ERODE SENGUNTHAR
ENGINEERING COLLEGE
(An Autonomous Institution)

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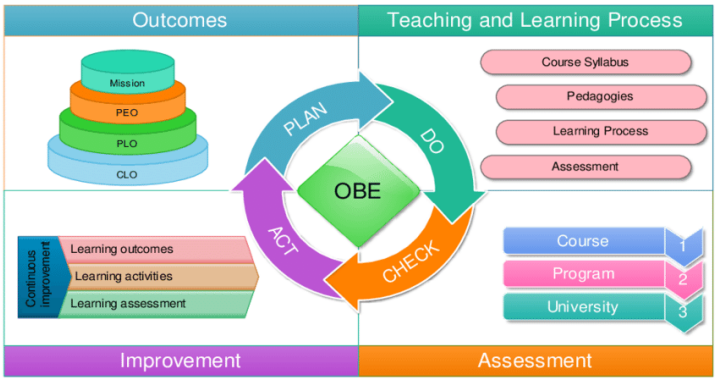
Accredited by National Board of Accreditation (NBA), New Delhi &
National Assessment and Accreditation Council (NAAC), Bangalore with 'A' Grade

PERUNDURAI -638 057, TAMILNADU, INDIA.

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiative)

Outcome based Education



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Outcome Based Education (OBE) Manual

Office of the Controller of Examinations

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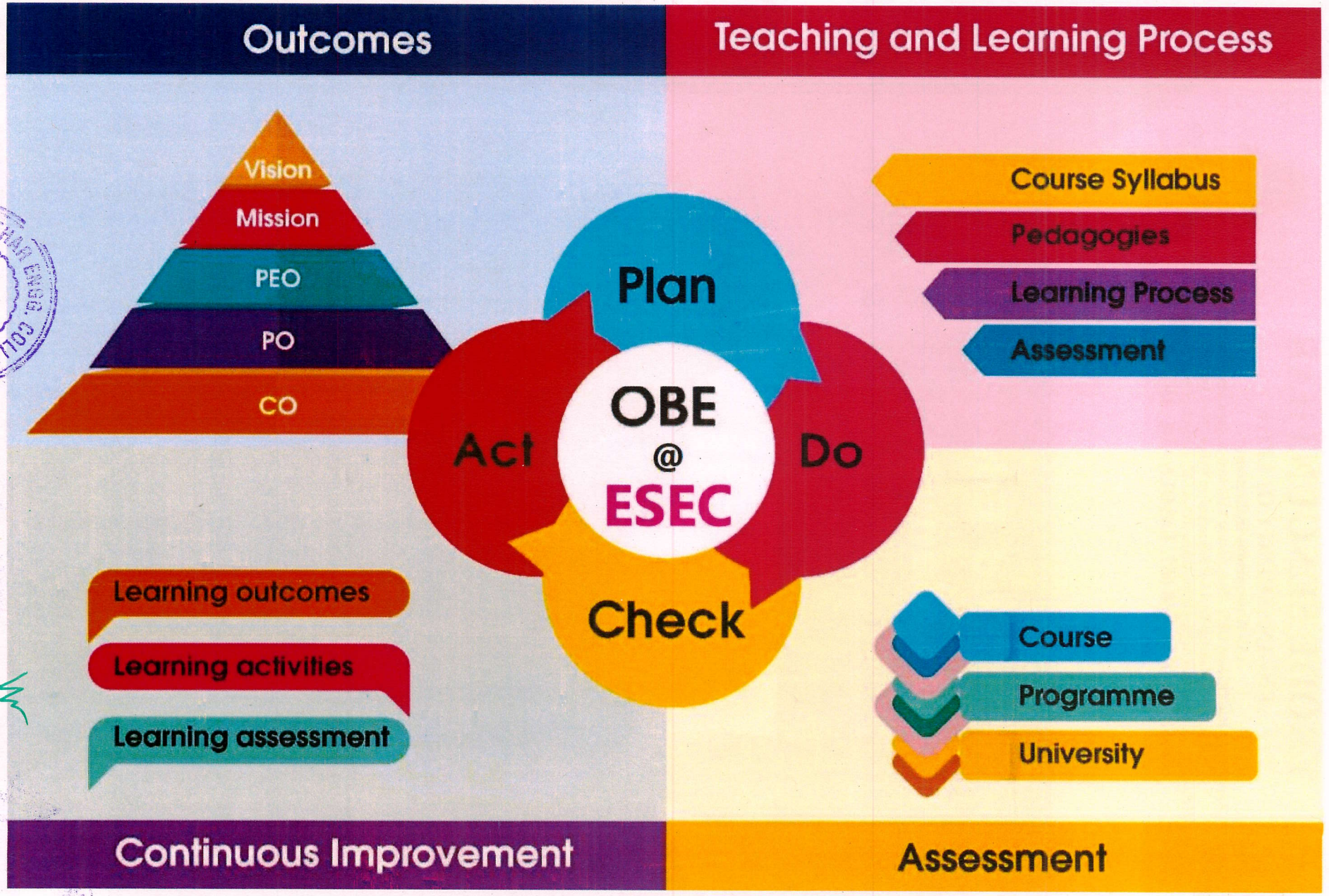

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Abbreviations:

OBE	Outcome Based Education	**BTL**	Bloom's Taxonomy Level
LOTS	Lower Order of Thinking Skills	**HOTS**	Higher Order of Thinking Skills
PEO	Program Educational Objectives	**POs**	Program Outcomes
COs	Course Outcomes	**PSOs**	Program Specific Outcomes
ESE	End Semester Examination	**PE**	Practical Exam
CE	Course Exit Survey	**HoD**	Head of Department
PC	Program Coordinator	**DAAC**	Department Academic Advisory Committee
PAC	Program Assessment Committee	**AY**	Academic Year

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Preamble

Outcome Based Education (OBE) is an educational model that forms the base of a quality education system. There is no single specified style of teaching or assessment in OBE. All educational activities carried out in OBE should help the students to achieve the set goals. The faculty may adapt the role of instructor, trainer, facilitator, and/or mentor, based on the outcomes targeted.

