



Nallamuthu Gounder Mahalingam College

(An Autonomous Institution, Affiliated to Bharathiar University)

90, Palghat Road, Pollachi - 642001, Coimbatore, Tamil Nadu, India.

95th Rank in NIRF – 2023 - Among Colleges in India.



2.6.1 The institution has stated learning outcomes (programme and course outcome)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents and the attainment of the same are evaluated by the institution

Graduate Attributes: Our College ensures graduates develop well-rounded qualities by integrating key characteristics from **graduate attributes** directly into program outcomes (POs) within syllabi. This approach helps students acquire the knowledge, skills, attitudes, and values needed for success beyond their studies.

Course Design and CO Development:

Course Outcomes are clear statements that define the specific knowledge, skills, and attitudes students will gain by the end of the course. These outcomes are action-oriented, using verbs to describe what students will be able to do, and are measurable within the course timeframe.

Faculty members within each department take the lead in designing course syllabi. Bloom's Taxonomy serves as a guiding framework to ensure a progression of learning objectives, moving from knowledge acquisition to critical thinking skills.

Specific and measurable learning objectives, known as **Course Outcomes (COs)**, are formulated for each course unit. The number of COs per course typically ranges from 4 to 5. The following table describes Course Outcomes with Targeted Knowledge Levels

| CO Number | CO Statement | Knowledge Level |
|-----------|--------------|-----------------|
| C01 | | K1 |
| C02 | | K2 |
| C03 | | K3 |
| C04 | | K4 |
| C05 | | K5 |

Mapping COs to POs and PSOs:

PEOs (Program Educational Objectives): Broad statements describing what graduates will achieve in their careers, typically within a few years of graduating. PSOs (Program Learning Outcomes): Less common, but similar to PEOs. May describe specific skills or knowledge graduates should possess. POs (Program Outcomes): Specific skills and knowledge students are expected to acquire by the program's end.

Once COs are established, department faculty members work together to map them to the broader **Program Outcomes (POs)** that represent the overall knowledge, skills, and attitudes students should possess upon program completion.

Additionally, **Program Specific Outcomes (PSOs)** are defined. PSOs are unique to each program and emphasize the uniqueness of the specific program's learning objectives. This mapping process ensures a clear alignment between course content and the desired graduate profile.



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Sample CO- POs, PSOs Mapping

| CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PSO1 | PSO2 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| C01 | L | | L | | M | | H | | | L | L | |
| C02 | | | | | | | | | | | | |
| C03 | | M | M | | M | H | | M | | M | H | |
| C04 | | | | | | | | | | H | | |
| C05 | | | | | H | | | | L | | M | |

Mapping of POs to PEOs:

PEOs define graduates' long-term career goals, while POs detail the skills students gain. This ensures courses align with the program's vision, and teaching methods target desired POs. This benefits students and strengthens the program by demonstrating to accreditation bodies how it cultivates career-ready graduates. Mapping of POs to PEOs creates a clear path for students, ensuring they gain the skills and knowledge needed for their future success.

Refining POs and PSOs with Expert Input:

The initial drafts of POs and PSOs, developed through departmental collaboration, are further refined during **Pre-Board Meetings** within each department. These meetings foster discussion and allow faculty to fine-tune the program's learning goals.

Expert opinions are solicited during **Board of Studies meetings**, where valuable suggestions from external members further strengthen the established POs and PSOs.

Finalizing the Syllabus and Assessment:

The syllabus document is designed with each unit clearly linked to a specific CO. At the end of the syllabus, a table typically depicts the mapping of COs to the corresponding POs and PSOs, along with their designated Bloom's Taxonomy level.

Assessment methods are carefully chosen to align with the **cognitive level** of each CO, ensuring appropriate evaluation of student learning.



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Outcome Attainment and Continuous Improvement:

The achievement of COs ultimately contributes to the attainment of POs and PSOs.

A matrix mapping method is used to measure the success of COs in contributing to POs and PSOs attainment. Based on this data, the learning outcomes are categorized as "high," "medium," or "low" in terms of attainment.

