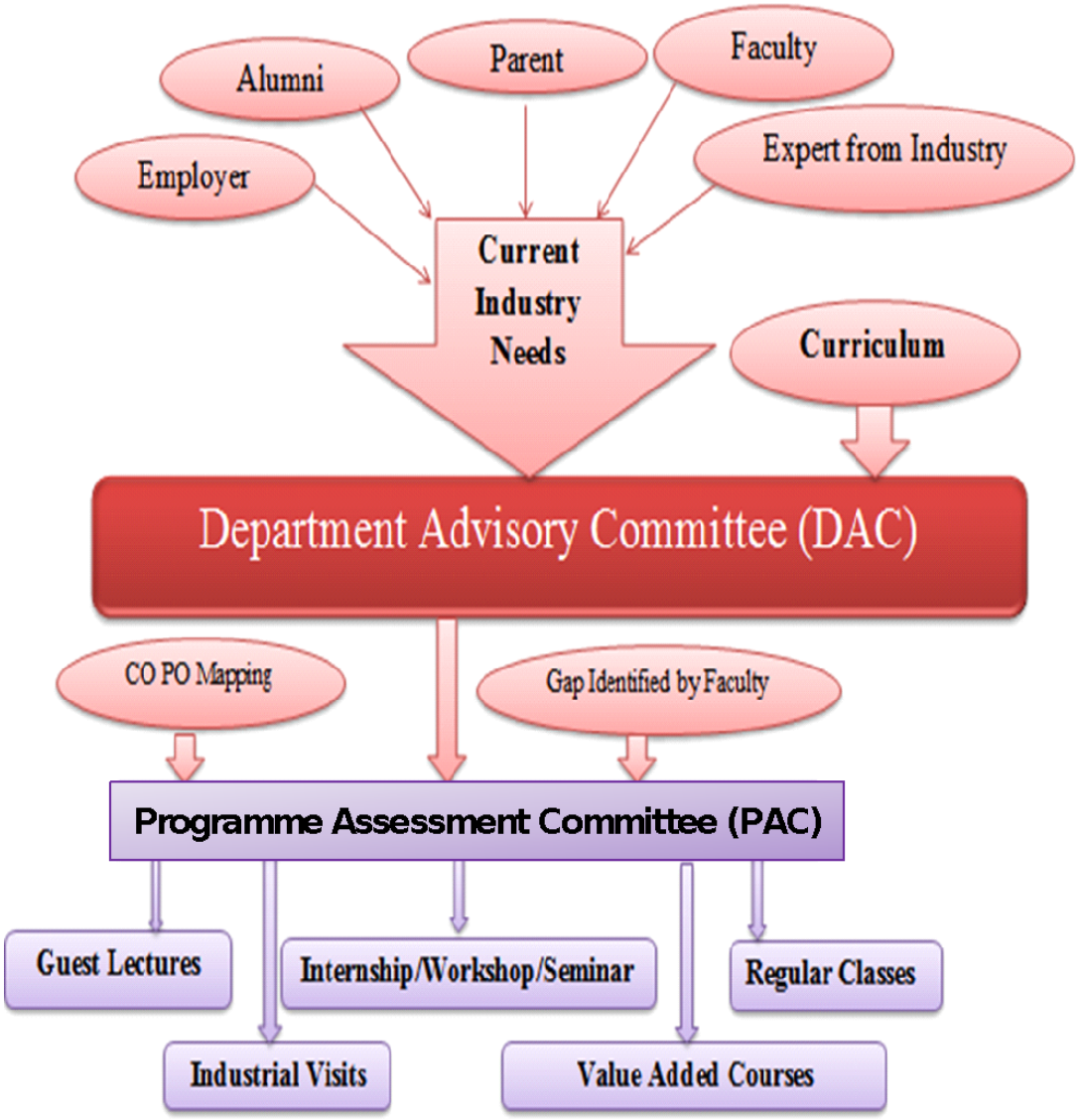



**Fig 2.2 : Gap identification process**

**IDENTIFICATION PROCESS OF THE CURRICULUM GAPS:**

**1. Alumni survey**

## S.A.ENGINEERING COLLEGE, CHENNAI – 77

(An Autonomous Institution, Affiliated to Anna University)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## ALUMNI FEEDBACK FORM

| |
|---|
| **NAME OF THE ALUMNI:** |
| **ALUMNI MOBILE NUMBER:** |
| **ALUMNI BRANCH:** |
| **PASS OUT YEAR** |
| **PRESENT STATUS:** |

| **ASSESSMENT TRAITS** | **YES** | **NO** |
|---|---|---|
| **The prescribed curriculum design helped you to gain knowledge** | | |
| **Is the course structure relevant to progress for higher levels** | | |
| **Is the course design applicable to real life situation** | | |
| **Did the course structure evoke research aptitude** | | |
| **Is the course structure helpful for you to adapt yourself to your carrier** | | |
| **What inclusions/deletions do you suggest in the curriculum** | | |
| **Need any change in curriculum and syllabi** | | |
| **Relevance of curriculum in your job** | | |
| **General suggestions:** | | |

**Signature of the Alumni**

**2. Employer Survey**

# S.A.ENGINEERING COLLEGE, CHENNAI – 77

(An Autonomous Institution, Affiliated to Anna University)

DEPARTMENT OF _____

## EMPLOYER FEEDBACK FORM (POST PLACEMENT)

| |
|---|
| **NAME OF THE EMPLOYEE:** |
| **ALUMNI DEPARTMENT /ROLL NUMBER:** |
| **EMPLOYING ORGANIZATION:** |

Dear Sir,

As part of our post placement feedback/evaluation process we request you the rate the subject alumni of our college and currently working in your esteemed organization on a 10 point rating by sparing your valuable time and send us back the format in hard copy/email as convenient to you and oblige

Director Corporate Affairs & Placement

| ASSESSMENT TRAITS | EXCELLENT 9 | SUPERIOR 8 | VERY GOOD 7 | GOOD 6 | AVERAGE 5 | POOR 4 |
|---|---|---|---|---|---|---|
| **Job Knowledge** | | | | | | |
| **Job Performance** | | | | | | |
| **Learning Interest** | | | | | | |
| **Punctuality & Attendance** | | | | | | |
| **Creative Ability** | | | | | | |
| **Communication /Feed Back** | | | | | | |
| **Technical Skills** | | | | | | |
| **Analytical Skills** | | | | | | |
| **Interpersonal Skills** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Initiative & Leadership** | | | | | | |
| **Total** | | | | | | |
| **YOUR VALUABLE SUGGESTION AS INPUTS FOR CURRICULUM/TRAINING OF STUDENTS** | | | | | | |
| | | | | | | |
| **DATE:** | | | **SIGNATURE** | | | |

**3.Student feedback form**

# S.A.ENGINEERING COLLEGE, CHENNAI – 77

## (An Autonomous Institution, Affiliated to Anna University)

## DEPARTMENT OF _____

**STUDENT FEEDBACK FORM**

Academic Year/Branch: Class:

Sem/Year: Date:

Course : Faculty:

***SECTION 1 : Course Evaluation***

Please indicate the extent to which you disagree or agree with each of the following statements:

**[5] EXCELLENT [4] VERY GOOD [3] GOOD [2] AVERAGE [1] POOR**

| Statement | [5] | [4] | [3] | [2] | [1] |
|---|---|---|---|---|---|
| 1. The course objectives, content and methods of evaluation were clearly explained at the beginning of the semester. | | | | | |
| 2. Class activities include a variety of methods to hold students' interest in understanding the course. | | | | | |
| 3. The assignments/digital assignments were relevant to the course and helps the students to enrich their knowledge | | | | | |
| 4. The course content and notes/handouts appeared appropriate, well structured, neatly prepared and clearly understood. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 5. The library books and other learning resources (NPTEL, digital library … ) were adequate. | | | | | |
| 6. Timetable, class grouping and classroom information were clearly stated sufficiently in advance. | | | | | |
| Please indicate what is the percentage level of understanding that you managed to achieve for the following Units<br>(5 -100%, 4 -75%, 3 –50%, 2 –25%, 1 –0%) | | | | | |
| 7. Unit I | | | | | |
| 8. Unit II | | | | | |
| 9. Unit III | | | | | |
| 10. Unit IV | | | | | |
| 11. Unit V | | | | | |

12. Content beyond the syllabi has been identified(CO6) and taught? in course syllabus: Yes/No

**SECTION 2: Faculty Evaluation**

| **Statement** | **[5]** | **[4]** | **[3]** | **[2]** | **[1]** |
|---|---|---|---|---|---|
| The faculty was able to deliver the course with real time applications. | | | | | |
| The faculty shows a strong interest in the well-being and progress of the students and the course. | | | | | |
| The faculty is firm and fair in managing the course and evaluating students. | | | | | |
| The faculty conducts discussions with an open mind. | | | | | |
| The faculty has good presentation and highly interactive delivery skills. | | | | | |
| Relationships and interactions between the faculty and students both in and out of the class are positive. | | | | | |
| Faculty provides sufficient time for completing the assignments and other activities. | | | | | |
| Students are always encouraged to improve themselves by way of reading, problem-solving and independent exploration beyond course assignments. | | | | | |
| The faculty encourages students to ask questions and then provides appropriate answers. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| The faculty is prepared for every class period. | | | | | |
| The faculty is always punctual to the classes. | | | | | |
| The faculty regularly monitors the discipline and professional appearance of the students. | | | | | |
| I enjoyed the lectures and understood what the faculty has delivered. | | | | | |

**4. Parent feedback form**

**CRP F12**

## S.A. Engineering College, Chennai-77
## Department Of Computer Science and Engineering
# Parent Feedback Form Consolidation
### Academic year 2021-2022(ODD)

| Feedback Traits/Questions | Excellent | Superior | Very Good | Good | Average |
|---|---|---|---|---|---|
| Admission Procedure | | | | | |
| Fees Collection Experience | | | | | |
| Infrastructure and Lab Facility | | | | | |
| Canteen Facility | | | | | |
| Library | | | | | |
| Hostel | | | | | |
| Transportation | | | | | |
| Other Facilities provided by the college | | | | | |
| Sports and Cultural Activities | | | | | |
| Use of Information and Communication Technology in college | | | | | |
| Academic Discipline | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Improvement in soft skills, knowledge, ethics, morality observed by you in your ward | | | | | |
| Examination System adopted by the college | | | | | |
| Evaluation and Feedback mechanism | | | | | |
| Placements | | | | | |

| Suggestions That Can be Improved by us |
|---|
| 1. |
| Positives identified |
| 1. |
| Comments By HoD<br><br>HOD |

**2.1.2 State the delivery details of the content beyond syllabus for the attainment of PO'S and PSO'S (10)**

*(Provide details of the additional course/learning material/content/laboratory experiments/projects etc., arising from the gaps identified in 2.1.1 in a tabular form in the format given below)*

**2022-23(ODD)**

| S. No. | Date-Month-Year | Gap | Action Taken | Resource Person with designation | % of Students | PO/ PSO |
|---|---|---|---|---|---|---|
| 1 | 18.08.2022 TO 26.08.2022 & 29.08.2022 TO 06.09.2022 | Application oriented | Value Added Course on "Full Stack Development (Client side / Front end-I) | Mr.Chander Pichhe Beeja Academy | 100 | PO1,2,3,5, 12, PSO1,2,3 |
| 2 | 02-09-22 | Industry oriented | Guest Lecture and Hands-on Experience in "Machine Learning Algorithms" | Mr.D.Loganathan & Mr.Balaji Executive Manager, Global Techno Solutions, Chennai | 100 | PO 2,3,4,5,11, 12 |
| 3 | 06-09-22 | Industry oriented | Seminar on "Cloud Security Challenges and Opportunities" | Mrs.Sarika Senior software Engineer, Hyagriva Infotech, Chennai | 100 | PO1,2,3,1 2,PSO1 |
| 4 | 08-09-22 | Modern tools | Seminar on " Data Science using Python" | Mr. Mohan Shankar Project Engineer, PANTECH Learning, Chennai | 100 | PO1,2,3,5, 12,11 |
| 5 | 10-09-22 | Industry oriented | Guest Lecture on "Amazon Supply Chain Management" | Mr.Vignesh Solairaj Director, Central Ops and programs, Amazon EU surface Transportation at Amazon Amazon-Arizona state University | 100 | PO1,5,6,7, 8,9,10,11, 12,PSO2,3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | 07.09.2022 & 8.09.2022 & 13.09.2022 | Industry oriented | Industrial visit to "Centre for Development of Advanced Computing (CDAC)" | Mr.Vimal Lakman p Joint Director CDAC,Taramani, Chennai | 100 | PO 3,4,5,6,11, 12 |
| 7 | 15.09.22 & 16.09.22 | Industry oriented | Industrial visit to "Base Automation Technologies Private Limited" | Mr.Lakshminarayana n Venkatachalam Chief Executive Officer | 100 | PO 3,4, 5,6,11,12 |
| 8 | 29.09.2022 & 30.09.2022 | Industry oriented | Industrial Visit to "Satvat Infosol Pvt Ltd Software Development, Chennai, Tamil Nadu" | Mr.Surendrakumar, Project Manager, | 100 | PO4,5,6,1 1,12 |
| 9 | 06.10.2022 TO 13.10.2022 & 27.10.2022 TO 03.11.2022 | Applicati on oriented | Value Added Course on "Full Stack Development" | Mr.Chander Pichhe Beeja Academy | 100 | PO3,5,11, 12 |
| 10 | 10.10.2022 | Industry oriented | Industrial Visit to "National Informatics Centre" | Mr.Gopi E 2 A 1st Floor Rajaji Bhavan, Besant Nagar, Chennai - 600090,Near Besant Nagar Terminal. | 100 | PO4,5,6,1 1,12 |
| 11 | 13.10.2022 | Industry oriented | Guest Lecture on "Role of Data structures in Problem Solving" | Mrs.Sarika Senior Software Engineer Hayagriva Infotech , Chennai. | 100 | PO 1,2,3, 12 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12 | 14.10.2022 | Industry oriented | Seminar on ”Data analytics and Linus operating system” | Mr.Karthikeyen Rajendran<br>Data scientist/ Google Cloud<br>Valeo India Pvt. Ltd., Chennai | 100 | PO1,2,5,8, PSO1 |
| 13 | 14.10.2022 | Industry Oriented | Guest lecture on “Security issues in Cloud Computing” | Mr.Karthikeyen Rajendran<br>Data scientist/ Google Cloud<br>Valeo India Pvt. Ltd., Chennai | 100 | PO1,2,3,4, PSO1,2 |
| 14 | 15.10.2022 | Application Oriented | Guest Lecture on “Internet of Things” | Mr.Harikrishnan<br>CDAC,Chennai | 100 | PO3,4,5,11,12 |
| 15 | 17.10.2022 | | Guest lecture on “ Experimenting Formal Languages using JFLAP” | Mr. M.Senthil Kumar<br>Technical Trainer<br>Smart Cliff Learning Solutions | 100 | PO1,PO2, PO3, PO12,PSO 1 |
| 16 | 17.10.2022 TO 26.10.2022 & 27.10.2022 TO 03.11.2022 | Program Oriented | Value Added Course on “Kotlin Programming Language” (OOPS Concepts) | Mr.Rajendran<br>Silicon Software Services<br>Manalanadu (post), Aranthangi | 100 | PO 1,2,3,5,12, PSO 1 |
| 17 | 25.11.2022 | Industry Oriented | Guest Lecture on “Software Engineering” | Mr. Bhargav Chandran<br>Project Manager<br>TCS<br>Chennai | 96 | PO1,2,5,8, 9,10, PSO1, 2 3 |
| 18 | 04.11.2022 | Industry Oriented | Guest Lecture on “Ethical hacking and Cyber security” | Mr.Vinod Senthil<br>Director & CTO<br>Infysec, Chennai | 100 | PO1 to 6,8,9,11,12,PSO 1,2,3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19 | 25.11.2022 | Industry Oriented | Online Workshop on "Demonstration of virtual lab experiments for stakeholders" | Mr. Saneesh P F Project Manager Amritha Virtual Labs | 100 | PO1,2,3,5, 12,PSO1 |
| 20 | 28.11.2022 | Industry Oriented | Guest Lecture on "Advanced Topics in Computer networks" | Mr. K. Natarajan Chief Technology Officer FIIT Formacion Pvt. Ltd., | 100 | PO1,2,3,12,PSO1 |
| 21 | 14.10./22 | Application Oriented | IoT | Mr.Kailash CDAC,Chennai | 100 | PO3,4,5,11,12 |