OBE enhances the traditional methods and focuses on what the Institute provides to students. It shows the success by making or demonstrating outcomes using statements "able to do" in favor of students. OBE provides clear standards for observable and measurable outcomes.

Benefits of OBE

- **Clarity:** The focus on outcome creates a clear expectation of what needs to be accomplished by the end of the course.
- **Flexibility:** With a clear sense of what needs to be accomplished, instructors will be able to structure their lessons around the students' needs.
- **Comparison:** OBE can be compared across the individual, class, batch, program and institute levels.
- **Involvement:** Students are expected to do their own learning. Increased student involvement allows them to feel responsible for their own learning, and they should learn more through this individual learning.

India, OBE and Accreditation

From 13th June 2014, India has become the permanent signatory member of the Washington Accord. Implementation of OBE in higher technical education also started in India. The National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA) are the autonomous bodies for promoting global quality standards for technical education in India. NBA has started accrediting only the programs running with OBE from 2013.

The National Board of Accreditation mandates establishing a culture of outcome based education in institutions that offer Engineering, Pharmacy, Management program. Reports of outcome analysis help to find gaps and carryout continuous improvements in the education system of an Institute, which is very essential.

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Vision, Mission and Quality Policy of Institute

Vision of Institute: To become a World Class Technical Institution and Scientific Research Centre for the Benefit of the Society.

Mission of Institute: **Erode Sengunthar Engineering College will strive continuously to**

- Create Positive difference to Society through Innovative Teaching – Learning Process.
- Impart Value Based Technical Education to the Students from across various Socio Economic backgrounds.
- Build State of art infrastructure for high quality Research and Development capabilities on par with the finest in the Globe and widen student's horizons beyond Class Room.
- Bring out Competent, Ethically Strong and Quality Professionals.

Quality Policy: To impart World Class Technical Know-How to the Students from diverse Socio Economic backgrounds and to transform their lives by nurturing Multi-Skills and facilitating them to develop holistically.

Program Outcomes (POs)

- **PO 1 : Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **PO 2 : Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO 3 : Design/Development of Solutions :** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO 4 : Conduct Investigations of Complex Problems :** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **PO 5 : Modern Tool Usage :** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- **PO 6 : The Engineer and Society :** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **PO 7 : Environment and Sustainability :** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO 8 : Ethics :** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO 9 : Individual and Team Work :** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO 10 : Communication :** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO 11 : Project Management and Finance :** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **PO 12 : Life-Long Learning :** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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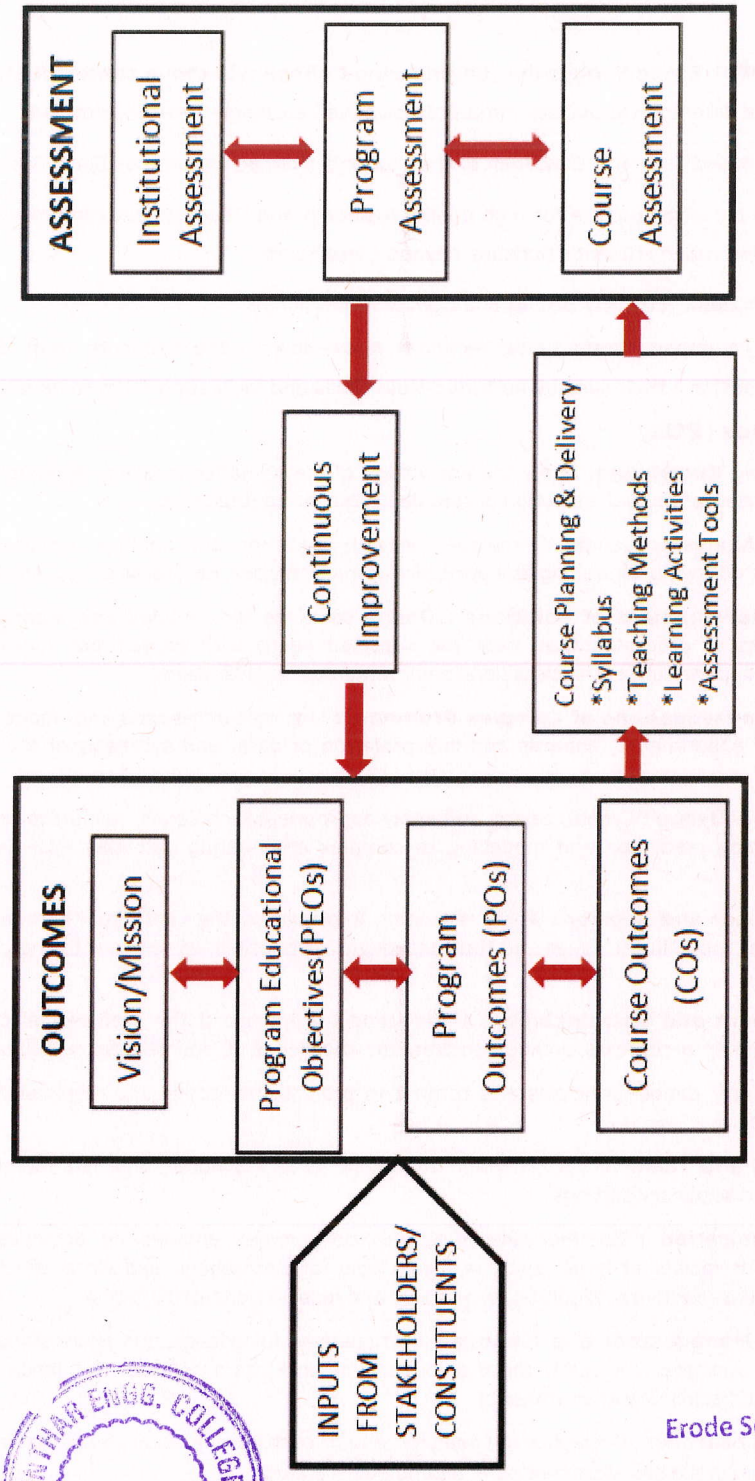
OBE Framework of the Institute



