

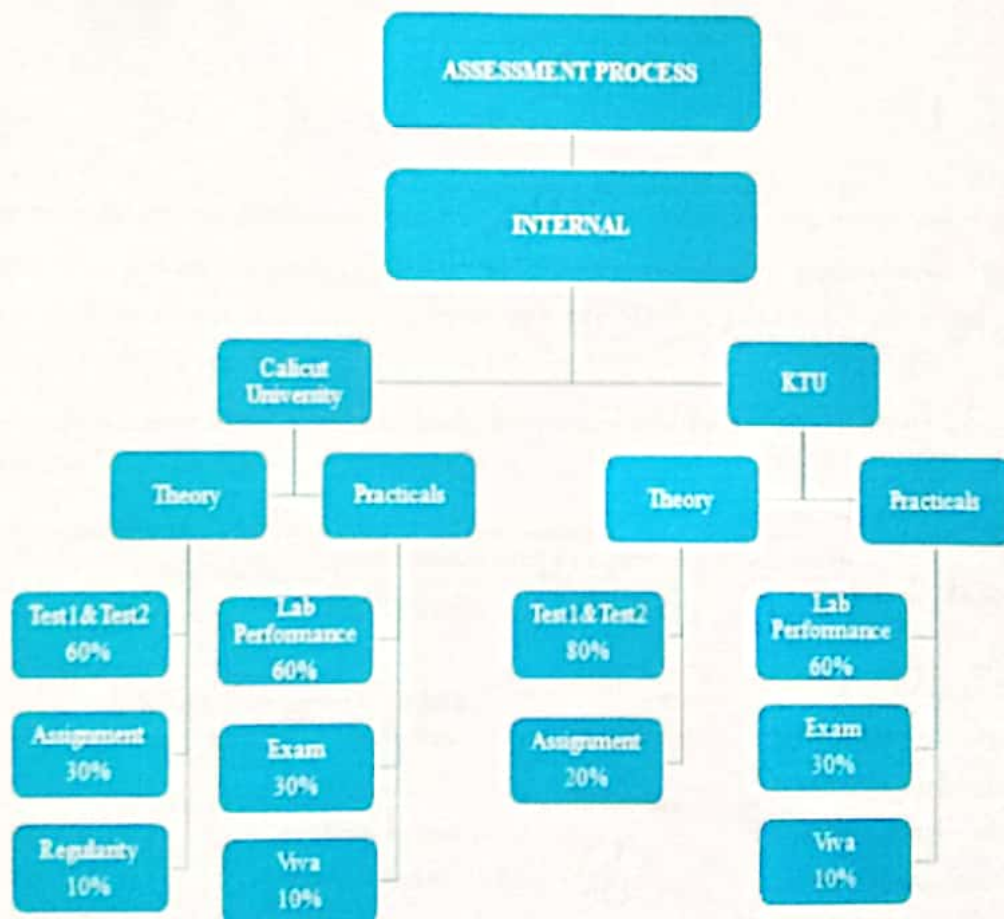
IES COLLEGE OF ENGINEERING, CHITILAPPILLY

