

# CHRIST (Deemed to be University)



## SCHOOL OF ENGINEERING AND TECHNOLOGY

### Department of Computer Science and Engineering

#### Process of CO - PO Attainment

Program Name : B.Tech - Computer Science and Engineering

#### CO Attainment Process

The following are the assessment tools and processes used to gather the data upon which the evaluation of Course Outcome is based Education

#### 1. Direct Assessment Tools

##### Theory Courses Evaluation:

Department will conduct THREE Continuous Internal Assessments (CIA) and End Semester Examination (ESE) for each theory course to assess the student's performance. They will be named as follows:

Continuous Internal Assessment - 1 (CIA-1)

Continuous Internal Assessment - 2 (CIA-2) / Mid Semester Examination (MSE)

Continuous Internal Assessment - 3 (CIA-3)

Among these above 3 components, CIA-1 and CIA-2 are conducted by respective course teachers. It is mandatory for all the courses to have TWO assessment components for CIA-1 and CIA-2 each. Respective course teacher may decide suitable component to assess students with respect to cognitive level of each Course Outcome. Some of the components for theory courses are

1. Assignment
2. Closed Book Test for CIA 1 & CIA 3
3. Poster Presentation
4. Open Book Test
5. Mini Project Development
6. Internship
7. Research Article Review
8. Case Study

9. Quiz
10. Online Courses
11. Mid Semester Examination (MSE) / CIA 2
12. End Semester Examination (ESE)

### **Assignments**

- Assignments are given to the students which require them to survey data either from books or online resources.
- The assignments are given well in advance so that the students get sufficient time to work properly and submit the assignment within time.
- Few faculty members also give group assignments in their respective courses.
- It is mandatory to have an evaluation rubric for assessing the assignment and this rubric needs to be given while submitting the course plan which happens before the commencement of the semester.

### **Closed book Test**

- Closed book tests are conducted in few courses as part of CIA evaluation. The portions for the same will be made known to the students well in advance.
- Each question will be mapped to the corresponding CO statement.
- It is mandatory to have an evaluation scheme and answer key for the closed book test and it should be discussed with students in the class after conduction of the test.

### **Open Book Test**

- Open book tests are conducted in some of the courses as part of CIA evaluation.
- The open book test will not be made known to the students till the conduction.
- The open book tests conducted are time restricted.
- It is mandatory to have an evaluation scheme and answer key for the closed book test and it should be discussed with students in the class after conduction of the test.

### **Seminars/Student Presentation**

- Selected topics from the syllabus of a course will be asked to be presented either by a group of students or individually by assigning the topics well in advance.
- This assessment allows exposing the students to not just technical aspects but also confidence building and communication improvement.
- It is mandatory to have an evaluation rubric for assessing the assignment and this rubric needs to be given while submitting the course plan which happens before the commencement of the semester.

### **Mini Projects**

- Every academic year two courses of even semester per year of study are selected mandatorily to have mini projects as part of their CIA evaluation.
- This is being done to give the students a practical exposure to the concepts learnt and apply the same to applications.
- The mini projects are evaluated by a team of panel members and based on evaluation rubrics.
- The selected projects are allowed to be exhibited in the intra deanery project exhibition and competition which will be held every year in the month of September to mark the birth anniversary of the legendary engineer, Sir.M.Visvesvaraya.

### **Quiz**

- Quiz pertaining to the given topics are also used as an assessment tool for CIA evaluation. The quiz may consist of multiple choice questions

### **Mid Semester Examination (MSE)**

- A centralized examination called as Mid Semester Examination (MSE) of 50 marks is conducted by the Office of Examinations. It will be a 2hour duration closed book examination comprising of the portions covered until that time. It happens usually 6-8 weeks of commencement of the semester.
- The MSE is considered as part of evaluation of CIA-2(Continuous Internal Assessment).

### End Semester Examination (ESE)

- A centralized examination called as End Semester Examination (ESE) of 100 marks is conducted by the Office of Examinations. It will be a 3hour duration closed book examination comprising of the entire portions.
- A student has to score a minimum of 40 marks to clear the examination.

The course outcomes of respective course will be covered as follows:

Assessment Component	Covered COs
CIA -1	CO1 and CO2
MSE / CIA-2	CO1, CO2 and CO3
CIA-3	CO4 and CO5
ESE	CO1, CO2, CO3, CO4 and CO5

- The Marks are distributed among all the Course Outcomes as follows:

Assessment Type	Mark Distribution among Course Outcomes				
	CO1	CO2	CO3	CO4	CO5
CIA-1	10	10			
CIA-2	20	20	10		
CIA-3				10	10
ESE	20	20	20	20	20

- The Course Outcome attainment will be calculated for individual question given in different component and average attainment value is taken for overall Course Outcome attainment at course level.

### Theory cum Practical Course Evaluation:

The courses which are having theory cum practical component will be assessed as follows:

- For Theory Portions, assessment will be done as mentioned above by conducting CIA-1, CIA-2, CIA-3 and ESE. The Course outcomes also would be covered in the same manner.