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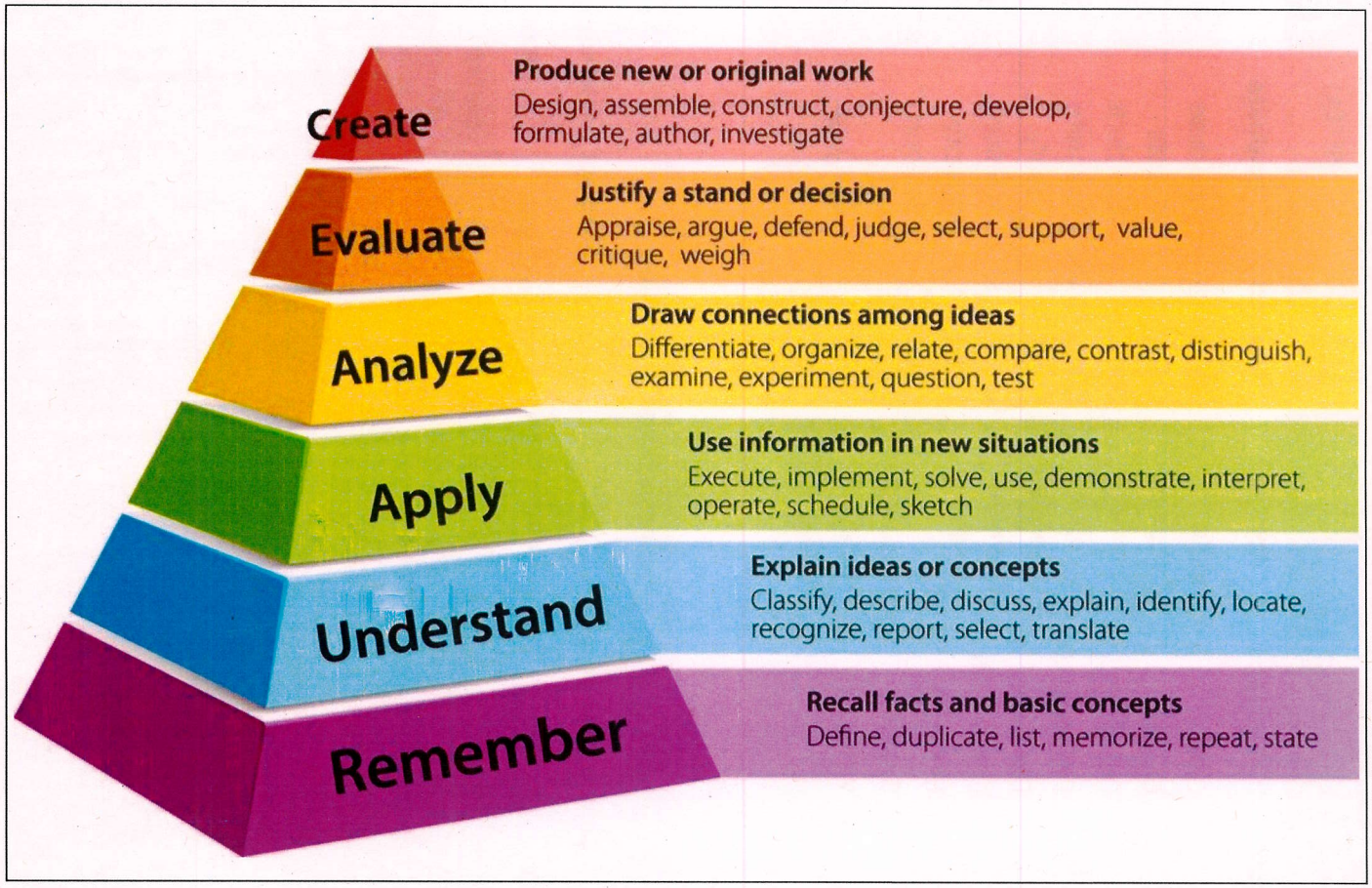