Attainment of Course outcomes

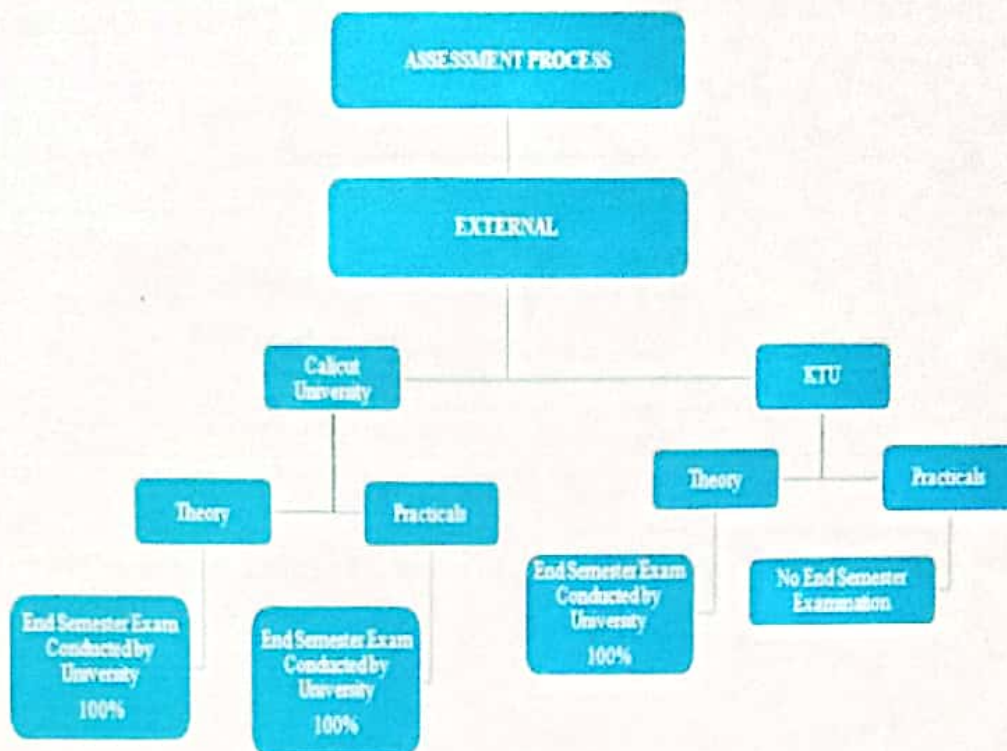
The attainment of course outcomes is calculated for the Students admitted in the year 2015 and 2019 regulation of APJ Abdul Kalam Technological University, Thiruvananthapuram (APJAKTU). There are two components in the assessment processes. 1. Internal assessment process and 2. External assessment process.

Internal assessment processes:

Sessional Tests, assignments, laboratory internal examination test are included in internal assessment processes



External assessment processes:



The external examination question paper is set by the University for theory courses. Since KTU has no external examination for practical courses, the grade obtained by the student in the course is taken as the direct measure of related CO's. Semester end practical examinations are conducted by the department.

Course Outcome assessment methods, frequency and tool used for direct and indirect methods

| Sl. No | Assessment Method | Assessment Frequency | | Assessment Tools |
|--------|-------------------------------|--|-----------------------------------|---|
| | | APJKTU | CALICUT 2014 | |
| 1 | Internal Assessment | Twice in a semester | Twice in a semester | Student's performance in internal assessments |
| 2 | Internal Practical Assessment | Continuous evaluation and internal exam of 30 marks at the end of the Semester | Continuous evaluation of 50 marks | Student's performance in conducting experiments and record submission |
| 3 | External theory Assessment | At the end of the semester | At the end of the semester | Student's performance in University exams |

| | | | | |
|---|--------------------------------|--|--|--|
| 4 | External practical Examination | No external examination | External Exam of 100 marks at the end of the semester | Student's performance in conducting experiments during examination |
| 5 | Seminar | During 7th semester | During 8th semester | Rubrics |
| 6 | Project | Preliminary in 7th semester and final review in 8th semester with external evaluator | Preliminary in 7th semester and final review in 8th semester | Rubrics |

Record the attainment of Course Outcome of all courses with respect to set attainment levels

Direct attainment:

Each course is evaluated based on direct and indirect assessment tools. Direct assessment tools include internal exams, assignments and university examination.

i. Measuring Course Outcomes attained through University Examinations

The evaluation of the answer scripts of the University examinations is done by external evaluators. Since the University does not provide the statistics on the performance of students in each individual course, the individual faculty can decide the threshold value based on the difficulty of the subject. The criterion for determining the CO attainment level is fixed by individual faculty under the supervision of subject experts.

ii. Measuring CO attainment through Internal Assessments

The faculty has the freedom to set a question paper of his/her choice of the standard pattern. The quality of the question paper is verified by the scrutiny committee consisting of the subject experts. Since the assignments can be of varied structure, the faculty has the freedom to assess the student performance in suitable ways. Question papers for internal series tests and questions for assignments are prepared in such a way that each question gets mapped with any of the course outcomes of the particular course.