**2021-22**

| S. No. | Date-Month-Year | Gap | Action Taken | Resource Person with designation | % of Students | PO/ PSO |
|---|---|---|---|---|---|---|
| 1. | 31.08.2022 | Modern tools | Guest Lecture on Recent trends in cloud computing tools | Mr. Rajkumar Kalaimani ICT ACADEMY ELCOT | 100 | PO 6,7,9, 10,11, PSO1,2,3 |
| 2. | 01.09.2021 | Industry oriented | Guest Lecture on Cyber Security Threats and Attacks | Mr.B.Varun Kumar, Cyber Security Manager, Ernst & Young (E & Y) | 100 | PO1,2,3,4, 5,6,8,9,11, 12, PSO1,2,3 |
| 3. | 02.09.2021 | Industry oriented | Guest Lecture on Software defined network | Mr.A.Anandaraman Scientific officer-E(HPC) NISER Bhubaneswar | 100 | PO1,2,3,4, 5,6,7,9,10, 11,12, PSO1,2,3, |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4. | 04.09.2021 | Industry oriented | Guest Lecture on Open issues in Use Case Modelling | Mr.P.B.Ravichandran<br>Associate Technical Lead<br>Calibraint Technology | 100 | PO4,5,6,7, 9,10,11,12 ,PSO1,2,3 |
| 5. | 09.09.2021 | Program oriented | Guest Lecture on Object Oriented Programming | Mr.S.Navaneethan<br>System Engineer<br>Infosys Limited | 96 | PO1,2,3,1 2, PSO1, PSO2, PSO3 |
| 6. | 21.04.2022 | Industry oriented | Guest Lecture on "An industrial overview of database and its administration" | Mr.M.Sankar<br>Technical Specialist | 100 | PO5,10,11 ,12, PSO1,2,3 |
| 7. | 22.04.2022 | Modern tool usage | Guest Lecture on "Use Case Modeling application in Industry" | Mr. Bhargav Chandran<br>Project Manager<br>TCS, Chennai | 100 | PO1,2,3,8, 9,11,12, PSO1, 2,3 |
| 8. | 10.05.2022 | Industry oriented | Guest Lecture on "Distributed System with BlockChain Technology" | Dr.N.Bhalaji<br>Associate Professor<br>SSN Engineering College. | 100 | PO 8,9,10,11, PSO1,2 |
| 9. | 23.05.2022 | Career guidance | Guest Lecture on "Career Guidance" | Mr.Sachin Karthick<br>Software Engineer<br>Aspire System, Chennai. | 100 | PO8,12, PSO 1 |
| 10. | 24.05.2022 | Industry oriented | Guest Lecture on "Ethics in Software Industry" | Mr.S.Karthikeyan<br>Associate Projects, Cognizant Technology Solutions | 96 | PO 1,2,3 8,9,10,11, PSO1,2 |
| 11. | 03.06.2022 | Program oriented | Guest Lecture on "Machine Learning Algorithms for Intelligent Systems" | Mr. D.Rajkumar<br>Application Engineer(MATLAB ) | 100 | PO 10,5,12, PSO 2,3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12. | 21.04.22, 22.04.22, 25.04.22 | Industry oriented | Industrial visit to IIITDM Kelambakkam | Dr.Senthil kumaran Professor | 96 | PO 1,2,3 8,9,10,11, PSO1,2 |
| 13. | 02.05.2022, 4.5.2022 | Industry oriented | Industrial visit to Regional Meteorological Centre | Mr.V.Senthilvel Meteorologist A For Director Area Cyclone Warning centre | 96 | PO 1,2,3 8,9,10,11, PSO1,2 |
| 14. | 28.02.2022 TO 05.03.2022 | Modern tool usage | VAC on Python with MongoDB | Mr.M.Antony Sahaya Michael, Silicon software services | 100 | PO1,5,12, PSO 2,3 |
| 15. | 23.12.2021 to 30.12.2021 | Industry oriented | VAC on FULL STACK AND JAVA PROGRAMMING | Mr.Sathish Beeja Academy | 98 | PO4,5,6,7, 9,10,11,12 ,PSO1,2,3 |

**2020-21**

| S.No. | Date-Month-Year | Gap | Action Taken | Resource Person with designation | % of Students | PO/PSO |
|---|---|---|---|---|---|---|
| 1. | 15.07.2020 | Industry oriented | Guest Lecture on "Data Structures: An industrial Perspective" | Palaniappan S.P Technical Architect Tech Mahindra | 100 | PO5, PO8, PO9, PO11,PSO 1,2 |
| 2. | 23.07.2020 | Industry oriented | Guest Lecture on "Object Oriented Programming: An Industrial Perspective" | Mr.Ramesh and Team XCEL CORP | 100 | PO3, PO5, PO 8,PO12, PSO 1,2 |
| 3. | 11.08.2020 | Industry oriented | Guest Lecture on "Cyber Security and Incident Handling" | Mr. A.J. Vijayakumar Senior Corporate Technical Trainer | 96 | PO3, PO8, PO9,PO 12, PSO 2,3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4. | 17.08.2020 | Program oriented | Guest Lecture on "OOD and JavaScript" | Mr.Sakthi Saravanan Kumar P<br>CDAC | 100 | PO5, PO8, PO9,PO 12, PSO 1,2 |
| 5. | 14.07.2020 | Career oriented | Guest Lecture on "Overview of Business Analysis & Product Management" | Mr.S Ramesh<br>XCEL CORP | 100 | PO 8, PO9, PO10, PSO 2,3 |
| 6. | 20.08.2020 | Industry oriented | Guest Lecture on "Microsoft Azure Cloud" | Mr. Umashankar Nedunchezhian<br>CTO, 1 Cloud Hub Pte. Ltd | 100 | PO5, PO8, PO9, PSO 1,2 |
| 7. | 07.09.2020 | Industry oriented | VAC on Artificial Intelligence | Mr.Shan N and Team<br>Eyeopen Technologies | 100 | PO5, PO8, PO9, PSO 2,3 |
| 8. | 30.09.2020 | Industry oriented | Online workshop on Fundamentals of Distributed Computing | Dr.N.Bhalaji,Associate Professor,<br>SSN Engineering College | 100 | PO5, PO8, PO9, PSO 1,2 |
| 9. | 05.11.2020 to 07.11.2020 | Program oriented | Guest lecture on "Orientation Programme on "Python" | Mr.Vinoth Subramanian,<br>Silicon Software Services | 100 | PO3, PO8, PO9, PSO 2,3 |
| 10. | 13.3.2021 @9.00am | Industry oriented | Guest lecture on "Storage area Networks & RAID | Mr.S.Prabhu,<br>Engineer Technical Service,<br>Infy, Bangalore | 100 | PO3, PO4, PO5, PSO 1,2 |
| 11. | 13.3.2021 @11.00am | Industry oriented | Guest lecture on "Power BI Demo" | Mr. Jomesh Joseph Veliyath<br>ICT Technical Trainer | 100 | PO3,PO4,PO5, PSO 1,2 |
| 12. | 13.3.2021 @11.30am | Career guidance | Guest lecture on "Career Guidance" | Mr. Ricad Carol Danabalan,<br>Senior Executive<br>Reserve Bank, Chennai | 100 | PO8,PO9,PO10, PSO 2,3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13. | 29.3.2021 @2.30pm | Industry oriented | Guest lecture on "Role of Software Agents in AI" | Mr. Ahamed Khalid B.E., PGDBM IIM B Vice President Imarticus Learning | 100 | PO5, PO8, PO9, PSO 1,2 |
| 14. | 10.4.2021 @10.00am | Industry oriented | Guest lecture on "Multicore Architecture" | Mr.A.Surendran Senior Software Engineer Capegemini, Chennai | 100 | PO2, PO3, PO4, PSO 2,3 |
| 15. | 01.02.2021 to 30.05.2021 | Industry oriented | Value added course on AI and Robotics | Mr Shan N and team | 100(II year) | PO5, PO8, PO9, PSO 1,2 |
| 16. | 01.02.2021 to 30.05.2021 | Industry oriented | Value added course on AI and Robotics | Mr Shan N and team | 100 (III year) | PO5, PO8, PO9, PSO 1,2 |
| 17. | 7.9.20 | Industry oriented | VAC on Artificial Intelligence | Mr.Shan N and Team Eyeopen technologies | | PO1,2,3,5, 8, 9, PSO 1,2 |
| 18. | 7.9.20 | Industry oriented | VAC on Artificial Intelligence | Mr.Shan N and Team Eyeopen technologies | | PO1,2,3,5, 8, 9, PSO 1,2 |

**2019-20**

| S.No. | Gap | Action taken | Date-Month-Year | Resource Person with designation | % of Students | PO/PSO |
|---|---|---|---|---|---|---|
| 1. | Industrial oriented | Guest Lecture on "Object Oriented Programming – An Industrial Perspective" | 10.08.2019 | David Fernandas M Professional-Level 1,DXC Technology – Chennai. (formerly known as CSC India Pvt, Ltd.,) | 100 | PO 8 ,9,3,11 PSO 1,2 |
| 2. | Industrial oriented | Guest Lecture on "Data Structure using Python" | 09.08.2019 | Mr.KarthikeyanArumugam, Software Trainer,Silicon Software Services | 100 | PO 8,9,10,11, PSO1,2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3. | Industrial oriented | Guest Lecture on "Computer Networks - An Industrial Perspective" | 31.07.2019 | Mr. Aravind Anbazhagan,IBM, Chennai. | 100 | PO 10,5,12, PSO 2,3 |
| 4. | Industrial oriented | Guest Lecture on "Industrial Aspect of Object Oriented Analysis and Design" | 30.09.2019 | Mr. Karthick Palani, Project Delivery Head 1 Cloud Hub Pvt. Ltd. Chennai.Phone: 9884928040 | 100 | PO 8,9,10,12, PSO 2,3 |
| 5. | Career oriented | Guest Lecture on "Recent Trends in Cloud Computing" | 19.07.2019 | Mr. Umashankar Nedunchezhian CTO,1 Cloud Hub Pvt. Ltd. Chennai.Phone: 9840395556 | 98 | PO8,9,10, PSO 1,2 |
| 6. | Industrial oriented | Workshop on Introduction to Database Management System. | 28.2.2020 | Mr.Sivakumar Ganesan, Infra Technology Specialist, CTS, Chennai | 95 | PO 8,5,12, PSO1,2 |
| 7. | Career oriented | Guest Lecture on "Professional Ethics in Engineering – An Industrial Perspective" | 03.03.2020 | Dr M.Hemanth Chakravarthy, Associate Manager, Virtusa, Chennai | 100 | PO5, PO8, PO12,PSO 1,2 |
| 8. | Industry oriented | Guest Lecture on "Mobile Application Development" | 04.03.2020 | Mr.Elumalai Ramalingam, Mobile Application Lead, Ford, Chennai | 100 | PO5,PO3. PO8,PO12 , PSO 2,3 |
| 9. | Program oriented | Guest Lecture on "Growth of Artificial Intelligence in Industry" | 06.03.2020 | Ms.TamilAruvi, Technical Lead, IBM, Chennai | 100 | PO5,PO3. PO8,PO12 , PSO 1,2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10. | Program oriented | Guest Lecture on "Cyber Security and Ethical Hacking" | 06.09.19 | Mr.Vinod Senthil, Director & Chief Technical Officer, InfySEC | 100 | PO 8,9,10,12, PSO 2,3 |
| 11. | Program oriented | Value Added Course on "Python with MongoDB and MySQL" | 20.08.2019 -22.08.2019 21.08.2019 -23.08.2019 | Mrs. S Suganya and Team #6, Raji Villa, Rajaji Avenue, Valsaravakam, Chennai – 600087 | 100 | PO1,PO2, PO3,PO8, PO12, PSO 1,2 |
| 12. | Program oriented | Value Added Course on "Advanced Python Concepts" | 13.8.19, 19.8.19, 20.8.19, 24.8.19 3.9.19 to 9.9.19 | Mr.S.Vinoth SILICON SOFTWARE SERVICES | 100 | PO5 ,PO8, PO12, PSO 2,3 |
| 13. | Industrial oriented | Industrial Visit to "TechnoValley Software India Pvt Ltd.", Kochi-682024. | 4.6.2019 | MS.Veena Rosario | 100 | PO3,PO4, PO5, PSO 2,3 |
| 14. | Industrial oriented | Industrial Visit to "Indosoft Pvt.Ltd" | 3.6.2019 | Mr.Rajesh P K | 100 | Po3, po4, po5, PSO 2,3 |
| 15. | Industrial oriented | Industrial Visit to "Web and Crafts" | 4.6.2019 | Mr.A.Bharath Kumar | 100 | PO1,PO2, PO3,PO8, PO12, PSO 1,2 |
| 16. | Industrial oriented | Industrial Visit to "Intellect Design Arena" | 15.8.2019 | Mr.Ramnath Prabu | 96 | PO5 ,PO8, PO12, PSO 2,3 |
| 17. | Industrial oriented | Industrial visit to C-DAC Taramani, | 29.8.19 & 24.9.19 | Mr.Vinod Senthil | 100 | PO1,PO2, PO3,PO5, PSO 1,2 |
| 18. | Industrial oriented | Industrial visit to "Teaching Learning Centre, Indian Institute of Information | 24.9.19 & 27.9.19 | Mr.P.VimalLakshman | 100 | PO3,PO4, PO5, PSO 2,3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Technology, Design and Manufacturing(II TDM)", | | | | |
| 19. | Industrial oriented | Guest Lecture on IoT Training Experts from Intel Intelligent systems | 13.05.19 to 17.05.19 | Experts from Intel Intelligent systems | 100 | Po3, po4, po5, PSO 2,3 |
| 20. | Industrial oriented | Seminar on Cyber Security and Ethical Hacking. | 04.09.2019 | Mr. Vinod Senthil Director & Chief Technical Officer InfySEC,#37/45,1st Floor, Poonamallee High Road, Chennai -600106. | 96 | PO3,PO4, PO5, PSO1,2 |
| 21. | Applicati on oriented | Workshop on Designing Blockchain & its Applications for Business | 16.09.2019 | Dr.Nithin,Associate Professor, Information Systems,Indian Institute of Management (IIM), Shillong. | 100 | PO5,PO11 ,PO12,PS O1,2 |
| 22. | Industrial oriented | Training on Linux Installation FOSS Club members" | 20.09.2019 | FOSS Club members | 100 | PO5,PO3, PO8,PO12 ,PSO2,3 |
| 23. | Industrial oriented | Value added courses on Internet of Things' | 10.6.198 to 28.6.19 | Expert trainers from coovum advanced institute for science & engineering research | 96 | PO1,PO2, PO3,PO5, PSO 1,2 |
| 24. | Applicati on oriented | Value added courses on "Java Programming" | 10.6.198 to 28.6.19 | Mr.Vinith.S and team, Silicon Software Services. | 96 | Po1,2,3,8, 11,12 |
| 25. | Industrial oriented | Value added courses on "Python with Mysql MongoDB" | 3.6.19 to 13.6.19 | Mr.Shan N and team, Eye open technologies | | PO1,PO2, PO3,PO5, PSO 1,2 |