Blooms Taxonomy Level (BTL) for Question Paper Setting – Refer Appendix

The cognitive process dimensions- categories

Lower Order of Thinking Skills (LOTS)			Higher Order of Thinking Skills (HOTS)		
Remember	**Understand**	**Apply**	**Analyse**	**Evaluate**	**Create**
Define	Cite	Apply	Categorize	Appraise	Arrange
Describe	Classify	Calculate	Contrast	Assess	Compose
Draw	Compare	Choose	Deduce	Conclude	Create
Enumerate	Differentiate	Compute	Discriminate	Evaluate	Design
Identify	Discuss	Determine	Focus	Justify	Express
List	Distinguish	Examine	Infer	Measure	Generate
Match	Estimate	Experiment	Order	Specify	Integrate
Select	Explain	Illustrate	Outline	Support	Organize
Specify	Write	Modify	Point out	Test	Produce
Tabulate		Relate		Validate	Rewrite

The Knowledge Dimension

Concrete Knowledge		→	Abstract knowledge	
Factual	**Conceptual**		**Procedural**	**Metacognitive**
Definition	***Definition***		***Definition***	***Definition***
• The basic elements students must know to be acquainted with a discipline or solve problems in it	• The interrelationships among the basic elements within a larger structure that enable them to function together		• How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques	• Knowledge of cognition in general as well as awareness and knowledge of one's own cognition
Example	***Example***		***Example***	***Example***
• Technical vocabulary, musical symbols	• Pythagorean theorem, law of supply and demand		• Scientific method, interviewing techniques, whole-number division algorithm	• Knowledge of personal subject specific strengths and weaknesses

Action Verbs for Course Outcomes

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Illustration
Action Verbs:

Illustration (use of action verb w.r.t knowledge dimension and order of thinking):

Lower level ← **Cognitive Complexity** → *Higher level*

Taxonomy Matrix (after Anderson & Krathwohl, 2001)	**Remember** Retrieve relevant knowledge from long term memory	**Understand** Construct meaning from instructional messages, oral, written or graphic	**Apply** Carry out procedures	**Analyze** Break material into parts and determine relationships	**Evaluate** Make judgments based upon criteria or standards	**Create** Put elements together into coherent or functional whole, reorganize into new patterns
Factual Knowledge Basic elements associated with the discipline, needed to solve problems	**List** primary and secondary colors.	**Summarize** features of a new product.	**Respond** to frequently asked questions.	**Select** the most complete list of activities.	**Check for** consistency among sources.	**Generate** a log of daily activities.
Conceptual Knowledge Interrelationship among basic elements within a larger structure	**Recognize** symptoms of exhuastion.	**Classify** adhesives by toxicity.	**Provide** advice to novices.	**Differentiate** high and low culture.	**Determine** relevance of results.	**Assemble** a team of experts.
Procedural Knowledge How to do a thing, methods of inquiry, and criteria for using skills and techniques	**Recall** how to perform CPR.	**Clarify** assembly instructions.	**Carry Out** pH tests of water samples.	**Integrate** compliance with regulations.	**Judge** efficiency of sampling techniques.	**Design** efficient project workflow.
Meta-cognitive Knowledge Awareness and knowledge of one's own cognition	**Identify** strategies for retaining information.	**Predict** one's response to culture shock.	**Use** techniques that match one's strengths.	**Deconstruct** one's biases.	**Reflect** on one's progress.	**Create** a learning portfolio.

Concrete ↑ **Knowledge Dimension** ↓ *Abstract*

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Guidelines for writing Course Outcome Statements

Well-written course outcomes involve the following parts:

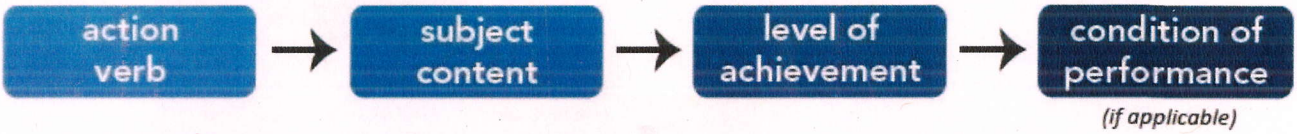

Illustration:

At the end of the course students would be able to

CO1: **Illustrate** the vectorial and scalar representation of forces and moments

CO2: **Analyse** the rigid body in equilibrium

CO3: **Evaluate** the properties of distributed forces

CO4: **Determine** the friction and the effects by the laws of friction

CO5: **Calculate** dynamic forces exerted in rigid body

While writing COs the following questions/points must be addressed properly.

SMART	Guiding Question
Specific	Will the student know exactly what they are expected to know and do if they were to read the learning outcome?
Measurable	Can the learning outcome be measured through assessment (formative or summative) and evaluation methods?
Achievable	Are students able to reach the expectations conveyed in your learning outcome?
Relevant	Is the content described in the learning outcome relevant to Program Outcome?
Time-limited	Can the learning outcome be met within available time constraints?

Note: If Laboratory is given as separate course (with course code) then there should be separate course outcomes for Laboratory.