The head of the department and the senior faculties ensures the mapping of COs with POs and PSOs. The criterion for determining the CO attainment level is fixed by individual faculty under the supervision of subject experts. The CO weightage of each sessional exam and assignments has been generated separately and has to calculate the average of each CO weightage from the sessional exams and assignments, based on that average value CO

attainment is calculated. To calculate the attainment of COs 70% weightage has been given to end semester examination and 30% weightage is given to internal assessment process.

The formation of the three attainment levels is described as follows.

- *Attainment Level 3: 70% of students scoring more than 50% of marks or more in the final examination.*
- *Attainment Level 2: 60% - 69% of students scoring more than 50% of marks or more in the final examination.*
- *Attainment Level 1: 50%- 59% of students scoring more than 50% of marks or more in the final examination.*

iii. CO attainment calculation of a course

Table B.3.2.2 shows the sample CO attainment of course C210. Internal test I addresses the COs - CO1, CO2, whereas internal test II addresses CO3, CO4. Assignment I is given to measure the attainment of CO5 and assignment II for CO6. The University exam covers the entire syllabus of a course and hence it is useful to measure the attainment of all COs related to a course. The total attainment is the sum of 30% of internal attainment and 70% of university attainment. In this same manner CO attainment of all courses in a program are evaluated and recorded using related assessment tools.

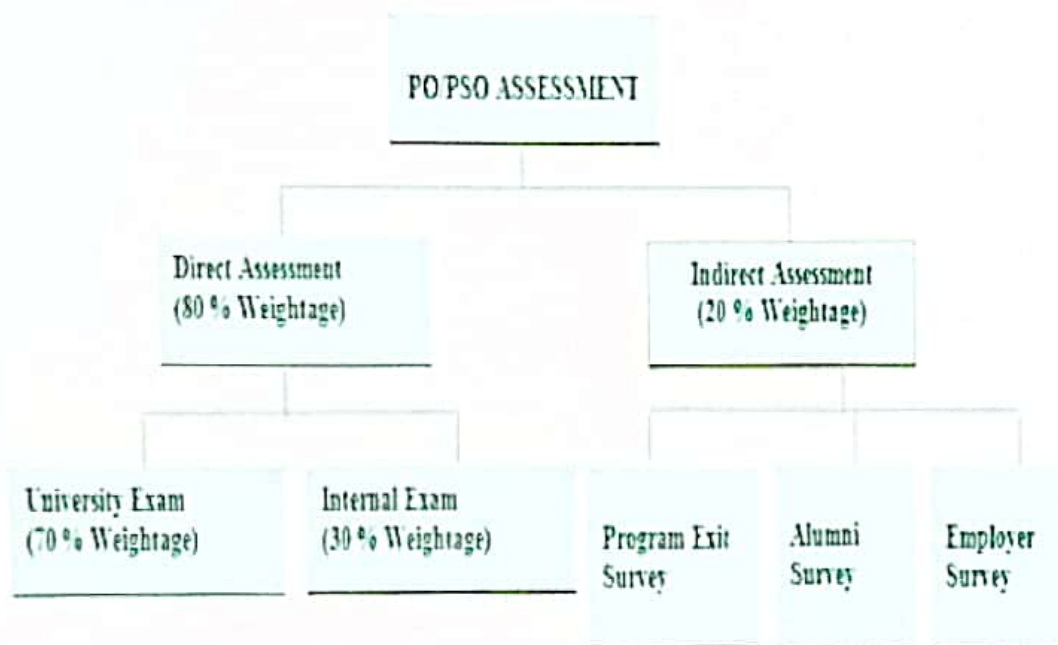
| ASSESSMENT TOOL | CO 1 | CO 2 | CO 3 | CO 4 | CO 5 | CO 6 | MEASUREMENT TOOL | CO 1 | CO 2 | CO 3 | CO 4 | CO 5 | CO 6 |
|-----------------|-------|-------|-------|-------|--------|------|------------------|-------|-------|-------|-------|--------|--------|
| TEST I | 37.88 | 55.68 | | | 0.00 | 0.00 | CIE | 37.88 | 55.68 | 31.82 | 48.86 | 100.00 | 100.00 |
| TEST II | | | 31.82 | 48.86 | | | UNIVERSITY | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 |
| ASS. I | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | | 30% of CIE | 11.36 | 16.70 | 9.55 | 14.66 | 30.00 | 30.00 |
| ASS. II | | | | | | | 100% of UNIV. | 49.00 | 49.00 | 49.00 | 49.00 | 49.00 | 49.00 |
| | | | | | | | CO Attained | 60.36 | 65.70 | 58.55 | 63.66 | 79.00 | 79.00 |
| | | | | | | | CO Score | 2.00 | 2.00 | 1.00 | 2.00 | 3.00 | 3.00 |