## 2.2 Teaching - Learning Processes (100)

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

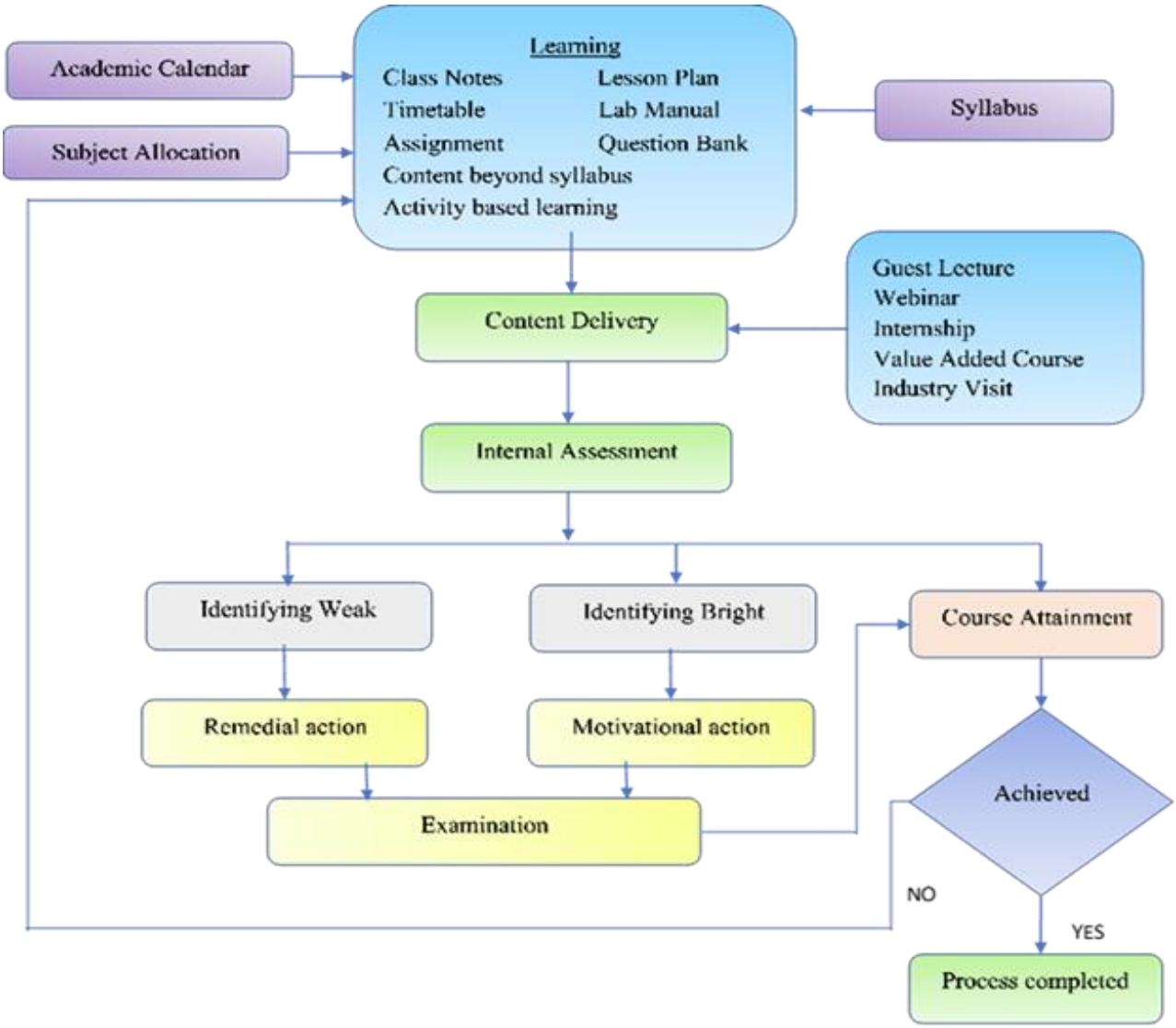



**Fig 2.3 : Process of Teaching and Learning**

### 2.2.1A) Academic Calendar:

Academic calendar of the institution is prepared and it's been followed by all the departments. The schedule is planned according to the teaching / learning methodology and evaluated to the entire academic year semester wise. The academic calendar consists of the plan like commencement of the semester date, Syllabus completion target, Internal Assessment

schedule, Model examination details (Theory and Practical) and Semester examination dates will be finalised later. The Head of the Department along with the ADP committee members will inspect the staff members according to the academic planner.

**S.A.ENGINEERING COLLEGE, CHENNAI – 600 077** ADP F01

**(An Autonomous Institution, Affiliated to Anna University)**

ACADEMIC SCHEDULE FOR II SEM UG (B.E/B.TECH), II SEM MCA & MBA (Revision I)

DATE: 21.04.2022

| S.NO | ACADEMIC PROCESS | SCHEDULED DATE |
|---|---|---|
| 1. | Commencement of Class | 06.04.2022 |
| 2. | Unit I Completion | 20.04.2022 |
| 3. | Unit Test I | 21.04.2022 – 27.04.2022 (UNIT 1) |
| 4. | Unit II Completion | 02.05.2022 |
| 5. | Internal Assessment 1 | 11.05.2022 – 17.05.2022 (UNIT 1 & UNIT 2 ) |
| 6. | Unit III Completion | 19.05.2022 |
| 7. | Unit IV Completion | 01.06.2022 |
| 8. | Internal Assessment 2 | 02.06.2022 – 08.06.2022 (UNIT 3 & UNIT 4 ) |
| 9. | Lab Completion | 11.06.2022 |
| 10. | Model Lab Conduction | 13.06.2022 – 17.06.2022 |
| 11. | Unit V Completion | 18.06.2022 |
| 12. | Revision | 20.06.2022-22.06.2022 (3 DAYS) |
| 13. | Internal Assessment 3 | 23.06.2022 – 29.06.2022 (All 5 Units) |
| 14. | Last Working Day | 04.07.2022 (No Dues Issue, Hall Ticket Issue) |
| 15. | End Semester Practical Exams | 06.07.2022 – 09.07.2022 |
| 16. | End Semester Theory Exams | 18.07.2022 |

AEC COORDINATOR PRINCIPAL

### 2.2.1 B) Use of various instructional methods and pedagogical initiatives

Members of faculty in the department will prepare subject handouts containing list of formulae, question bank comprising previous question papers and teaching with the aid of smart classrooms, LCD projectors i.e. ICT Facilities, live demonstration of the subject contents is shown in the laboratory.

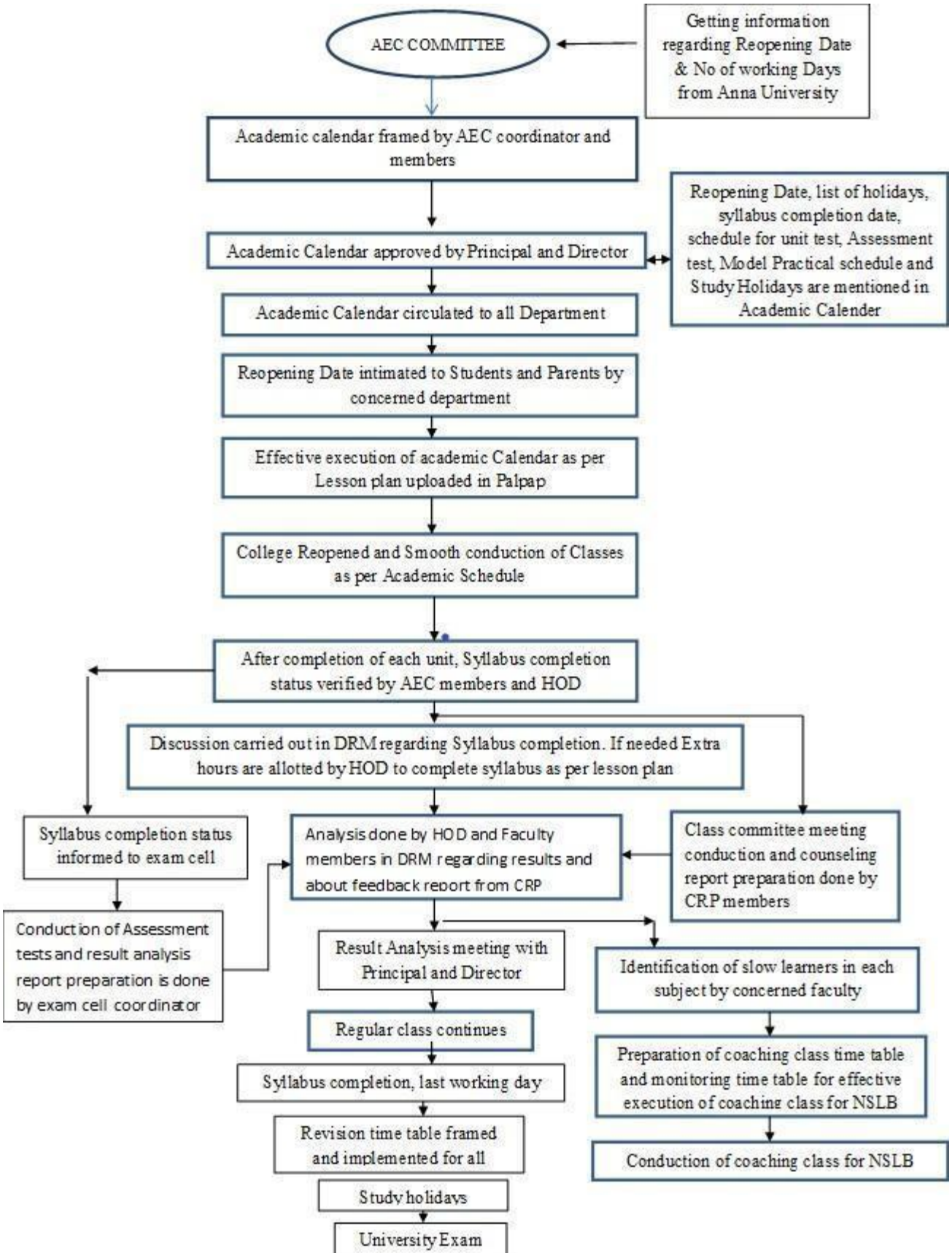



**Fig 2.4: AEC process**

The following diagram lists the common methods for appropriate and efficient methodologies according to the characteristics of the learner.


**Fig 2.5: Additional way of delivering courses**

**Smart Board:** The Smart Board teaching makes the students to grasp the attention and learning environment in an effective manner .

**Webinar**: The Students will attend the webinars related to the particular subject.

**PowerPoint Presentatio**n: Makes to understand the subject oriented topic in an easier manner.

**Survey Based Learning**: At the end of every semester, Course End Survey is sent for each and every subject to check whether the student gained knowledge towards the subject.

**Web Based Learning:** The Students will learn the online content course materials relevant to the subject and enhance their knowledge.

**Virtual Labs:** The Students access a realistic lab experience that will allow them to perform experiments and practice their skills in a risk-free and interactive learning environment.

**Project Based Learning:** Demonstrate knowledge and understanding of management principles and apply their own work, as a member and leader in a team, to manage projects and in various environments.

**NPTEL Courses:** Students attend the NPTEL courses to acquire additional knowledge towards the academics.

**Coursera:** The Online courses improve the student's skills by doing the certification courses and in turn its benefit in career upgradation.

**Tutorial**: Students get the opportunity to discuss the issues, ask questions, reflect critically, clarify misunderstandings, test hypotheses, and evaluate ideas while closely interacting with the teacher and other students.

**Group Discussion:** To make the classroom environment more interactive for students to share their views and perspective based upon their knowledge towards the particular topic.

**Seminar:** The Delivery of a few course content done by students in the classroom.

**Quiz:** The Subject oriented quiz questions are sent to the students to check their knowledge of the particular subject.

i) **Subject Allocation**:

The work allocation is given to the faculty members based upon their choice / preferences a month before the semester begins. Maximum of four choices is given to the faculty members to prefer their subject and then the finalization of subjects is done. The faculty members prepare their respective course materials with Lecture notes, Question bank, Assignment topics and previous year semester question paper for their allocated subject.

For effective Teaching Learning process, the faculty members use various pedagogical methods. As per the Academic calendar, the Time table is framed and the classes are scheduled accordingly and it's been given to the students and as well as the faculty members.

In our college , we maintain ROVAN Software in order to uphold the Lesson Plan , Faculty and Student Attendance, Internal Assessment marks effectively.

ii) **Online classes:**

During Covid lockdown online classes are conducted through Microsoft team software. That made the virtual classroom environment. The Management, Staff and Students have their separate login for accessing the software. Each and every year, a separate virtual classroom Timetable has been created and according to the respective subject hour, the students can attend the classes accordingly.

The benefits of Microsoft Teams for Students and Staffs

- ***Interaction between Staff and Student in a familiar environment.***

Though the interaction is done in virtual manner it makes it easier to create an environment like a real classroom. Students and Staff can interact with each other by unmuting themselves if any query.

- ***Easily Collaborate with students on assignments and homework.***

The assignment questions will be posted and the students in turn submit their assignments accordingly in the respective location. The staff can easily evaluate the students' work and in turn send the evaluated marks to them and the students can check the evaluated marks.

- ***Online exams are conducted.***

Theory, Practical Examination and Project Presentation:

The examinations are conducted through virtual classrooms. Examination Time table is scheduled and is created in virtual classroom accordingly. The students can attend their examination by accessing their respective link. For each and every examination a monitoring staff along with students is allocated. The entire examination is recorded.

The questions were posted in the chat box and also in case of any query it was sent to their college mail id. The staff will provide the instructions and students in turn take up their test by turning on their camera .Once after completing the examination they will be submitting the answer scripts.

For Practical sessions, the Staff and Students will follow the same procedure, Along with the External faculty viva-voice session is done by contacting students in person through voice call feature in teams in a sequential manner.

- **Valuation of Answer scripts**

Once after the students submit their answer scripts, the Staff in person evaluate and return the marks and students can check their marks in the virtual classroom.