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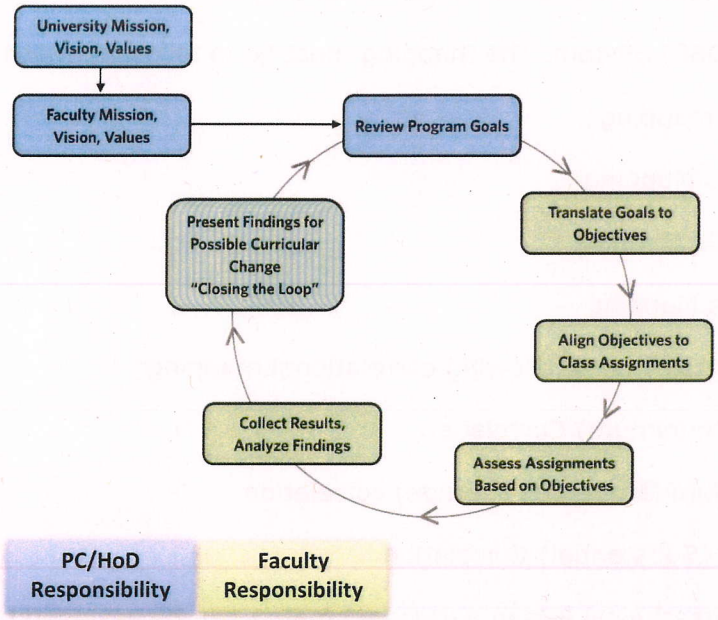
Quality of Course Outcome

Process at department level to maintain quality of CO



Guidelines/Checklist for COs:

Number of COs	3 to 6
CO essentials	Action Verb, Subject Content, Level of Achievement, Modes of Performing task (If Applicable)
Based on BTL	Understand, Remember, Apply, Analyse, Evaluate, Create
Number of BTL Considered in one course	Minimum 3
Technical Content/ point of curriculum	All curriculum contents are covered
Curriculum gap	Additional CO for gap identified/filling. Adds more weightage

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CO-PO Mapping Guidelines

Tips for Assigning the values while mapping COs to POs

Mapping of COs POs, PEOs, and PSOs: It is important that all courses together must contribute towards attainment of all the POs, PEOs, and PSOs to achieve Outcome

Based Education (OBE) System. The mapping must be in following matrixes:

a. COs to POs mapping

b. COs to PSOs Mapping

c. PSOs to PEOs Mapping

d. POs to PEOs Mapping

The above said matrixes uses following correlational mapping:

a) "1" as low (minimum) Correlation

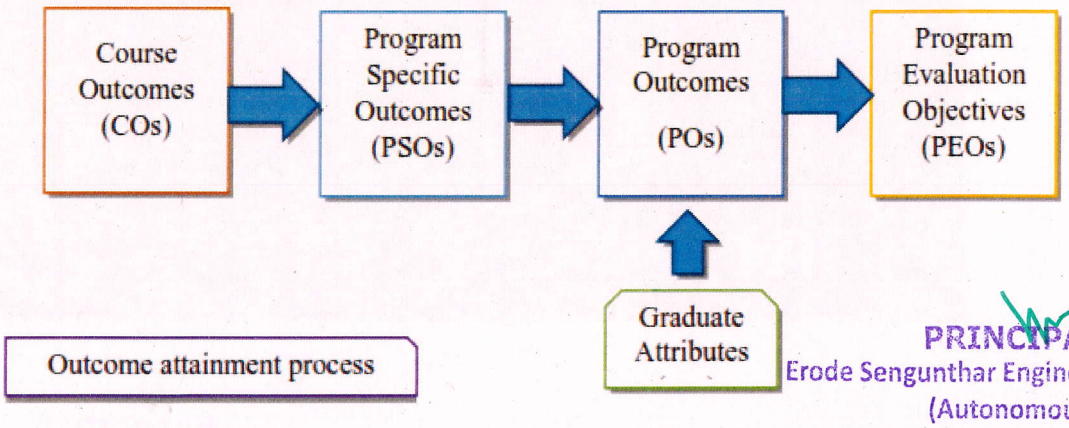
b) "2" as medium (Moderate/average) correlation

c) "3" as High (Substantial) Correlation

Values to CO-PO (technical POs in particular) matrix can be assigned by

(a) **Judging the importance** of the particular CO in relation to the POs. If the **CO matches strongly** with a particular PO criterion then **assign 3**, if it matches **moderately** then **assign 2** or if the match is **low** then **assign 1** else mark with " - " symbol.

(b) If an action verb used in a CO is repeated at multiple Bloom's levels, then you need to judge which Bloom's level is the best fit for that action verb.



Process of COs-to-PSOs-to-POs-PEOs mapping and relationship

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Co Po PSo Mapping Samples

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C803.1	3	1	1	2	2	1	1	1	-	1	2	2	3	2	3
C803.2	3	2	1	2	2	1	1	1	-	1	2	2	3	2	3
C803.3	3	2	2	2	1	2	1	1	-	2	2	2	3	2	3
C803.4	3	2	2	2	2	1	1	1	-	2	2	2	3	2	3
C803.5	3	2	1	2	2	1	1	1	-	2	2	2	3	2	3

Illustration

The role of COs-POs will be assigned to the faculty as per hierarchy prescribed in above table.

a. After course (subject) allocation, the respective course co ordinator must prepare appropriate Course outcomes.