A score of "3" signifies a high level of attainment, while "2" and "1" represent medium and low levels, respectively. Notably, even when a high level of attainment is achieved, assessment grades may be revised to encourage continuous improvement and ensure the program remains relevant and effective.

Method of measuring attainment of COs, POs & PSOs

Our institution has adopted both direct and indirect measures for assessing the attainment of Course Outcomes, Programme Outcomes and Programme Specific Outcomes

Direct Assessment: Focuses on evaluating student learning through analyzing their work products, like assignments, projects, exams, etc. It provides tangible evidence of what students know and can do.

The following are considered for **direct assessment** evaluation

- Test I, Test II
- Seminar / Assignment / Quiz
- Group Task
- End-of Semester Examination

Calculation of Direct Assessment

| Academic Year : | | | | | | | |
|------------------|---------------------|------------------------|--------------|-----|-------------------|---------------------------------|---------------------|
| Student Strength | 55 | | | | ESE (100%) | | |
| | Expected Attainment | Expected % of Students | Act. Student | ESE | Actual Attainment | Actual % of Students Attainment | CO Level Attainment |
| CO1 | | | | | | | |
| CO2 | | | | | | | |
| CO3 | | | | | | | |
| CO4 | | | | | | | |

Indirect Assessment: Course outcomes (COs) traditionally rely on direct assessment methods like exams and assignments. However, indirect assessment plays a crucial role in providing a more comprehensive picture of student learning. This approach gathers information through methods that don't directly analyse student work, such as course exit surveys.



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Course Exit Surveys: A Valuable Tool for Indirect Assessment

Course exit surveys are questionnaires administered to students at the conclusion of a course. These surveys provide valuable student feedback on the course's effectiveness in achieving its learning objectives. By incorporating student feedback alongside direct assessments, educators gain a richer understanding of student learning and can identify areas for course improvement.

Calculation of Indirect Assessment

Course End Survey Form (Theory / Laboratory) (Indirect Assessment of Course Outcomes)

CO attainment (for the batch) based on indirect assessment tool

| | | | |
|---------------|--|--------------------------|--|
| Faculty name | | Designation / Department | |
| Course code | | Course name | |
| Program | | Semester | |
| Academic year | | Batch Ex:2020-21 | |

| Course Outcome Number | Course Outcome Description (as in the syllabus) |
|-----------------------|---|
| CO1 | |
| CO2 | |
| CO3 | |
| CO4 | |
| CO5 | |



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Course End Survey with Provision for Consolidation of Survey Results

| Roll No. or Reg. No. | Name of Student | [To what extent do you feel you have learnt and will be able to do the following (which are the COs of the course)] | | | | | Signature of student (optional) |
|---|--|---|---------|------|-----|-----|---------------------------------|
| | | COs of the course] | | | | | |
| | | Poor | Average | Good | | | |
| | | 1 | 3 | 5 | | | |
| | | CO1 | CO2 | CO3 | CO4 | CO5 | |
| | Student 1 | | | | | | |
| | Student 2 | | | | | | |
| | Etc., | | | | | | |
| | Student 20 (a) Total number of students in the batch) | | | | | | |
| Count of survey scale values | 1 | 4 | | | | | |
| | 3 | 4 | | | | | |
| | 5 | 12 | | | | | |
| Target value of CO | | Only survey scale values of 3 and 5 will be considered. | | | | | |
| (b) No of survey scales values of 3 and 5 | | 4+12=16 | | | | | |
| CO attainment value in % = (b) / (a) | | 16/20 = | | | | | |
| | | 80 | | | | | |



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To arrive at the final CO attainment for a Course, the following formula is applied:

$$\text{Computation of CO Overall Attainment} = (0.8 * \text{Direct Assessment} + 0.2 * \text{Indirect Assessment})$$

| CO's | DIRECT CO ATTAINMENT LEVEL (DA) | INDIRECT CO ATTAINMENT LEVEL (IA) | OVERALL CO ATTAINMENT (0.8*DA+0.2IA) |
|-----------------------|---------------------------------|-----------------------------------|--------------------------------------|
| CO1 | | | |
| CO2 | | | |
| CO3 | | | |
| CO4 | | | |
| Average CO Attainment | | | 2.36 |