## 2.2.1. C) Methodologies to support weak students and encourage bright students

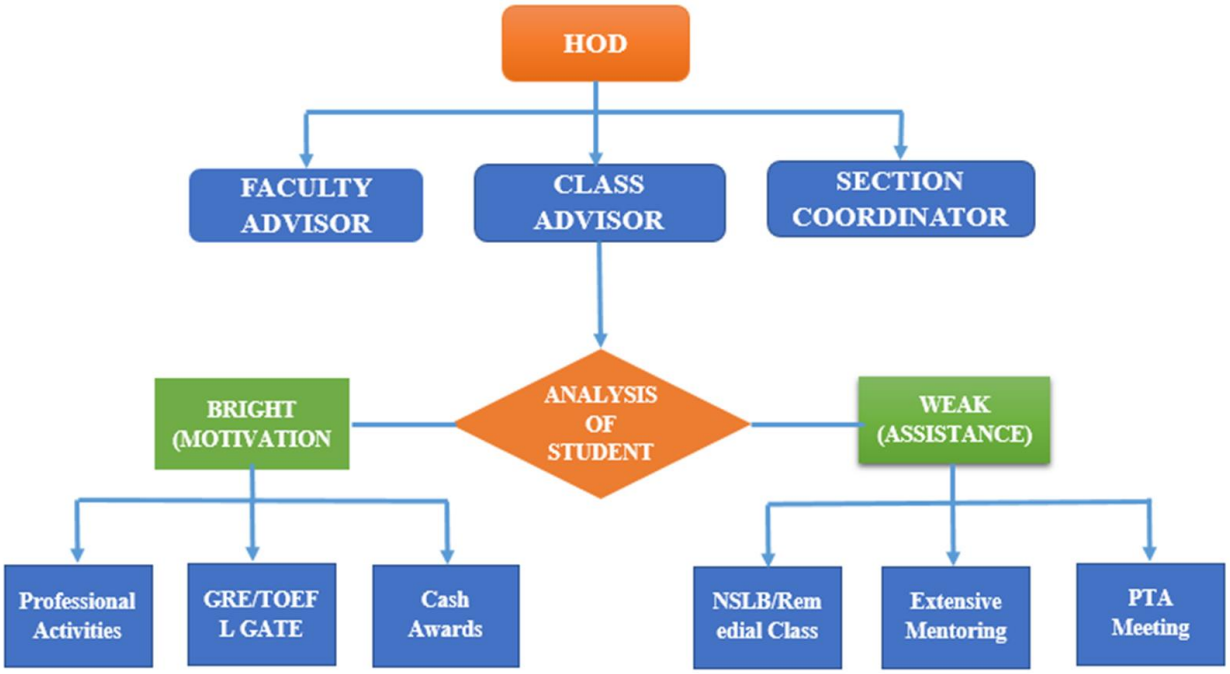



**Fig 2.6 : Analysis of students**

| Student Categorisation | Identification Methods | Remedial Measures |
|---|---|---|
| Weak Students | Identified based upon their marks in the examination | 1. Motivated them to get good marks through counselling by the respective Faculty advisor and recorded in Mentoring Efficacy. |

| | | |
|---|---|---|
| | | 2. Providing assignment to the given subject.<br>3. Special attention is provided by the faculty members to understand their knowledge in the subject.<br>4. Remedial classes and retests are conducted for their improvement. |
| Bright Students | Identified based upon their excellence performance in the examination | 1. Motivated them to attend online courses, Internship and In-plant training courses.<br>2. Providing ideas to present papers in conferences and publish journals.<br>3. Encouraging them to get good CGPA in semester examinations and to achieve university rank.<br>4. Additional library card is provided.<br>5. Incite the students during Annual day by providing awards and cash prizes. |

## 2.2.1. D) Quality of classroom teaching:

The classrooms are maintained through comfortable seating arrangements, good ventilation with proper lighting. The Faculty members go to the classrooms on time; revise the previous class portions first and then ask questions from the previous day portions. Later they continue the new sessions. Each classroom is equipped with a projector facility.

Real time examples

• To demonstrate the complexity and unpredictability of real issues, and to stimulate critical thinking real world examples are discussed. Inter- and multidisciplinary approaches are used for problem solving.

• In order to demonstrate that there is no perfect solution to a particular problem, real world problems are invoked. Real world examples help students think more analytically about the solutions.

The content delivery by the faculty members for their respective subjects is monitored by the higher faculty members along with HoD during their respective hours. During the time of monitoring their content delivery evaluation is made as per the given format. The evaluation criteria include the entire class setting, Quality of the Teacher, The delivery content and the interaction towards the student. After the evaluation the faculty is provided with the required feedback and counselling individually for the further improvement in their delivery content.

The below is the template for classroom observation and evaluation.

## S.A.ENGINEERING COLLEGE, CHENNAI-77

(An Autonomous Institution, Affiliated to Anna University)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### Classroom Observation

| | | | | | |
|---|---|---|---|---|---|
| **Name of the Faculty:** **Dept:** **Designation:** | | | | | |
| **Class:** **Subject/Unit Observed:** | | | | | |
| **Date /Time of Observation:** | | | | | |
| **Name of the Observer:** **Dept:** **Designation:** | | | | | |
| **Academic Year/Sem:** **Batch:** | | | | | |
| **Traits** | **Poor** | **Average** | **Good** | **Very good** | **Superior** |
| **The Setting** | | | | | |
| Physical Setting | | | | | |
| Motivation/Initiation | | | | | |
| Pacing of Lesson Presentation | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Adherence to Lesson Plan | | | | | |
| Effective use of Teaching Aids | | | | | |
| **The Teacher** | | | | | |
| Subject Knowledge | | | | | |
| Language Command | | | | | |
| Voice Audibility /Modulation | | | | | |
| Start/Stop Awareness | | | | | |
| Content Management | | | | | |
| **The Delivery** | | | | | |
| Subject Delivery | | | | | |
| Need Based Approach | | | | | |
| Interactive Learning Method | | | | | |
| Questioning Techniques | | | | | |
| Recap Effectiveness | | | | | |
| **The Student** | | | | | |
| Encourages Participation | | | | | |
| Guided Practice Usage | | | | | |
| Independent Practice Usage | | | | | |
| Reinforcement of Learning | | | | | |
| Assessment Effectiveness | | | | | |
| Total Marks | | | | | |
| **Objective Commentary/Areas Needing Improvement**<br><br>**Date:** **Observer's Signature** | | | | | |

| |
|---|
| **Faculty Reflections/Action Plan**<br><br>**Date:** **Signature** |
| **Views of Reviewing Authority /Follow up Requirements**<br><br>**Date:**<br>**HOD/Principal** |
| **Counselling /Action Taken Report** |
| **Name of the Counsellor/HOD:**<br><br>**Date:** **Signature:** |

**MATRIX: POOR -4/ AVERAGE – 5/GOOD – 6/VERY GOOD – 7/SUPERIOR_8/ EXCELLENT – 9**

## 2.2.1. E). CONDUCT OF EXPERIMENTS (OBSERVATION IN LAB)

- To ensure that all the experiments are executed by the students based upon the given syllabus.
- Each class is divided into teams consisting of a maximum of 3 students.
- Each and every team will do the experiments individually in order to make them analyse and execute the laboratory experiment and to grab the attention from the faculty.
- The students record the experimental values in their observation notebook. After completing the relevant experiment, the students submit the same for evaluation.

**S.A Engineering College, Chennai-77.**

**Department of Computer Science & Engineering**

**Rubrics for Evaluating Programming Skills**

| Trait | Unsatisfactory | Satisfactory | Good | Excellent |
|---|---|---|---|---|
| **Problem Definition** | • Problem definition not defined or defined irrelevant to the experiment. | • Problem definition not correctly defined or not explained properly | • Problem definition defined relevant to the experiment with limited explanations | • Problem definition clearly defined, relevant to the experiment |
| **Procedure** | • Instructions are irrelevant, Not accurate and wrongly written | • Relevant but not accurate, instructions are incorrect or not explained. | • Relevant to the program with limited instructions. | • Procedure is relevant to the experiment, accurate |
| **Program& Execution** | • Program is irrelevant to the experiment, unsatisfied testing, executes with errors | • Program relevant to the experiment but not exact, satisfied testing, partially executes with errors or warnings | Structured program, relevant to the experiment, tested and executes without errors | • Well-structured program, relevant to the experiment, thoroughly tested and executes without errors |

| | | | | |
|---|---|---|---|---|
| **Viva-voce** | • Incorrect explanation given for the viva questions or not answered | • Answers with less explanation. | • Correct explanation given for the viva questions | • Precise and detailed explanation given for the viva questions. |

The Lab monitoring is been continuously observed according to the:

1. Completion of experiments on given dates.
2. Preparation of Lab manuals.
3. Checking the Lab Observations
4. Conducting Viva during each lab.
5. Preparation of Records

### 2.2.1. F). CONTINUOUS ASSESSMENT IN THE LABORATORY

Continuous evaluation of each and every experiment in the lab is monitored and processed by each and every student and as well as the faculty member process the students marks for each experiment.

- **Lab Chart Maintenance**: Continuous valuation of students is monitored each and every lab and recorded in the Lab chart.

- **Model Lab Exam:** Model Lab Examination is conducted for 3 hours after completing all experiments in order to train the students for the semester lab examination.

- **University Examination:** The end semester practical examination is conducted for 3 hours based upon the examination the final analyzation of students is consolidated.

### 2.2.1. G). Student Feedback of Teaching learning process and actions taken

Student feedback is collected in the following basis:

1. Class committee meeting is conducted after the first internal assessment.

2. At the End of Semester, feedback for each subject is collected and evaluated.
3. Course End Survey is collected according to the course outcomes.
4. For the final semester students Program exit survey is collected for program outcomes.

**CLASS COMMITTEE MEETING**

The class committee meeting is organised by the respective Chairperson along with the Head of the Department for each and every class. This meeting is conducted after the beginning of each Assessment. A maximum of three Class Committee meetings are conducted. Based upon the Class Committee meeting and feedback collected from the students, Action taken measures is implemented and followed accordingly. The below is the template for classroom meetings, Follow up Action for Student Feedback and Mentoring Efficacy.

**CLASS COMMITTEE MEETING (Intimation)**

**From _____: Date**:
**Sub :**
**Venue : Time: Dept:**
**Academic Year: Sem:**

| S.No. | Name | Designation | Signature | Members present |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**AGENDA:**

| |
|---|
| **Feedback on faculty** |
| **Syllabus coverage** |
| **Students attendance** |
| **General/ Complaints/ Grievances** |

| Previous Review | | | | | |
|---|---|---|---|---|---|
| **Sl NO** | **Agenda/Discussion Points** | **Action Plan** | **Action Responsibility** | **Target Date** | **Review Status** |
| | | | | | |

| Minutes of Today's Meeting | | | | |
|---|---|---|---|---|
| **Sl NO** | **Agenda/Discussion Points** | **Action Plan** | **Action Responsibility** | **Target Date** |
| | | ------ | ------ | ----- |
| | | ----- | ---- | ----- |
| | | ------ | ------ | ----- |
| | | ----- | ---- | ----- |
| | | ----- | ---- | ----- |
| | | ----- | ---- | ----- |
| | | | | |
| | | ----- | ---- | ----- |
| | | ----- | ---- | ----- |

**CLASS COMMITTEE CHAIRPERSON**

## MINUTES OF THE MEETING

**General: During some lab sessions, the air conditioner is not switched on.**

**HoD**

**Follow up Action for Student Feedback:**

## S.A. Engineering College, Chennai-77
## Department of Computer Science and Engineering
### Follow up Action for Student Feedback

**Academic year :** **Semester:**
**YEAR/SEM:** **Date:**
**Name of the Faculty:**

| S.NO | Criteria in which Percentage reduced | Percentage Received | Action Taken |
|---|---|---|---|
| | | | |
| | | | |

**FOLLOW UP ACTION**

**EVIDENCE :**

**FACULTY INCHARGE** **HoD**

**PARENT FEEDBACK:**

**CRP F12**

**S.A. Engineering College, Chennai-77**
**Department Of Computer Science and Engineering**
**Parent Feedback Form Consolidation**
**Academic year 2021-2022(OD**

| Feedback Traits/Questions | Excellent | Superior | Very Good | Good | Average |
|---|---|---|---|---|---|
| Admission Procedure | | | | | |
| Fees Collection Experience | | | | | |
| Infrastructure and Lab Facility | | | | | |
| Canteen Facility | | | | | |
| Library | | | | | |
| Hostel | | | | | |
| Transportation | | | | | |
| Other Facilities provided by the college | | | | | |
| Sports and Cultural Activities | | | | | |
| Use of Information and Communication Technology in college | | | | | |
| Academic Discipline | | | | | |
| Improvement in soft skills, knowledge, ethics, morality observed by you in your ward | | | | | |
| Examination System adopted by the college | | | | | |
| Evaluation and Feedback mechanism | | | | | |
| Placements | | | | | |

| |
|---|
| Suggestions That Can be Improved by us |
| 1. |
| Positives identified |
| 1. |
| Comments By HoD<br><br>HOD |

**MENTORING EFFICACY:**

**S.A. ENGINEERING COLLEGE, CHENNAI-77.**

**(An Autonomous Institution, Affiliated to Anna University)**
**DEPARTMENT OF CSE**
**Mentoring Efficacy**

**Academic Year/Sem:** **Class:**

**Name of the Mentor:** **Date:**

| **S.No** | **Name of the Student with Register Number** | **Counselling I** (Purpose of Counselling) | **Counselling II** (Purpose of Counselling along with Follow-up of Counselling I) | **Counselling III** (Purpose of Counselling Along with Follow-up of Counselling II) | **Overall Improvement through Counselling** |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Counselling Criteria for Enhancing Student's Performance

1. Punctuality/Classroom Attentiveness
2. Attendance
3. University Exam Arrears
4. Internal Assessment Test Arrears
5. Dress Code, Cleanliness & Obedience
6. Motivation towards Higher Studies/Entrepreneur/Placement
7. Motivation towards Co-curricular activities
8. Motivation towards University Rank
9. Motivation towards Sports Activities

**Signature of the Mentor**

### 2.2.1. H). ACTIVITY BASED LEARNING

Activity-based learning is an approach where the learner plays an active role in his or her learning through participation, experimentation and exploration of different learning activities. It involves learning-by-doing, learning-by-questioning and learning-by-solving problems where the learners consolidate their acquired knowledge by applying their skills learnt in a relevant learning situation. These activities can be in the form of Survey /Assignment /Case Studies/Quiz /Model /Project /Lab /Poster /Web design/Role Play /Tutorial/Crossword puzzles/Debate /Skit /Scrapbook /Newspaper clippings/Smartphone activity. Concept map is a compulsory activity introduced in this semester.