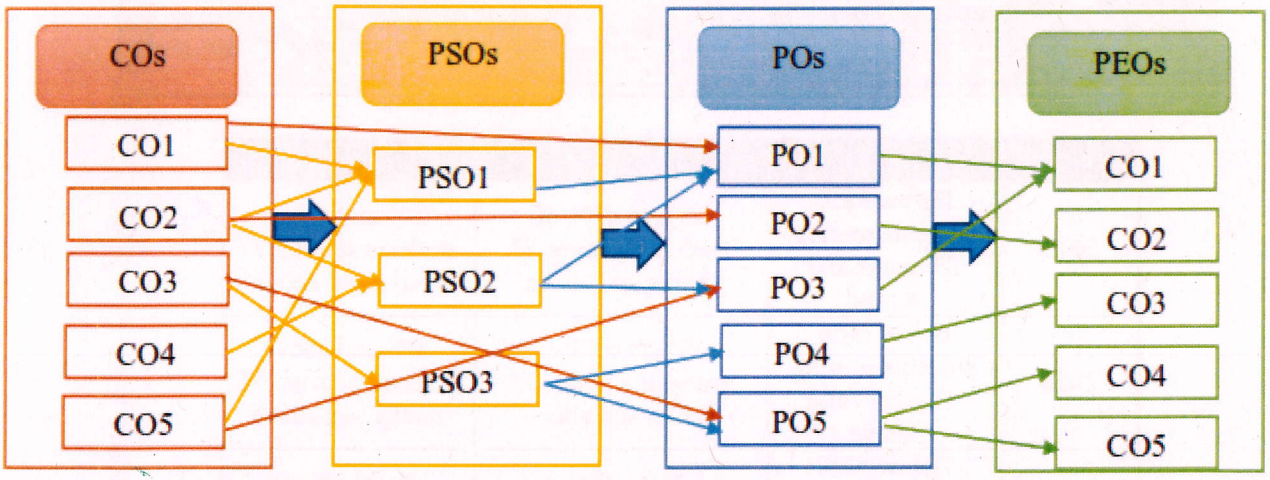
b. The articulated course outcomes must match with Bloom's Taxonomy nomenclature

c. COs must be narrowed and measurable statements aligned with Bloom's Taxonomy

d. Course coordinator must use action verbs only to define COs of respective Course

e. Each CO statement must be capable to describe what the learner is expected to know and exhibit at the end of each course

f. Each CO must relate with skills, knowledge, and behaviour that student will acquire through the course.



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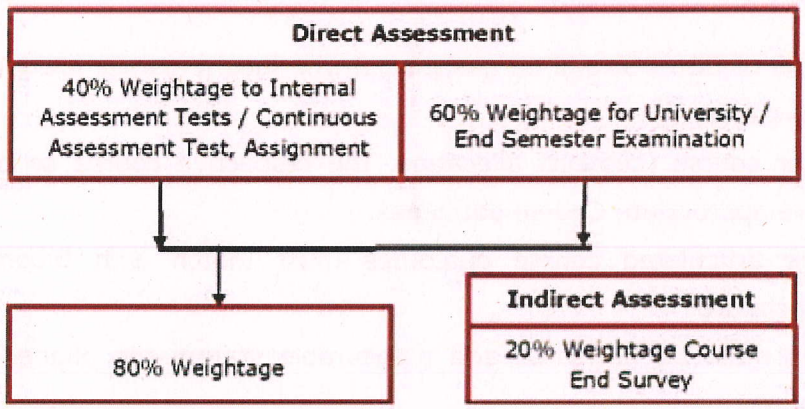
Targets/ Attainment Levels

The target will be fixed by considering the class average percentage of marks obtained in End semester examinations of the previous year students.

SETTING TARGETS FOR ATTAINMENT



Illustration

Target Levels for End Semester Examination

BATCH 2021	
Level 1	62% of the students scored equal or more than set attainment level (Target)
Level 2	62% to 71% of the students scored equal or more than set attainment level (Target)
Level 3	72% of the students scored equal or more than set attainment level (Target)

Batch	Level 1	Level 2	Level 3
2019	Below 58% students scoring 57 marks and above	58% to 67% of students scoring 57 marks and above	68% and above students scoring 57 marks and above
2020	Below 60% students scoring 57 marks and above	60% to 69% of students scoring 57 marks and above	70% and above students scoring 57 marks and above
2021	Below 62% students scoring 57 marks and above	62% to 71% of students scoring 57 marks and above	72% and above students scoring 57 marks and above

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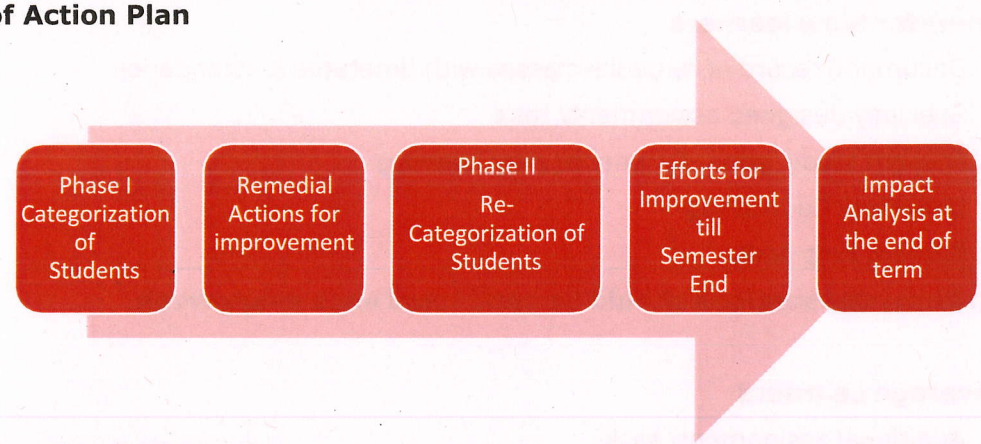
Student Competency