The steps to measure the **course outcomes** are

- Set questions at the suitable bloom's taxonomy levels for both CIA and ESE
- Capture the marks of each student against each question for all the assessments
- Feed the data into the templates and calculate the CO attainment level for each student and each course
- The average of all CO attainment is considered as student's attainment of the CO in that particular course

The steps to measure the **programme outcomes** are

To determine a student's overall attainment of a specific PO across various courses, the average of all individual CO attainment levels for that PO is calculated. Each Program Outcome (PO) may have varying weightage depending on its relative importance within the program. A weighted average is then calculated, considering the weightage assigned to each PO and the average CO attainment for that PO across all courses.

To arrive at the final PO attainment for a program, the following formula is applied:

$$\text{PO} = (\text{Weighted Average value of PO} * \text{Average CO Attainment}) / 3$$



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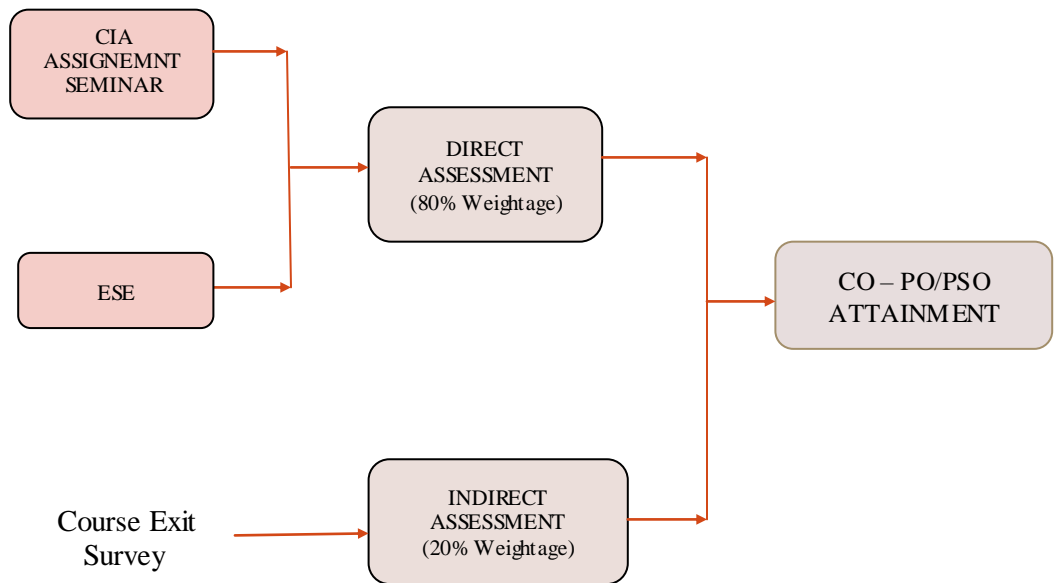
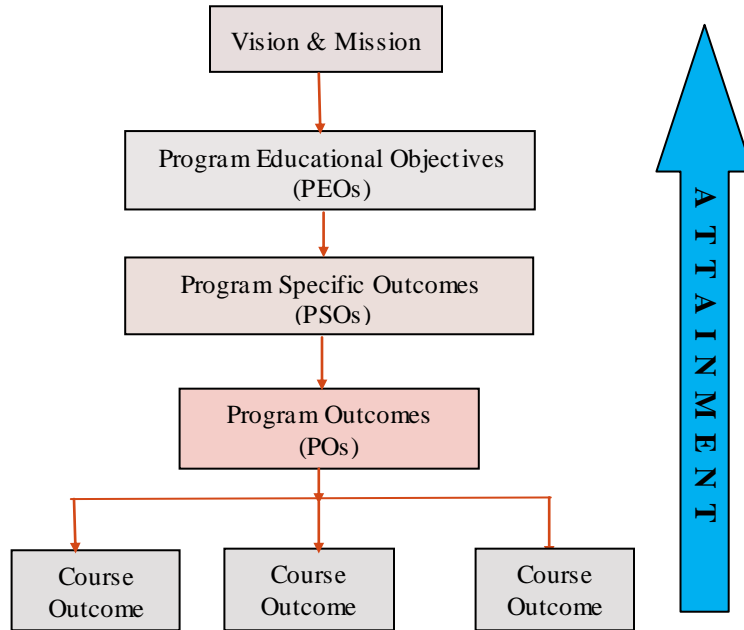
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OBE FRAMEWORK