**Fig 2.7: Activity based learning**

## 2.2.2 QUALITY OF INTERNAL SEMESTER QUESTION PAPERS, ASSIGNMENTS AND EVALUATION (20)

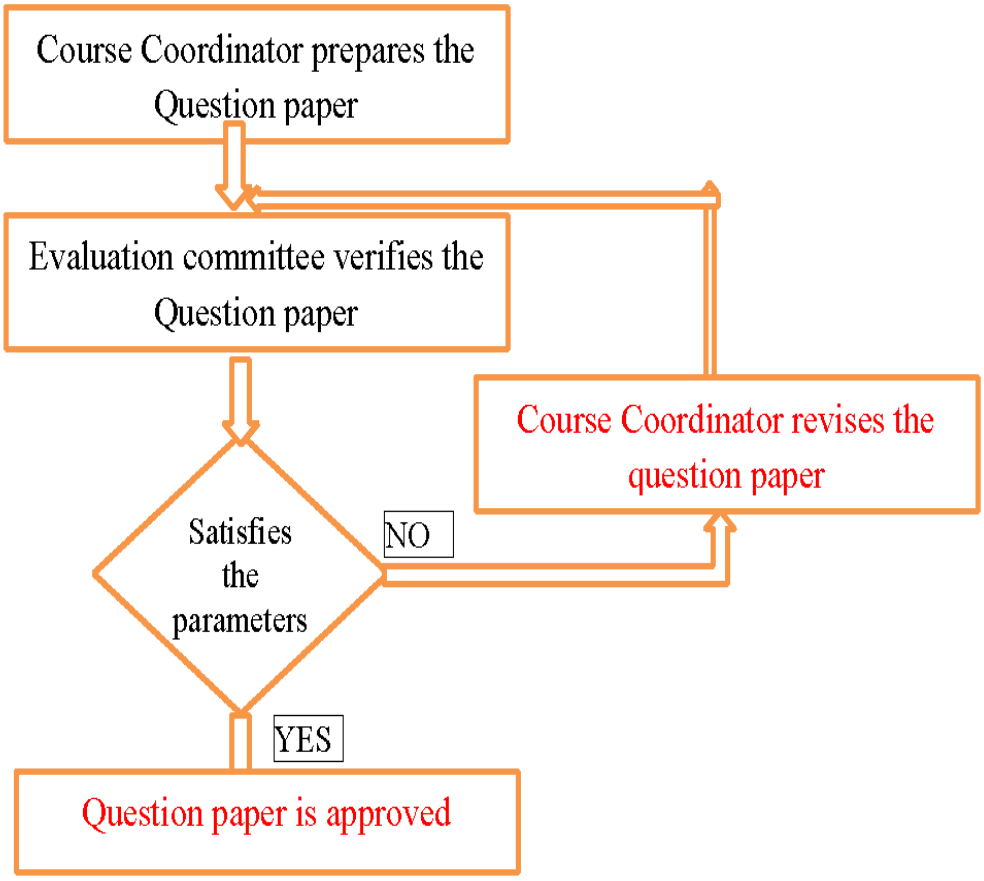
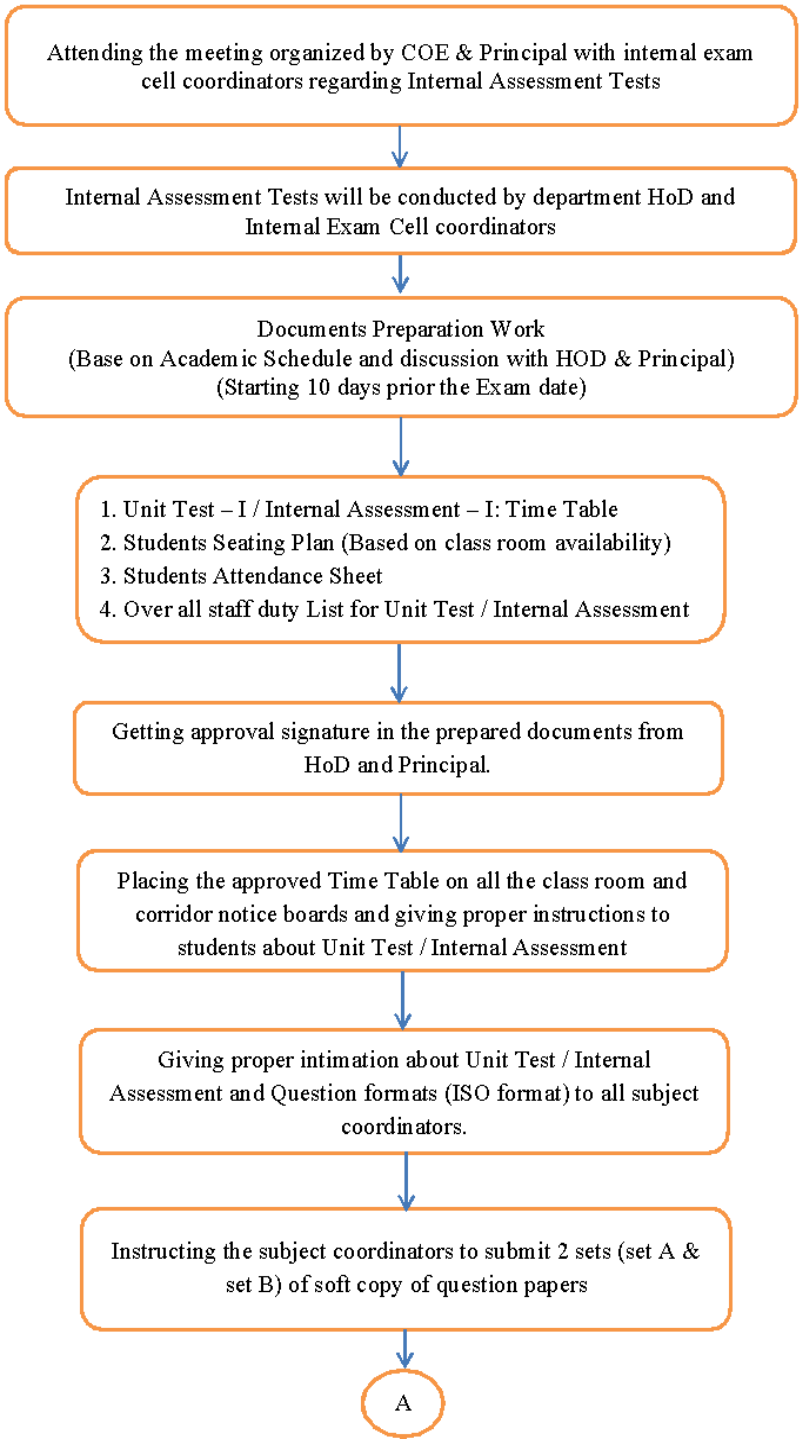
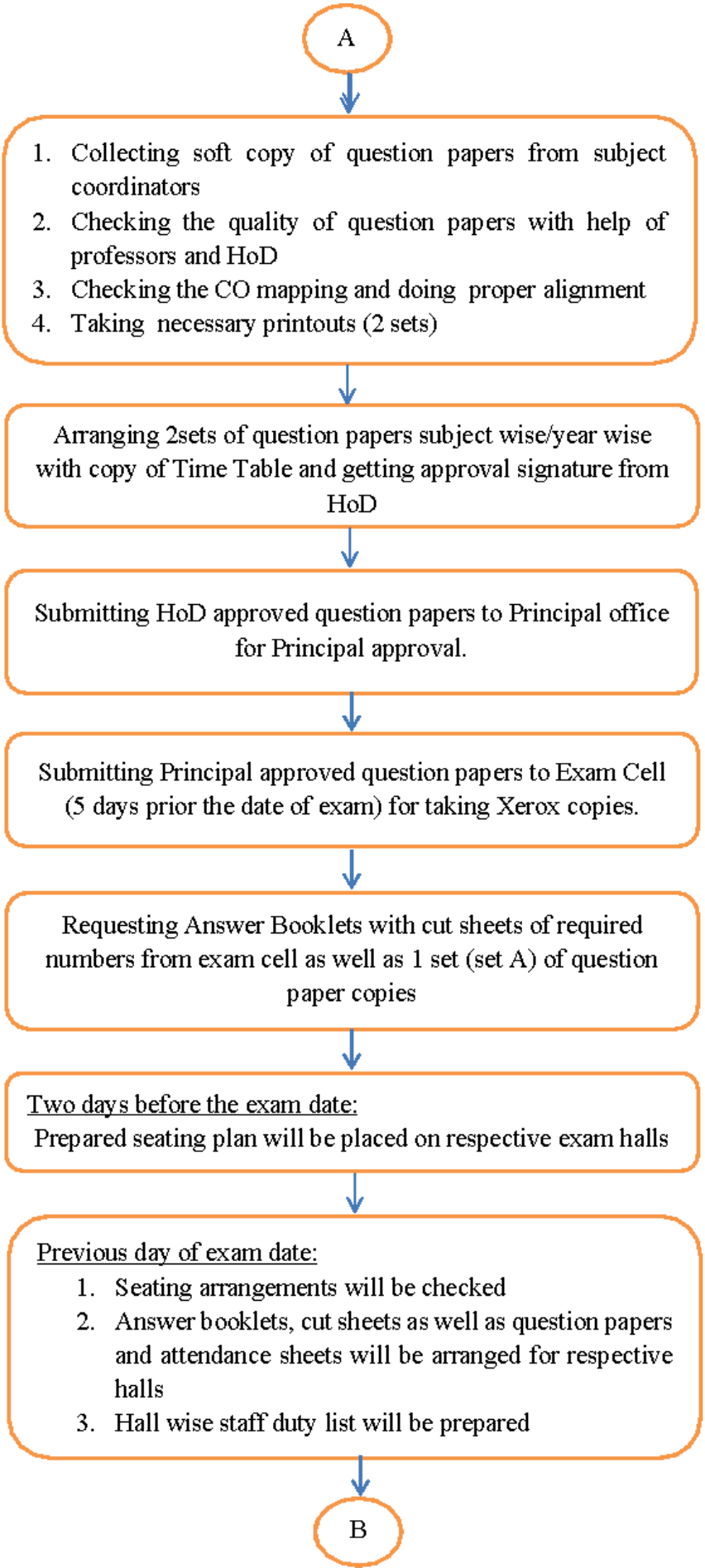
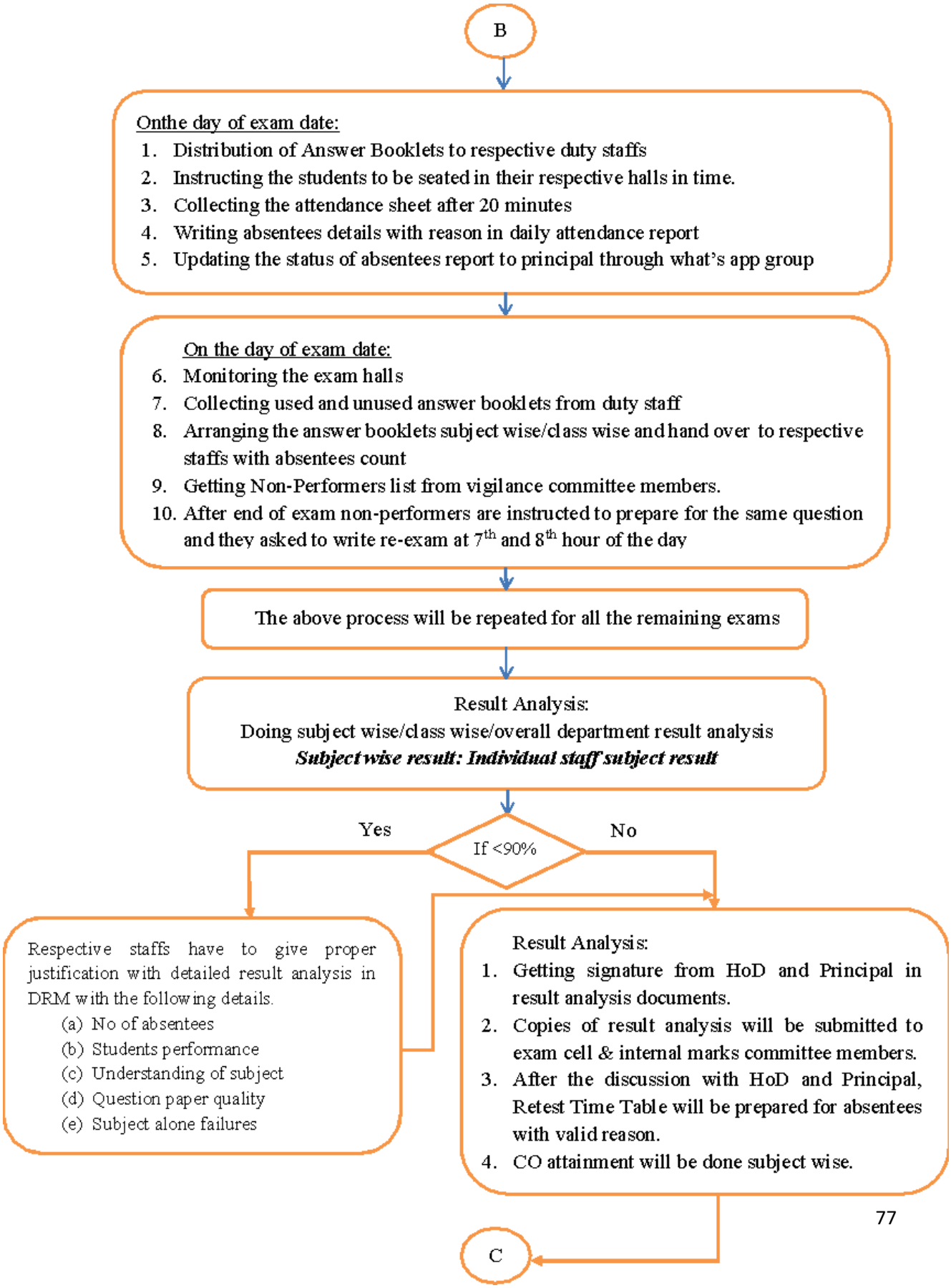



**Fig:2.8 Evaluation of question paper**

## 2.2.2 A. PROCESS FOR INTERNAL SEMESTER QUESTION PAPER SETTING AND EVALUATION AND EFFECTIVE PROCESS IMPLEMENTATION




A
1. Collecting soft copy of question papers from subject coordinators
2. Checking the quality of question papers with help of professors and HoD
3. Checking the CO mapping and doing proper alignment
4. Taking necessary printouts (2 sets)
Arranging 2sets of question papers subject wise/year wise with copy of Time Table and getting approval signature from HoD
Submitting HoD approved question papers to Principal office for Principal approval.
Submitting Principal approved question papers to Exam Cell (5 days prior the date of exam) for taking Xerox copies.
Requesting Answer Booklets with cut sheets of required numbers from exam cell as well as 1 set (set A) of question paper copies
Two days before the exam date:
Prepared seating plan will be placed on respective exam halls
Previous day of exam date:
1. Seating arrangements will be checked
2. Answer booklets, cut sheets as well as question papers and attendance sheets will be arranged for respective halls
3. Hall wise staff duty list will be prepared
B


B
Onthe day of exam date:
1. Distribution of Answer Booklets to respective duty staffs
2. Instructing the students to be seated in their respective halls in time.
3. Collecting the attendance sheet after 20 minutes
4. Writing absentees details with reason in daily attendance report
5. Updating the status of absentees report to principal through what's app group
On the day of exam date:
6. Monitoring the exam halls
7. Collecting used and unused answer booklets from duty staff
8. Arranging the answer booklets subject wise/class wise and hand over to respective staffs with absentees count
9. Getting Non-Performers list from vigilance committee members.
10. After end of exam non-performers are instructed to prepare for the same question and they asked to write re-exam at 7th and 8th hour of the day
The above process will be repeated for all the remaining exams
Result Analysis:
Doing subject wise/class wise/overall department result analysis
Subject wise result: Individual staff subject result
If <90%
Yes
No
Respective staffs have to give proper justification with detailed result analysis in DRM with the following details.
(a) No of absentees
(b) Students performance
(c) Understanding of subject
(d) Question paper quality
(e) Subject alone failures
Result Analysis:
1. Getting signature from HoD and Principal in result analysis documents.
2. Copies of result analysis will be submitted to exam cell & internal marks committee members.
3. After the discussion with HoD and Principal, Retest Time Table will be prepared for absentees with valid reason.
4. CO attainment will be done subject wise.
C

C

ISO Documents:

After result analysis the following ISO documents will be prepared and filed properly

- MM F02 - Summary of Test/Examination Score Sheet
- MM F 05A- Result Analysis (Internal assessment)
- MM F05B - Class wise toppers
- MM F06 - Hostel students result analysis (boys / girls)

Retest:

Retest will be conducted for absentees with valid reason as per schedule with set B questions

Retest Result analysis:

Retest Result analysis will be done with comparison of previous test performance

Retest result analysis will be discussed with HoD in DRM.