- For Practical Portion, the course will have list of experiments in its approved syllabus. Each experiment will cover respective Course Outcome based on the topic on which this particular experiment is designed.
- The students will be instructed to execute each experiment during practical hours and the same will be assessed as follows

Assessment Component	Max. Marks
Observation Write up	10
Conduction of Experiment and Viva	30
Record Write up	10

- The above marks will be distributed as given below:

S. No	Components	Assessing Parameters	Range of Marks
	<b>Observation Write Up (10)</b>	Complete Program with correct syntax.	8-10
		Complete program, not proper syntax.	5-7
		Incomplete Code	1-4
		Not Written	0
	<b>Conduction of Experiment and Viva (30)</b>	Proper output for all the test cases with all correct answers	25-30
		Proper output for specified test cases with partially correct answers	15-24
		Fails in some test cases.	5-14
		Incomplete Execution and no correct answers	0-4
	<b>Record Write up</b>	Submits in time and Completed.	8-10
		Late submission and completed	1-7
		Not completed	0

- At end of the semester, average marks will be calculated from the marks scored by respective student for each experiment based on mentioned three criteria. Then average mark is taken for overall Course Outcome Attainment.

## 2. Indirect Assessment Tool

Indirect assessment will be done for every course through Course Exit Survey at end of the semester.

Each Course Outcome attainment will be assessed through questions in that survey. The students will be giving their answers for the rating of 5. The level of rating will be

- Strongly Agreed (SA) - 5 Points
- Agreed (A) - 4 Points
- Likely Agreed (LA) - 3 Points
- Disagreed (D) - 2 Points
- Strongly Disagreed (SD) - 1 Point

After collecting survey forms from students, CO attainment will be calculated as :

$$\frac{(\text{No. of SA} \times 5) + (\text{No. of A} \times 4) + (\text{No. of LA} \times 3) + (\text{No. of D} \times 2) + (\text{No. of SD} \times 1)}{\text{Total No. of students} \times 5} \times 3$$

The above formula is used to calculate the marks for indirect COs of all the courses in the curriculum in the respective regulation.

Final CO attainment for each course is calculated based on the contribution of direct and indirect assessments as per the weightage given below:

1. Direct Assessment (90%)
2. Indirect Assessment (10%)

$$\text{Final CO attainment level} = [(90\% \text{ Direct assessment} + 10\% \text{ Indirect assessment}) / 100]$$

## PO Attainment Process

The following are the assessment tools and processes used to gather the data upon which the evaluation of Program Outcome

### 1. Direct Assessment

Direct Assessment is calculated from the weighted average PO of all the Courses. Rubrics values are calculated for individual courses through COs and the COs are mapped to the POs.

From the attained average PO, 80% of the PO Attainment is considered for the Direct assessment of the Program Outcome defining process.

### 2. Indirect Assessment

#### Graduate Exit Survey

Indirect assessment will be done at the end of the programme by the graduate after the successful completion of the programme.

Each Program Outcome attainment will be assessed through questions in that survey. The graduates will be giving their answers for the rating of 5. The level of rating will be

- Strongly Agreed (SA) - 5 Points
- Agreed (A) - 4 Points
- Likely Agreed (LA) - 3 Points
- Disagreed (D) - 2 Points
- Strongly Disagreed (SD) - 1 Point

After collecting survey forms from graduates, PO attainment will be calculated as :

$$\frac{(\text{No. of SA} \times 5) + (\text{No. of A} \times 4) + (\text{No. of LA} \times 3) + (\text{No. of D} \times 2) + (\text{No. of SD} \times 1)}{\text{Total No. of students} \times 5} \times 3$$

## 2. Employer Exit Survey

Indirect assessment will be collected from the employer, during the campus recruitment process

Each Program Outcome attainment will be assessed through questions in that survey. The Employers will be giving their answers for the rating of 5. The level of rating will be

- Strongly Agreed (SA) - 5 Points
- Agreed (A) - 4 Points
- Likely Agreed (LA) - 3 Points
- Disagreed (D) - 2 Points
- Strongly Disagreed (SD) - 1 Point

After collecting survey forms from employers, PO attainment will be calculated as :

$$\frac{(\text{No. of SA} \times 5) + (\text{No. of A} \times 4) + (\text{No. of LA} \times 3) + (\text{No. of D} \times 2) + (\text{No. of SD} \times 1)}{\text{Total No. of students} \times 5} \times 3$$

The Final PO attainment is calculated based on the contribution of direct and indirect assessments as per the weightage given below:

1. Direct Assessment (80%)
2. Graduate Exit Survey (10%)
3. Employer Survey (10%)

Final PO attainment level =  $[(80\% \text{ Direct assessment} + 10\% \text{ Graduate Exit Survey} + 10\% \text{ Employer Survey}) / 100]$



  
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