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ASSESSMENT PATTERN UNDER OUTCOME BASED EDUCATION

UG & PG - CONTINUOUS INTERNAL ASSESSMENT (CIA) MARK DISTRIBUTION FOR ALL MAJOR & ALLIED COURSES

All the course outcomes are to be assessed using the below CIA components.
The levels of CIA Assessment based on Revised Bloom's Taxonomy for UG & PG are:
K1- Remember, K2-Understand, K3-Apply, K4-Analyze, K5 – Evaluate

2022-2023

Theory Examinations: 50 Marks (Part I, II, & III)

(i) TEST- I & II and ESE:

| Knowledge Level | Section | Marks | Description | Total |
|---------------------|---|-------------|----------------------|-------|
| K1 & K2 (Q1-10) | A(Q 1- 5 MCQ) (Q6- 10 Define/Short Answer) | 10 x 1 = 10 | MCQ Define | 50 |
| K3(Q11-15) | B(Either or pattern) | 5 x 3 = 15 | Short Answers | |
| K4 & K5 (Q16-20) | C(Either or pattern) | 5 x 5 = 25 | Descriptive/Detailed | |

Theory Examinations: 50 Marks (Part IV: NME)

| Knowledge Level | Section | Marks | Description | Total |
|--------------------------|--|-------------|---------------|-------|
| K1 & K2 (Q 1 -10) | A (Q 1 – 5 MCQ) (Q 6–10 Define / Short Answer) | 10 x 1 = 10 | MCQ Define | 50 |
| K3, K4 & K5 (Q 11-15) | B (Either or pattern) | 5 x 8 = 40 | Short Answers | |

Practical Examinations: 100/50 Marks

| Knowledge Level | Criterion | External/Internal Marks | Total |
|-----------------|----------------------------|-------------------------|-------|
| K3 | Record work & Practical | 50/50 | 100 |
| K4 | | | |
| K5 | | 25/25 | 50 |



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2021-2022

1. Part I, II & III - Theory: 70 Marks

(i) TEST- I & II and ESE:

| Knowledge Level | Section | | Marks | Description | Total |
|-----------------|-----------------------|-----------------------------------|---------|--------------------------|-------------------------------|
| K1&K2 | A (Answer all) | Q.1 to 5 | 10x1=10 | MCQ | 70 (Reduced to 50 for ESE) |
| | | Q.6 to 10 | | Define | |
| K3 | B (Either or pattern) | Q.11 to 15 | 5x4=20 | Short Answers | |
| K4&K5 | C (Answer 4 out of 6) | Q.16 is compulsory | 4x10=40 | Descriptive/ Detailed | |
| | | Q.17 to 21 (Answer 3 out of 5) | | | |

2. Part IV - Theory: 50 Marks

| Knowledge Level | Section | | Marks | Description | Total |
|-----------------|-----------------------|------------|------------|----------------------|-------------------------------|
| K1&K2 | A (Answer all) | Q.1 to 5 | 10x1=10 | MCQ | 50 (Reduced to 25 for ESE) |
| | | Q.6 to 10 | | Define | |
| K3, K4 & K5 | B (Answer 5 out of 8) | Q.11 to 18 | 5 x 8 = 40 | Descriptive/Detailed | |

3. Practical Examinations: 100/50 Marks

| Knowledge Level | Section | Marks | Total |
|-----------------|-------------------------|-------|-------|
| K3 | Practical & Record work | 50/50 | 100 |
| K4 | | 25/25 | |
| K5 | | | 50 |