Total Attainment = 30% internal attainment + 70% university attainment

Attainment of Program Outcomes and Program Specific Outcomes

Describe the assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes.

PO and PSO assessment rubrics:



The method adopted for the assessment relies on using a combination of direct and indirect assessment processes.

These processes are:

- Direct Method :Internal continuous assessment tests and End semester Examination
- Indirect Method; Program exit survey, Alumni feedback, and Employer survey

POs and PSOs are calculated by using Direct and indirect tools. PO/PSO direct attainment calculations are based on the CO attainment of each course and the CO-PO or CO-PSO matrices that have been developed for each course. Finally, overall direct attainment of each PO/PSO is taken as the average value of PO/PSO attainment of all the courses. PO/PSO indirect attainments calculated from program exit survey, alumni survey and employer survey. In order to calculate the overall attainment of each PO, a weightage of 80% has been given for DIRECT method and 20% for INDIRECT method.

| Sl. No | Assessment tools | Direct/Indirect | Frequency | Description |
|--------|-------------------------------|-----------------|-------------------|--|
| 1 | Program Exit Survey | Indirect | End of Final Year | Collect the feedback of program at the end of program. |
| 2 | Alumni Survey | Indirect | Every Year | Collect Feedback from Alumni |
| 3 | Employer Survey | Indirect | Once in Two years | Collect Feedback from employers |
| 4 | Internal /external assessment | Direct | Each Semester | Based on students' performance in internal and university examinations, assignments. |
| 5 | Project | Direct | End of Final Year | Based on ideas and innovative product development |

Direct assessment

As the first step towards the assessment of POs, course outcomes of each of the courses were defined and these COs were mapped to POs with levels of correlation 3 (high), 2 (moderate) and 1 (Low). Attainments of COs were determined based on the performance of students in University examination and in the internal assessment as explained in 3.2. The levels of attainment of POs are calculated as weighted averages of the attainment level of COs and CO-PO mapping.

Indirect assessment

Indirect attainment levels of POs and PSOs were measured by way of surveys like program exit survey, alumni feedback and employer survey. Feedback forms were prepared by the evaluation committee showing the details of POs and PSOs and instructions to record the attainment levels. Feedback forms were distributed by the group tutors among the students who had completed their course in each assessment year. Feedbacks were also collected from some of the employers regarding the attainment levels of POs and PSOs based on the performance of graduates working in their firms. The average attainment levels were calculated from student exit survey, alumni feedback and employer survey with specified weights.

Program Exit Survey:

An exit survey is conducted for students who have graduated out of the department for that year.



PRINCIPAL
 IES COLLEGE OF ENGINEERING
 CHITTILAPILLY - 680 551
 THRISSUR - KERALA