Chart of Action Plan



Guidelines for First Year

Phase I- Categorization	Phase II- Re-Categorization
Continuous Assessment Test - I	CAT-II Results
Re Test for CAT - I Failures	Timely Completion of work
Attendance	Performance in Laboratory
Behaviour	Attendance
	Behaviour

Guidelines for Second Year, Third Year, Final Year

Phase I- Categorization	Phase II- Re-Categorization
Previous semester End Semester Result whichever is available	CAT-II Results
Continuous Assessment Test - I	Timely Completion of work
Re Test for CAT-I Failures	Performance in Laboratory
Attendance & Behaviour	Attendance & Behaviour

Base Score for student category

<50% - Slow Learner
50% to 70% - Average Learner
>70% - Advanced Learner

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Strategies for Slow, Average and Advanced

Learners for Slow learners

- Document/record of remedial classes with timetable & attendance
- Specially designed assignment/ task
- Student study group for peer to peer learning
- Individual Counseling
- Student help desk

Note: Remedial sessions should be conducted once every week.

For Average Learners

- Additional assignment/ task
- Encouraging for timely and effective completion of work
- Conduction of quiz, orals etc.
- Solving previous year University question papers and test papers
- Presentation on technical topics/ case studies/mini projects

Note: Activities should be on continuous basis.

For Advanced Learners

- Encouraging to present & publish papers in journals/conferences/competitions
- Guidance for GATE/ competitive Examination
- Encouraging to participate in professional activities.
- Specially designed activities to improve the portfolio of students.
- Individual guidance for career building

Note: Activities should be on continuous basis.

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Rubrics for Assessment

Rubric

- A scoring guide with criteria for evaluating students' work in direct relation to one or more of the PO's and a rating scale indicating differing levels of performance.

Rubrics are:

- Used to examine how well students have met CO or PO rather than how well they perform compared to their peers.
- Typically include measurable descriptors that define expectations at each level of performance for each criterion.

Sample Rubrics for CO assessment in Projects:

Review No.	Agenda	Assessment	Weightage	Overall
(a)Internal Evaluation				
1	Project Proposal Evaluation	Rubric 1	5	65
2	Mid Term Project Evaluation	Rubric 2	7.5	
3	End Semester Internal Project Evaluation	Rubric 3	7.5	
4	Project Report Evaluation	Rubric 4	30	
5	Evaluation by guide	Rubric 5	15	
(b)External Evaluation				
1	Report submission		15	35
2	Viva-voce		20	
Total Marks				100

Sample Rubrics for CO assessment in Assignment:

Criteria	Low (1)	Medium (2)	Strong (3)
Analytical Skills	Minimal ability to analyze the given task	Some ability to analyze the given task	Able to analyze the given task
Writing Skills Content	The content is quite relevant to the given task.	The content is relevant to the given task.	The content is highly relevant to the given task
Organization	The organization of the paper is weak and support is in substantial or unconvincing	The organization of the paper is good and generally supported with little evidence	The organization of the paper is well supported with evidence
Language	Sentences are somewhat varied, and some are in appropriate with minimal grammatical errors	Sentences are correctly Constructed	Sentences are correctly Constructed and well-articulated
Knowledge Skills and Creative idea	The Student demonstrates a moderate level of the subject knowledge	The Student demonstrates a sufficient level of the subject knowledge with some creative idea	The Student demonstrates sound subject knowledge with a creative idea