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2020 – 2021

1. Part I,II&III--Theory: 70 Marks

(i) TEST- I& II and ESE:

| Knowledge Level | Section | Marks | Description | Total |
|-----------------|----------------------|-----------------------------------|--------------------------|-------|
| K1&K2 | A(Answer all) | Q.1 to 5 | MCQ | 70 |
| | | Q.6 to 10 | | |
| K3 | B(Either or pattern) | Q.11 to 15 | Short Answers | |
| K4&K5 | C(Answer 4 out of 6) | Q.16 is compulsory | Descriptive/ Detailed | |
| | | Q.17 to 21 (Answer 3 out of 5) | | |
| | | 10x1=10 | | |
| | | 5x4=20 | | |
| | | 4x10=40 | | |

2. Part IV--Theory: 50 Marks

| Knowledge Level | Section | Marks | Description | Total |
|-----------------|----------------------|------------|----------------------|-------|
| K1&K2 | A(Answer all) | Q.1 to 5 | MCQ | 50 |
| | | Q.6 to 10 | | |
| K3,K4&K5 | B(Answer 5 out of 8) | Q.11 to 18 | Descriptive/Detailed | |
| | | 10x1=10 | | |
| | | 5 x8=40 | | |

3. Practical Examinations: 100/50 Marks

| Knowledge Level | Section | Marks | Total |
|-----------------|----------------------------|-------|-------|
| K3 | Practical & Record work | 60/30 | 100 |
| K4 | | 40/20 | 50 |
| K5 | | | |



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2019 – 2020

1. Part I, II & III--Theory: 70 Marks

(i) TEST- I & II and ESE:

| Knowledge Level | Section | | Marks | Description | Total |
|-----------------|-----------------------|---|---------|--------------------------|-------|
| K1&K2 | A (Answer all) | Q.1 to 5 | 10x1=10 | MCQ | 75 |
| | | Q.6 to 10 | | Define | |
| K3 | B (Either or pattern) | Q.11 to 15 | 5x5=25 | Short Answers | |
| K4&K5 | C (Answer 4 out of 6) | Q.16 is compulsory Q.17 to 21 (Answer 3 out of 5) | 4x10=40 | Descriptive/ Detailed | |

2. Part IV--Theory: 50 Marks

| Knowledge Level | Section | | Marks | Description | Total |
|-----------------|-----------------------|------------|------------|----------------------|-------|
| K1&K2 | A (Answer all) | Q.1 to 5 | 10x1=10 | MCQ | 50 |
| | | Q.6 to 10 | | Define | |
| K3, K4 & K5 | B (Answer 5 out of 8) | Q.11 to 18 | 5 x 8 = 40 | Descriptive/Detailed | |

3. Practical Examinations: 100/50 Marks

| Knowledge Level | Section | Marks | Total |
|-----------------|----------------------------|-------|-------|
| K3 | Practical & Record work | 60/30 | 100 |
| K4 | | 40/20 | |
| K5 | | | 50 |



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2018 – 2019

1. Part I, II & III--Theory: 70 Marks

(i) TEST- I & II and ESE:

| Knowledge Level | Section | | Marks | Description | Total |
|-----------------|-----------------------|-----------------------------------|---------|--------------------------|-------|
| K1&K2 | A (Answer all) | Q.1 to 5 | 10x1=10 | MCQ | 75 |
| | | Q.6 to 10 | | Define | |
| K3 | B (Either or pattern) | Q.11 to 15 | 5x5=25 | Short Answers | |
| K4&K5 | C (Answer 4 out of 6) | Q.16 is compulsory | 4x10=40 | Descriptive/ Detailed | |
| | | Q.17 to 21 (Answer 3 out of 5) | | | |

2. Part IV—Theory : 50 Marks

| Knowledge Level | Section | | Marks | Description | Total |
|-----------------|-----------------------|------------|------------|----------------------|-------|
| K1&K2 | A (Answer all) | Q.1 to 5 | 10x1=10 | MCQ | 50 |
| | | Q.6 to 10 | | Define | |
| K3, K4 & K5 | B (Answer 5 out of 8) | Q.11 to 18 | 5 x 8 = 40 | Descriptive/Detailed | |

3. Practical Examinations: 100/50 Marks

| Knowledge Level | Section | Marks | Total |
|-----------------|-------------------------|-------|-------|
| K3 | Practical & Record Work | 30 | 50 |
| K4 | | 20 | |
| K5 | | | |