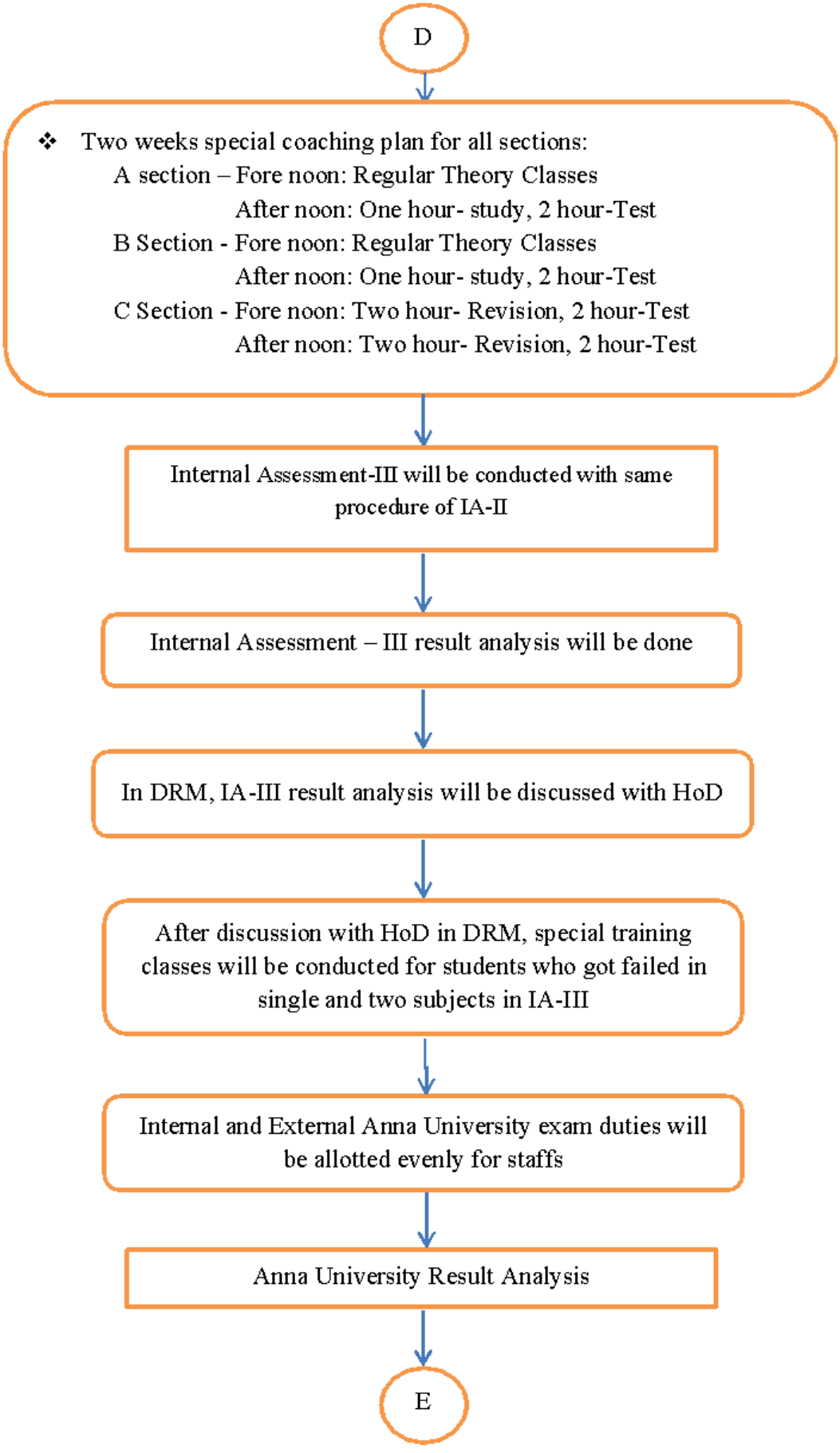
After the discussion with HoD in DRM, based on retest result analysis report, those who got <60% in each subject will be listed out for special coaching classes (NSLB)

Unit Test-II/Internal Assessment-II will be conducted with same procedure

At the end of IA-II, the following things will be finalized after discussion with HoD and staffs in DRM, for improving result in IA-III and AU exams

- $2^{nd}$& $3^{rd}$ year students will be segregated in three categories (based on AU & Internal Assessments results) as follows for special coaching:
  - A section - All clear students
  - B Section - Students having <= 4 arrears
  - C Section - Students having >= 5 arrears

D


D
❖ Two weeks special coaching plan for all sections:
A section – Fore noon: Regular Theory Classes
After noon: One hour- study, 2 hour-Test
B Section - Fore noon: Regular Theory Classes
After noon: One hour- study, 2 hour-Test
C Section - Fore noon: Two hour- Revision, 2 hour-Test
After noon: Two hour- Revision, 2 hour-Test
Internal Assessment-III will be conducted with same procedure of IA-II
Internal Assessment – III result analysis will be done
In DRM, IA-III result analysis will be discussed with HoD
After discussion with HoD in DRM, special training classes will be conducted for students who got failed in single and two subjects in IA-III
Internal and External Anna University exam duties will be allotted evenly for staffs
Anna University Result Analysis
E

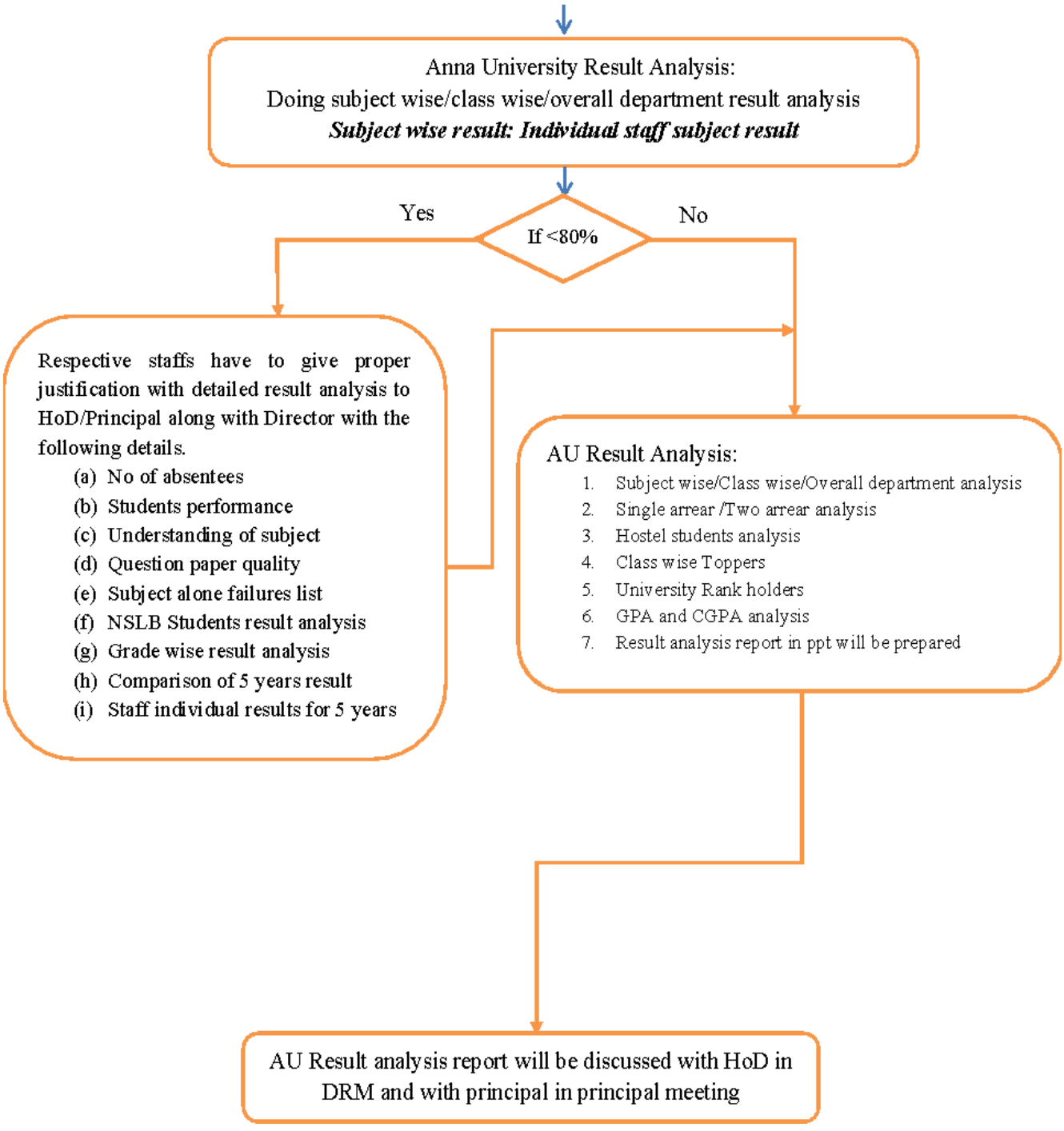



**Fig 2.9 : Process of question paper setting and evaluation**

**CRITERIA FOR EVALUATING THE QUALITY OF A QUESTION PAPER**

The Examination Review Committee for the Department of Computer Science and Engineering is constituted. The responsibilities of Examination Review Committee members are as follows:

1. Define the process of question paper setting.
2. Obtain the question papers from course coordinators.
3. Review the question papers.
4. Ensure whether the questions are relevant to COs.
5. Define the process of exam conduction and ensure smooth conduction of exams.
6. Define the process of exam valuation.

Unit test and internal assessment tests (IAT 1, IAT 2 and IAT 3) are conducted for theory courses.

- Questions are asked based on the Course Outcomes.
- Unit tests and three Internal Examinations are conducted per Semester.
- Internal Assessment Question Paper is based on the Course outcomes and Course

Weightage of individual Course and the pattern of the QP is as follows

**Question paper evaluation form:**

## S.A.ENGINEERING COLLEGE, CHENNAI-77

**(An Autonomous Institution, Affiliated to Anna University)**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**QUESTION PAPER EVALUATION FORM**

**ACADEMIC YEAR: 2021-2022 (ODD/EVEN)**

| **Year:** | **Subject Code:** |
|---|---|
| **Sem:** | **Subject Name:** |

**INTERNAL ASSESSMENT- _____(SET-1 / 2)**

| **Adherence to Blue Print** | **On par with Question papers** | **Question Rated Properly** |
|---|---|---|
| | | |

**Grade to be given: 1/2/3 Grade 1: Low Grade 2: Medium Grade 3: High**

| **Question No** | **K I** | **K II** | **K III** | **K IV** | **K V** | **K VI** |
|---|---|---|---|---|---|---|
| **PART A** | | | | | | |
| 1. | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |
| **PART B** | | | | | | |
| 6. **(a)** | | | | | | |
| **(b)** | | | | | | |
| 7. **(a)** | | | | | | |
| **(b)** | | | | | | |
| **PART C** | | | | | | |
| 8. **(a)** | | | | | | |
| **(b)** | | | | | | |
| **% of Mapping** | | | | | | |

**Based on Bloom's Taxonomy**

**K I: REMEMBERING**

Exhibit memory of previously learned material by recalling facts, terms, basic concepts and answers.

**K II: UNDERSTANDING**

Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions and stating main ideas.

**K III: APPLYING**

Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.

**K IV: ANALYZING**

Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.

**KV: EVALUATING**

Present and defend opinions by making judgment about information, validity of ideas, or quality of work based on a set of criteria.

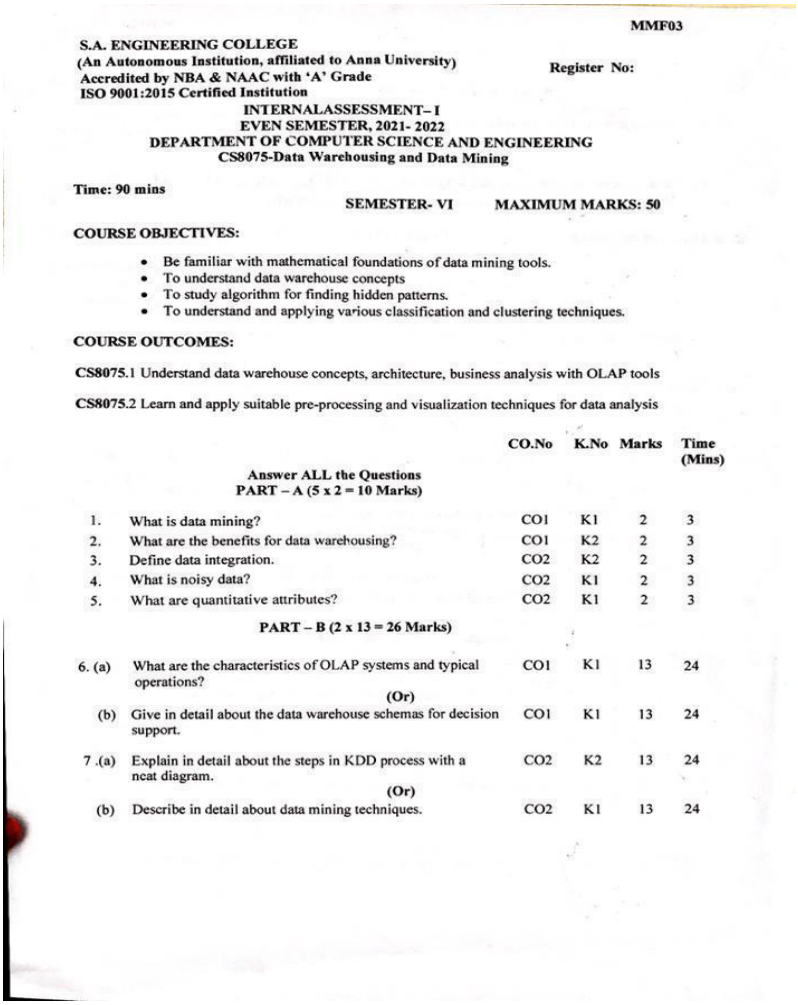
**KVI: CREATING**

Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.

**Remarks**

**FACULTY INCHARGE** **EVALUATOR SIGN WITH NAME** **HOD**

## Question paper:



MMF03

**S.A. ENGINEERING COLLEGE**
**(An Autonomous Institution, affiliated to Anna University)**
**Accredited by NBA & NAAC with 'A' Grade**
**ISO 9001:2015 Certified Institution**

**Register No:**

**INTERNALASSESSMENT– I**
**EVEN SEMESTER, 2021- 2022**
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**
**CS8075-Data Warehousing and Data Mining**

**Time: 90 mins** **SEMESTER- VI** **MAXIMUM MARKS: 50**

**COURSE OBJECTIVES:**

- Be familiar with mathematical foundations of data mining tools.
- To understand data warehouse concepts
- To study algorithm for finding hidden patterns.
- To understand and applying various classification and clustering techniques.

**COURSE OUTCOMES:**

**CS8075.1** Understand data warehouse concepts, architecture, business analysis with OLAP tools

**CS8075.2** Learn and apply suitable pre-processing and visualization techniques for data analysis

| | | CO.No | K.No | Marks | Time (Mins) |
|---|---|---|---|---|---|
| | **Answer ALL the Questions** **PART – A (5 x 2 = 10 Marks)** | | | | |
| 1. | What is data mining? | CO1 | K1 | 2 | 3 |
| 2. | What are the benefits for data warehousing? | CO1 | K2 | 2 | 3 |
| 3. | Define data integration. | CO2 | K2 | 2 | 3 |
| 4. | What is noisy data? | CO2 | K1 | 2 | 3 |
| 5. | What are quantitative attributes? | CO2 | K1 | 2 | 3 |
| | **PART – B (2 x 13 = 26 Marks)** | | | | |
| 6. (a) | What are the characteristics of OLAP systems and typical operations? | CO1 | K1 | 13 | 24 |
| | **(Or)** | | | | |
| (b) | Give in detail about the data warehouse schemas for decision support. | CO1 | K1 | 13 | 24 |
| 7 .(a) | Explain in detail about the steps in KDD process with a neat diagram. | CO2 | K2 | 13 | 24 |
| | **(Or)** | | | | |
| (b) | Describe in detail about data mining techniques. | CO2 | K1 | 13 | 24 |

**Rubrics for Internal Assessment:**

| Trait | Unsatisfactory | Satisfactory | Good | Excellent |
|---|---|---|---|---|
| **Terminology** | • Terminologies not defined or defined irrelevant to the question but not explained or explained incorrectly. | • Few Terminologies are correctly defined with incorrect explanations or not explained. | • All Terminologies defined relevant to the question with limited explanations. | • All Terminologies defined, relevant to the question and well explained. |
| **Diagram** | • Irrelevant, Not accurate and wrongly labeled with incorrect explanations or not explained. | • Relevant but not accurate, explanations are incorrect or not explained. | • Relevant diagrams are included with limited explanations. | • Relevant, accurate and correctly labeled diagrams with full explanations. |
| **Explanation** | • Shows no understanding of the topic and no argument developed relevant to the question. | • Shows a superficial understanding of the topic, argument not developed enough to the question. | • Shows a limited understanding of the topic, not quite a fully developed argument. | • Shows a deep/robust understanding of the topic with a fully developed argument. |
| **Problem Solving** | • Unable to solve the problem with incorrect explanation or no explanation. | • Unable to solve all parts of the problem with less explanation. | • Able to solve using only one strategy with explanation. | • Able to solve with full understanding of the problem using multiple strategies with detailed and thorough explanation. |
| **Neat Presentation** | • The work appears sloppy and unorganized. It is hard to know what information goes together. | • The work is presented in a organized fashion that is not easy to read | • The work is presented in a neat, organized fashion that is easy to read | • The work is presented in a neat, clear, organized fashion that is easy to read |

### 2.2.3. Quality of student projects (20)

**Procedure for Allocation of Student Project**

Project work by students improves their technical knowledge, innovative ideas, self-learning ability, practical knowledge, problem solving ability and team working skill.

Students Project is assessed by Project Guide; they check the progress of the Project, their presentation and also suggest ideas to implement the project in a knowledge-oriented way. Finally, the overall monitoring will be reviewed by the Project coordinators.

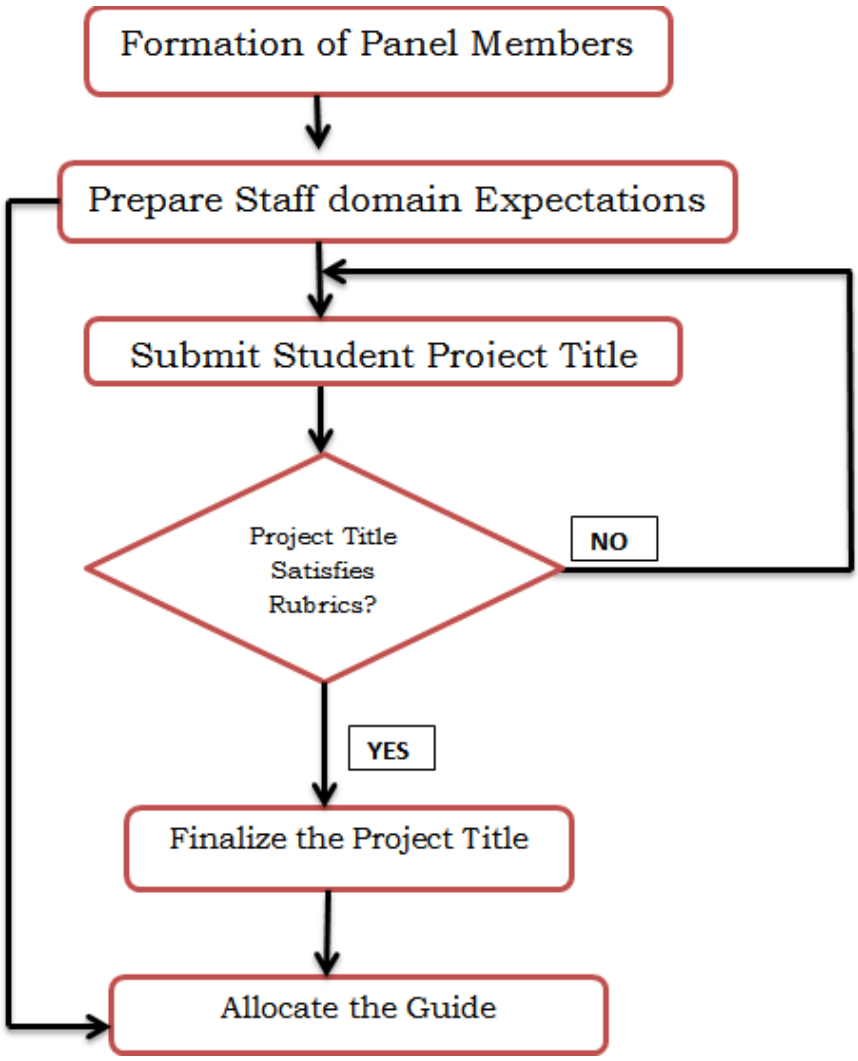



**Fig 2.10 : Process for Allocation of Student Project**

## Project Review Assessment Criteria (PRAC)

| Criteria | Description |
|---|---|
| C1 | Understanding background and topic |
| C2 | Identifying the requirements of the proposed work |
| C3 | Updating the existing knowledge for extension of recent works |
| C4 | Formulating the problem with domain knowledge |
| C5 | Ability to frame the design for proposed output |
| C6 | Ability to develop the software for proposed work |
| C7 | Attending reviews regularly and showing the progress |
| C8 | Capacity to work effectively in tandem with team members |
| C9 | Capability to communicate and present effectively in reviews |
| C10 | Preparation of quality Reports |
| C11 | Summaries, algorithms and highlights the project features |
| C12 | Question and Answer |
| C13 | Implementation |

## Project Review Assessment Criteria (PRAC) Rubrics

| REVIEW | MARKS |
|---|---|
| FIRST | 20 |
| SECOND | 30 |
| THIRD | 50 |

## FIRST REVIEW (20 Marks)

| Criteria | Description | Marks |
|---|---|---|
| C1 | Understanding background and topic | 2 |
| C2 | Identifying the requirements of the proposed work | 2 |

| | | |
|---|---|---|
| **C4** | Formulating the problem with domain knowledge | **2** |
| **C7** | Attending reviews regularly and showing the progress | **2** |
| **C8** | Capacity to work effectively in tandem with team members | **2** |
| **C9** | Capability to communicate and present effectively in reviews | **2** |
| **C11** | Summaries, algorithms and highlights the project features | **4** |
| **C12** | Question and Answer | **4** |
| | **Total Marks** | **20** |

## SECOND REVIEW (30 Marks)

| Criteria | Description | Marks |
|---|---|---|
| **C3** | Updating the existing knowledge for extension of recent works | **3** |
| **C5** | Ability to frame the design for proposed output | **3** |
| **C7** | Attending reviews regularly and showing the progress in the satisfactory level | **2** |
| **C8** | Capacity to work effectively in tandem with teams members | **2** |
| **C9** | Capability to communicate and present effectively in Reviews | **2** |
| **C11** | Summaries, algorithms and highlights the project features | **4** |
| **C12** | Question and Answer | **4** |
| **C13** | Implementation | **10** |
| | **Total Marks** | **30** |

## THIRD REVIEW (50 Marks)

| Criteria | Description | Marks |
|---|---|---|
| C5 | Ability to frame the design for proposed output | 2 |
| C6 | Ability to develop the software for proposed work | 4 |
| C7 | Attending reviews regularly and showing the progress in the satisfactory level | 2 |
| C8 | Capacity to work effectively in tandem with teams members | 2 |
| C9 | Capability to communicate and present effectively in Reviews | 2 |
| C10 | Preparation of quality Reports | 10 |
| C11 | Summaries, algorithms and highlights the project features | 4 |
| C12 | Question and Answer | 4 |
| C13 | Implementation | 20 |
| | **Total Marks** | 50 |

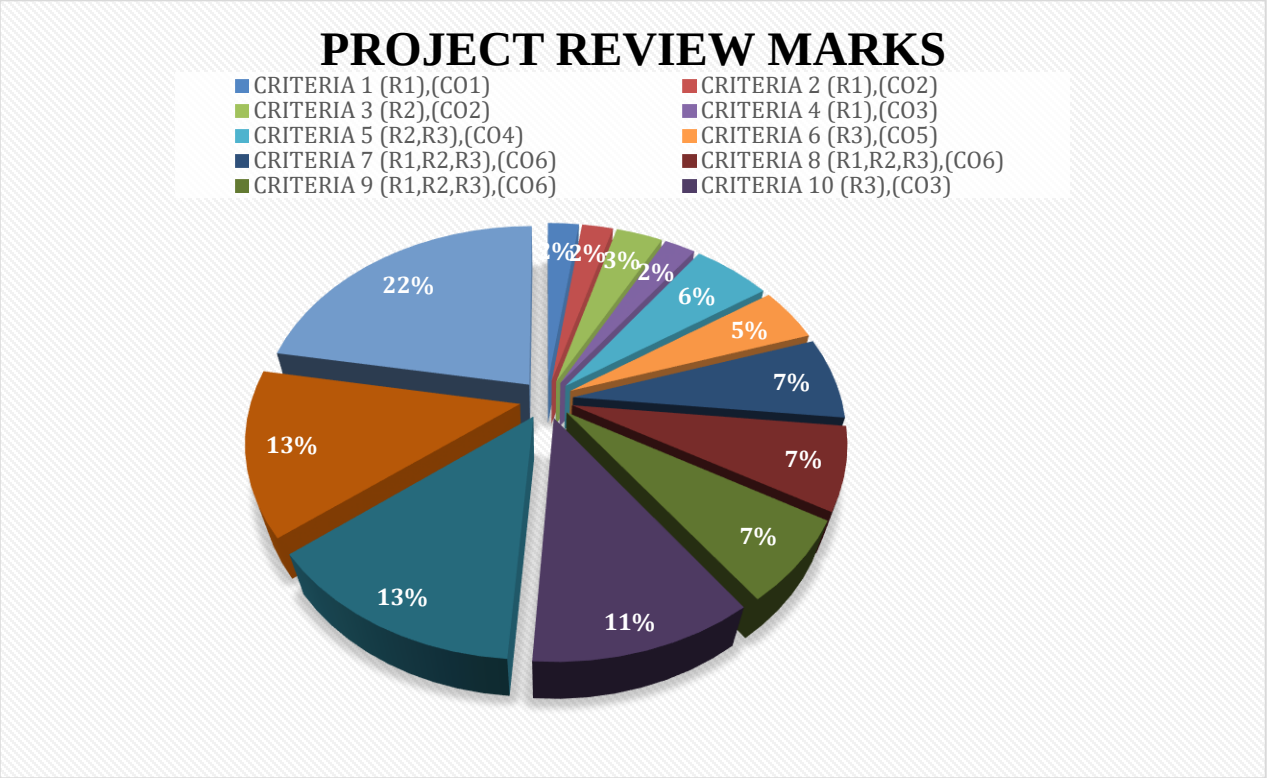
## COURSE OUTCOMES

| CO's | Description | Criteria |
|---|---|---|
| CO1 | Formulate a real-world challenging problem ethically. | C1 |
| CO2 | Develop the requirements of the project and analyse extensively the literature survey. | C2,C3 |
| CO3 | Express technical ideas, strategies and methodologies in written and oral presentations. | C4,C10 |
| CO4 | Develop sustainable solutions by formulating proper methodology and implementing them. | C5,C13 |

| | | |
|---|---|---|
| **CO5** | Self-learn new tools, algorithms, and/or techniques that contribute to the software solution of the project | **C6,C11** |
| **CO6** | Work as a responsible member and possibly a leader of a team in developing software solutions. | **C7,C8,C9,C12** |

## CO PO MAPPING

| COs | PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CS8811.1 | 2 | 3 | 2 | 3 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 1 | 1 |
| CS8811.2 | 2 | 3 | 3 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 |
| CS8811.3 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 |
| CS8811.4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 1 |
| CS8811.5 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 1 | 2 |
| CS8811.6 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |



**PROJECT REVIEW TEMPLATE**

**The template is used to evaluate the project presentation given by the students based upon the necessary conditions.**

| **Evaluation form:** | **S.A.Engineering College, Chennai-77**<br>**(An Autonomous Institution, Affiliated to Anna University)**<br>**Dept of Computer Science and Engineering**<br>**Project Evaluation Form**<br>**First Review** |
|---|---|

**Academic Year: 2021-2022/Even Semester** **Date:**

| **Project Team** | | | |
|---|---|---|---|
| **S.No** | **Register No** | **Candidate Name** | **Guided By** |
| 1 | | | |
| 2 | | | |
| 3 | | | |

**Project Title:**

| **Team Members Contribution and Performance** **Members** | | **Team** | | |
|---|---|---|---|---|
| ***Subject Matter*** | **Marks** | **1** | **2** | **3** |
| Understanding background and topic. (C1) | 2 | | | |
| Identifying the requirements of the proposed work. (C2) | 2 | | | |
| Formulating the problem with domain knowledge. (C3) | 2 | | | |
| Attending reviews regularly and showing the progress in the satisfactory level. (C7) | 2 | | | |
| Capacity to work effectively in tandem with team members. (C8) | 2 | | | |
| Capacity to communicate and present effectively in Reviews.(C9) | 2 | | | |
| Summaries, algorithms and highlights the project features. (C11) | 4 | | | |
| Question and Answer. (C12) | 4 | | | |
| **Total** | 20 | | | |

| Expectations for Next Reviews | | Comments |
|---|---|---|
| **Review Two** | | |
| **Review Three** | | |

**Reviewer** **Coordinator 1** **Coordinator 2** **Guide**

**Schedule of completion of thesis document**

A complete schedule has been framed in order to evaluate the entire thesis of the student project.

**Project review panel members:**

# S.A.ENGINEERING COLLEGE, CHENNAI – 77

(An Autonomous Institution, Affiliated to Anna University)

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**PROJECT REVIEW PANEL MEMBERS**

**ACADEMIC YEAR 2021-2022**

Date:

| S.NO | NAME OF THE FACULTY | DESIGNATION | DEPARTMENT |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |

**Identification of Projects and allocation methodology to Faculty Members**

• The project committee members consist of Project coordinators along with the Head of the Department.

• The various domains/ areas of specialization in the field of Computer science and Engineering have been circulated to each faculty.

• Domain specialization for each faculty is summarised.

• From each batch of students undergoing projects with the proposed title and methodology the Project Proposal Evaluation Report is gathered.

• Guide allocation is done based on domain specialization

**Evaluation scheme for Projects**

| | |
|---|---|
| **First Review** | Title<br>Abstract<br>Introduction<br>Literature Survey<br>Architectural Design for Proposed System<br>ER Diagram, DFD, Use case diagram ( if necessary)<br>Algorithms / Techniques used<br>References |
| **Second Review** | Title<br>Abstract<br>Detailed Design (if any deviation)<br>Contribution of the candidate<br>Results obtained (intermediate)<br>References<br>50% of code Implementation |
| **Third Review** | Tile<br>Abstract<br>Overall Design<br>Experimental Results<br>Performance Evaluation<br>References<br>Contribution of the Project<br>100% of code implementation Demo |

**Details of best project**

**Best Project Evaluation scheme:**

| Sl.No. | Performance Indicator | Marks |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**DETAILS OF BEST PROJECT BY STUDENTS**

**DATE: 31.05.2021 ACADEMIC YEAR:2020-2021**

**YEAR/SEC:IV/A**

| SL. / BATCH NO | TITLE OF THE PROJECT | NAME OF THE STUDENT AND REGISTER NUMBER | NAME OF THE GUIDE | INDUSTRY/INHOUSE | JUSTIFICATION |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Experiential Project Based Learning**

Experiential Project Based Learning is achieved by Nalaya Thiran. Students did projects under the following domain.

- AI/ML
- CYBER SECURITY
- CLOUD COMPUTING
- BLOCK CHAIN
- BUSINESS ANALYTICS
- DATA SCIENCE AND BIG DATA ANALYTICS

## 2.2.4 Initiatives related to industry interaction (15)

*(Give details of the industry involvement in the program such as industry-attached laboratories, partial delivery of appropriate courses by industry experts etc. Mention the initiatives, implementation details and impact analysis)*

**1. Industry supported laboratories (5)**

| S.No | Name of Industry Supported Lab (Type of Industries) | Type of Labs | Objectives | Utilization and Effectiveness |
|---|---|---|---|---|
| 1. | CISCO Networking Lab | Cisco Lab Or Lab7 | Understanding Routing Protocol with Practical's configuration of CISCO Router. | For conducting CCNA course and conduct additional experiments in networking lab regular Networks Lab |
| 2. | Database and management system | ORACLE | Students analyses case studies to identify patterns and connections between information not obviously related and develop solutions to make a business effective. The programme teaches inductive reasoning to solve problems and think conceptually, systematically, and critically. Students become proficient business analysts, technical experts in structured query language (SQL), and develop essential "professional skills" including teamwork, project management, presentation and interviewing techniques. | Students gets on Hands on Practice for ORACLE DBA. Students get opportunity to enter very high priority and key area on the job position |
| 3. | Cloud Computing | VMWare, Azure | Upon completion of this course, students will be aware of the basics of | Cloud computing is powerful and expansive and will continue to grow in the future and provide |

| | | | | |
|---|---|---|---|---|
| | | | virtualization and the data centre. The learner will be able to set up and manage a virtual machine. Provides the basic concepts related to virtualization, the software-defined data center, and cloud computing. Introduces what is a virtual machine and the benefits of before virtualization and after virtualization. Overview of the key concepts related to the data centre, the virtual data centre, types of cloud computing and Virtualization solutions | many benefits. The top skills in demand for cloud professionals. Students getting more opportunities in their careers. |
| 4 | System Administration | Linux, Windows | Technical skills are a must-have for every system admin who wants to be successful. The administrator has an active role in patching, compiling, securing, and troubleshooting servers in a heterogeneous environment. The professional performs system updates and server configurations. They are responsible for implementing changes in multiple environments from development to production. Focusing on Linux/Windows commands, hardware, software, backup and restore, file systems, maintenance, and user administration | Students should embrace professional growth and development as an on-going personal effort and seek out opportunities for learning new things. Remember the three essential skills to work on technical, communication, and critical thinking. A job applicant that brings these skills to the table definitely has a better chance of landing their dream job. |

| | | | | |
|---|---|---|---|---|
| 5 | Intel Intelligent Systems Lab | IoT | This course is designed to enable us to create amazing IOT products and solutions from scratch all the way. Work with Micro controllers (Arduino Uno, Nano, NodeMCU), Sensors , Relays, Displays, Keypads, work with main (220/110) and more. Learn to code using Arduino IDE from basics. Learn how to use Ethernet and Wifi shields, and how to connect to cloud IOT Platforms, Persist Data, Program Triggers and more. | IoT has proved to be one of the best tools for the healthcare industry. It helps provide advanced healthcare facilities. Our IoT Training will assist learners in deriving data-driven insights from IoT data to improve skills. |
| 6 | MathWorks | Artificial Intelligence Lab | Mathlab is matrix-based language allowing the most natural expression of computational mathematics Students learn matrix manipulations; plotting of functions and data; implementation of algorithms; creation of user interfaces; interfacing with programs written in other languages, including C, C++, Java, and FORTRAN; analyze data; develop algorithms; and create models and applications | The demand for Matlab skills is actually much higher than many people are led to believe. Auto Code generation, signal processing and controls engineering is where MATLAB has a very strong groove. |

**Global Certification Courses table (22-23 odd*)**

| S.NO | FACILITY NAME | DETAILS | NAME OF THE CLUB | Benefits | Number of Students enrolled |
|---|---|---|---|---|---|
| 1. | Exam 98-381 Microsoft Python Certification | Python Software | Coding Club | It helps students to develop projects in Artificial Intelligence. | 30 |
| 2. | Exam 98-349 OS Fundamentals | Windows 10 VMware workstation | Open Source Club | It helps students to develop software like games etc. | 16 |
| 3. | AZ-900 Microsoft AZURE Fundamentals | Windows 10 Microsoft Azure-login | Cloud Clinic Club | It gives flexible career options, higher earning potential. | 30 |
| 4. | EX200- Red hat Certified System Administrator | Windows 10 VMware workstation CentOS7 | Open Source Club | It helps to get a high package salary. | 37 |
| 5. | IZ0-082 Oracle DBA | Windows 10 VMware CentOS7 | Database Club | It helps to work in the back end and server side. It helps in developing projects. | 22 |
| 6. | Exam AZ-220 IOT | IoT Components | IOT Club | It helps to develop many | 62 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | application software. | |
| 7. | CCNAv7-CISCO certified Network Associate | Windows 10 Cisco Packet tracer | Networking Club | It helps to get a job in the networking side. | 33 |
| 8. | IZ0-808 Oracle Java Certification | JDK JRE | Coding Club | It helps to develop softwares and websites. | 37 |
| 9. | Data Science | MAT LAB Campus license | Data Science Club | It helps students to develop projects and to do internships. | 33 |

### 2.2.5. Initiatives related to industry internship/ summer training

**LIST OF MOUs SIGNED:**

To strengthen interaction with industries and to keep our students updated with the latest trends in Computer Science & Engineering, the Department has entered into an agreement with the following companies.

| S.NO | NAME OF THE ORGANIZATION /COMPANY/ INSTITUTE | DATE OF MOU SIGNED |
|---|---|---|
| 1 | FIREFORT TECHNOLOGY SOLUTIONS | 09-09-2022 |
| 2 | SILICON SOFTWARE SERVICES | 18-08-2022 |
| 3 | VEI TECHNOLOGIES PVT. LTD. | 12-08-2022 |
| 4 | TRINITY SKILLWORKS PRIVATE LIMITED | 19-07-2022 |

| | | |
|---|---|---|
| 5 | CELECOM SOLUTIONS GLOBAL PVT LTD | 25-04-2022 |
| 6 | INFOSYS LIMITED | 16-12-2021 |
| 7 | ELECTRO SOLAR SOLUTIONS | 2-6-2021 |
| 8 | GOX.AI | 30-12-2020 |
| 9 | IMMARTICUS LEARNING PVT LTD | 22-12-2020 |
| 10 | ORBIT CONTROLS AND SERVICES | 7-8-2019 |
| 11 | ORBIT EDUTECH PRIVATE LIMITED | 7-8-2019 |
| 12 | INTEL TECHNOLOGY INDIA PRIVATE LIMITED | 07-02-2019 |

**Industrial Visit:**

- Identification and requesting permission to visit industry.
- Receiving permission grant letter from the industry.
- Conduction and Planning of Industrial Visit.
- After the Completion of Visit the reports of Assessment to be submitted

**Other Industrial Training:**

- Receiving permission letter from industry through student.
- Allotting OD to the student.
- Receiving the Certificate.
- Reports of Assessment to be submitted after the Completion of Training.

**VAC:**

- The Department of Computer Science and Engineering is organizing the value added courses to all the students in every semester.
- The main objective of this course is to equip the students in current technologies and also to reduce the gap between academic and industry.

**S.A Engineering College,Chennai-77.**
**(An Autonomous Institution Affiliated to Anna University)**

**Vac Details for the year 2022-2023 odd**

| Year | Topic |
|---|---|
| II year | Kotlin Programming Language (oops concept) |
| III year | Full Stack Development (client side / front End 1) |
| IV year | Full stack Development |

**Vac Details for the year 2021-2022 odd**

| Year | Topic |
|---|---|
| II Year | Nil |
| III Year | Full Stack Java Programming |
| IV Year | Nil |

**Vac Details for the year 2021 – 2022 even**

| Year | Topic |
|---|---|
| II Year | Python with Mongo DB |
| III Year | Nil |
| IV Year | Nil |

**Vac Details for the year 2020-2021 odd**

| Year | Topic |
|---|---|
| II year | Artificial Intelligence |
| III year | Artificial Intelligence |
| IV year | -- |

**Vac Details for the year 2020-2021 even**

| Year | Topic |
|---|---|
| II year | Ardunio Robotics and Design |

| | |
|---|---|
| **III year** | **Raspherry Pi System and IOT** |
| **IV year** | **--** |

**Vac Details for the year 2019-2020 odd**

| **Year** | **Topic** |
|---|---|
| **II year** | **Python with MYSQL** |
| **III year** | **Java Programming** |
| **IV year** | **Python Concepts** |

**Vac Details for the year 2019-2020 Even**

| **Year** | **Topic** |
|---|---|
| **II Year** | **PHP Web Development** |
| **III Year** | **J2EE & MEAN STACK TRAINING** |
| **IV Year** | **Nil** |

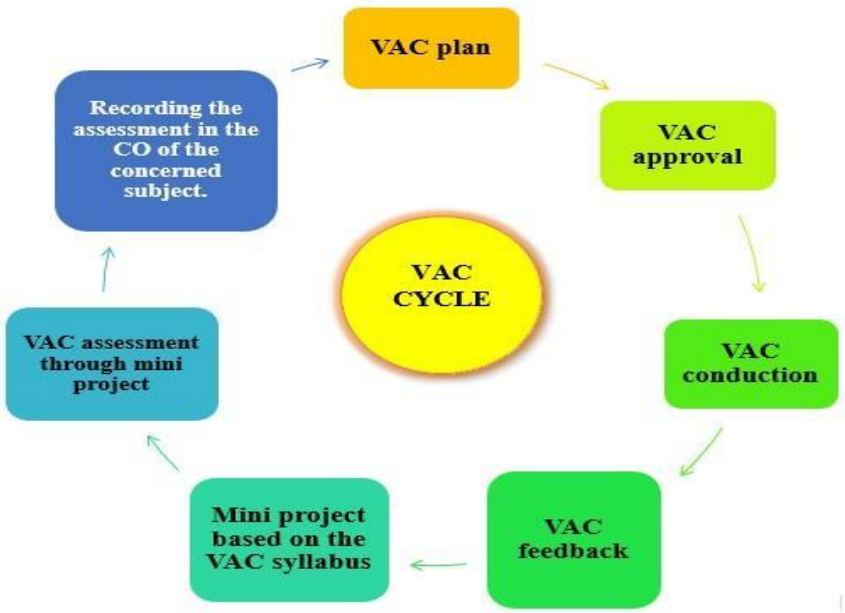



**Fig:2.11 VAC cycle**

Once a VAC training is over, students are encouraged to develop a mini project. After a month, a trainer will come and review the mini project and assign marks.

**REPORT OF INTERNSHIP / INPLANT TRAINING ATTENDED**

| | IMPLANT TRAINING | INTERNSHIP |
|---|---|---|
| **2021-2022** | **126** | **190** |
| **2020-2021** | **12** | **186** |
| **2019-2020** | **62** | **192** |

**LIST OF COMPANIES:**

- **EYE OPEN TECHNOLOGIES**
- **HCL CAREER DEVELOPMENT CENTER**
- **DLK CAREER DEVELOPMENT**
- **SILICON SOFTWARE SERVICES**
- **XPLORE LABS**
- **BAROLA TECHNOLOGIES**

**S.A. ENGINEERING COLLEGE**
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**
**STUDENT INPLANT/INTERNSHIP TRAINING DETAILS**
**ACADEMIC YEAR: 2021-2022**

| ACADEMIC YEAR | INPLANT TRAINING | | | TOTAL | INTERNSHIP | | | TOTAL | NO. OF COMPANIES | |
|---|---|---|---|---|---|---|---|---|---|---|
| | II | III | IV | | II | III | IV | | IPT | INTERNSHIP |
| 2021-2022 | 54 | 72 | - | 126 | 77 | 113 | - | 190 | 2 | 4 |

**LIST OF COMPANIES PROVIDED INPLANT TRAINING AND INTERNSHIP**

| S.NO | NAME OF THE COMPANIES | NO. OF STUDENTS | |
|---|---|---|---|
| | | IPT | INTERNSHIP |
| 1. | EYE OPEN TECHNOLOGIES | 72 | - |
| 2. | HCL CAREER DEVELOPMENT CENTER | 54 | - |
| 3. | DLK CAREER DEVELOPMENT | - | 48 |
| 4. | SILICON SOFTWARE SERVICES | - | 99 |
| 5. | XPLORE LABS | - | 15 |
| 6. | BAROLA TECHNOLOGIES | - | 28 |

**NO. OF COMPANIES PROVIDED INTERNSHIP AND INPLANT TRAINING: -**
**NUMBER OF STUDENTS ATTENDED INPLANT TRAINING : 26**
**NUMBER OF STUDENTS ATTENDED INTERNSHIP :190**

**S.A. ENGINEERING COLLEGE**
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**
**STUDENT INPLANT/INTERNSHIP TRAINING DETAILS**
**ACADEMIC YEAR: 2020-2021**

| ACADEMIC YEAR | INPLANT TRAINING | | | TOTAL | INTERNSHIP | | | TOTAL | NO. OF COMPANIES | |
|---|---|---|---|---|---|---|---|---|---|---|
| | II | III | IV | | II | III | IV | | IPT | INTERNSHIP |
| 2020-2021 | - | 12 | - | 12 | 57 | 129 | | 186 | 1 | 4 |

**LIST OF COMPANIES PROVIDED INPLANT TRAINING AND INTERNSHIP**

| S.NO | NAME OF THE COMPANIES | NO. OF STUDENTS | |
|---|---|---|---|
| | | IPT | INTERNSHIP |
| 1. | EYE OPEN TECHNOLOGIES | 12 | - |
| 2. | DLK CAREER DEVELOPMENT | - | 67 |
| 3. | SILICON SOFTWARE SERVICES | - | 33 |
| 4. | XPLORE LABS | - | 48 |
| 5. | BAROLA TECHNOLOGIES | - | 38 |

**NO. OF COMPANIES PROVIDED INTERNSHIP AND INPLANT TRAINING:-**

**NUMBER OF STUDENTS ATTENDED INPLANT TRAINING: 12**

**NUMBER OF STUDENTS ATTENDED INTERNSHIP : 186**

**S.A. ENGINEERING COLLEGE**
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**
**STUDENT INPLANT/INTERNSHIP TRAINING DETAILS**
**ACADEMIC YEAR: 2019-2020**

| ACADEMIC YEAR | INPLANT TRAINING | | | TOTAL | INTERNSHIP | | | TOTAL | NO. OF COMPANIES | |
|---|---|---|---|---|---|---|---|---|---|---|
| | II | III | IV | | II | III | IV | | IPT | INTERNSHIP |
| 2019-2020 | 36 | 26 | - | 62 | 121 | 71 | - | 192 | 5 | 8 |

**LIST OF COMPANIES PROVIDED INPLANT TRAINING AND INTERNSHIP**

| S.NO | NAME OF THE COMPANIES | NO. OF STUDENTS | |
|---|---|---|---|
| | | IPT | INTERNSHIP |
| 1. | EYE OPEN TECHNOLOGIES | 3 | - |
| 2. | AIKYA TECHNO SOLUTIONS | - | 1 |
| 3. | SATECHNO SOLUTIONS | - | 1 |
| 4. | SERVION | - | 1 |
| 5. | U.N.I.Q TECHNOLOGIES | - | 2 |
| 6. | BINARY SWAN | 15 | - |
| 7. | CODE BIND TECHNOLOIES | 6 | - |
| 8. | KRIATEC SERVICES | 2 | - |
| 9. | PROVEN DIGITAL WEB SOLITIONS | - | 11 |
| 10. | HCL CAREER DEVELOPMENT CENTER | 12 | |
| 11. | DLK CAREER DEVELOPMENT | - | 49 |
| 12. | XPLORE LABS | - | 32 |
| 13. | BAROLA TECHNOLOGIES | - | 48 |

**NO. OF COMPANIES PROVIDED INTERNSHIP AND INPLANT TRAINING:-**
**NUMBER OF STUDENTS ATTENDED INPLANT TRAINING: 62**
**NUMBER OF STUDENTS ATTENDED INTERNSHIP: 192**