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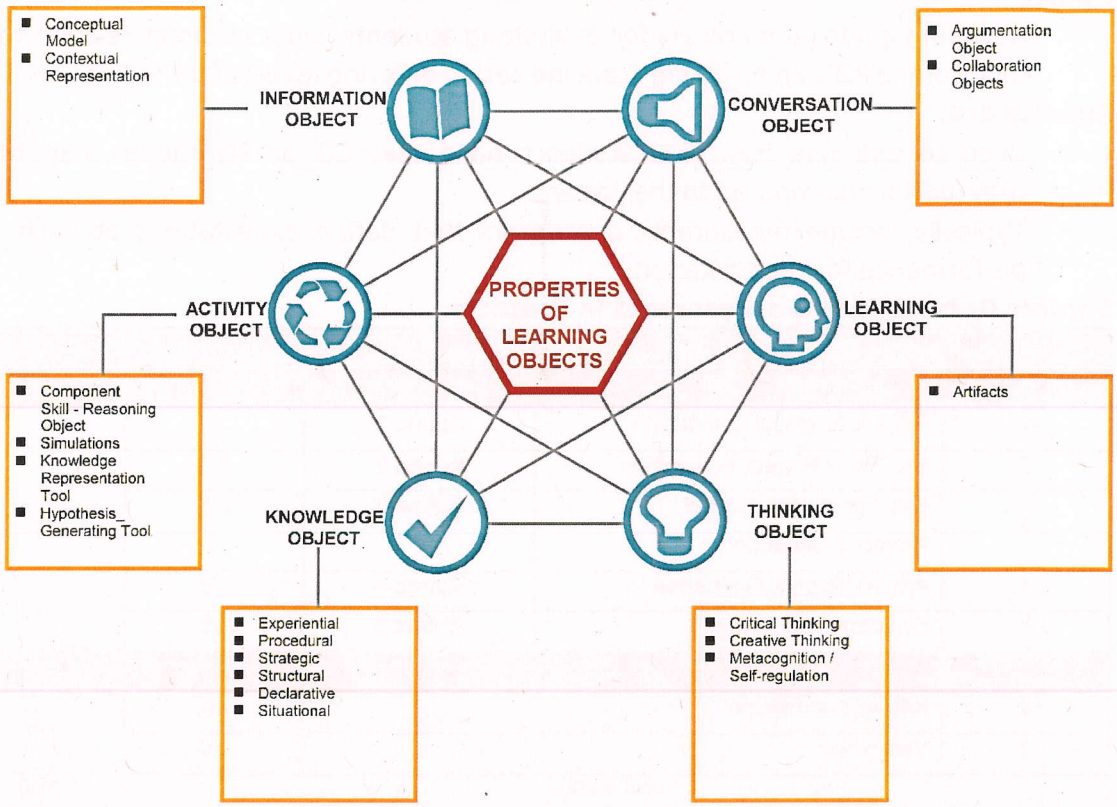
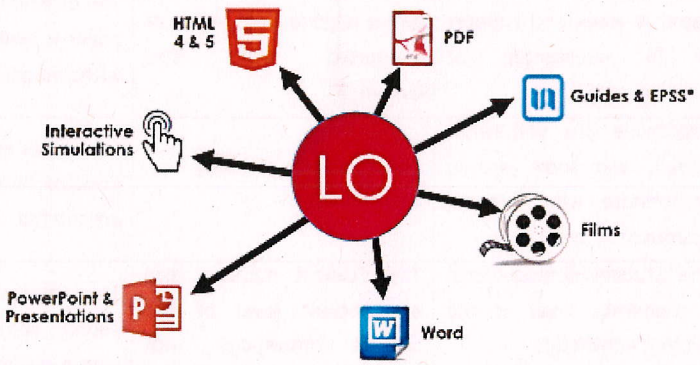
Activity Based Learning



Examples:

Engaging videos, Podcasts, Graphics, Drawings, Online presentations, Timelines, e-Books, Dialogue simulations, Interactive events, Online quizzes, Group Discussion, Flipped Classroom, Debate, Case Studies, Four Corners.



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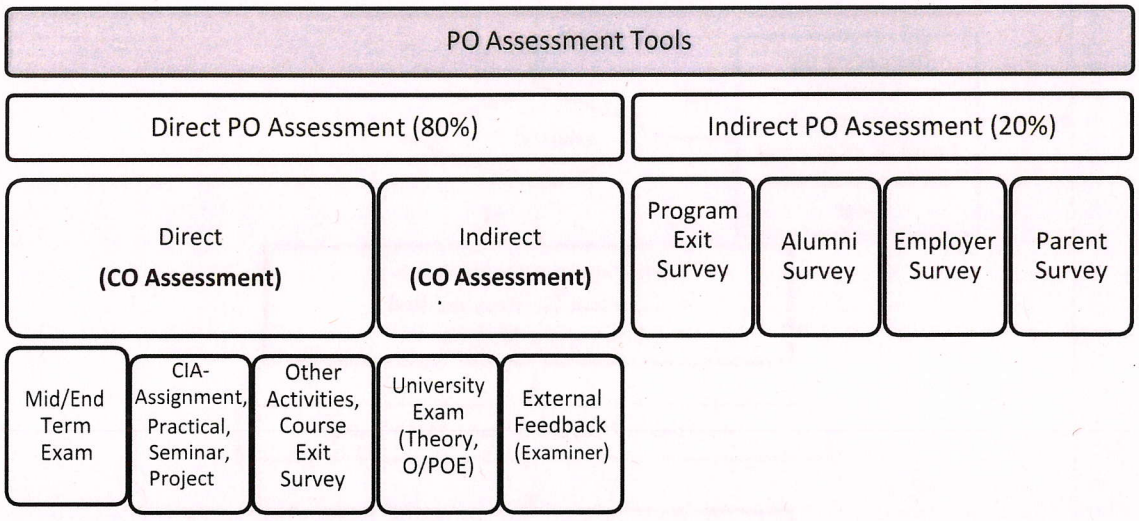
List of Assessment Tools

All (Direct + Indirect) CO Assessment Tools = PO Direct Assessment Tools

Sample CO Assessment Tools

- Continues Assessment Test
- End Semester Examination
- Practical/ Lab work
- Oral/Viva Voce
- Quiz
- Assignment
- Handouts
- Mini Project
- Industrial Visit, Workshop
- Course Exit Survey
- External Feedback (External Examiner/Trainer, Campus Placement Technical Expert)
- **Direct Tools:** (Measurable in terms of marks and w.r.t. CO) Assessment done by faculty at Institute level
- **Indirect Tools:** (Non measurable in terms of marks and w.r.t. CO) Assessment done at University Level



Sample Indirect PO assessment Tools (Refer Appendix)

- Program Exit Survey
- Alumni Survey
- Employer Survey of Alumni
- Parent Feedback

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CO Attainment Calculations

Attainment Process

Process of Co Attainment

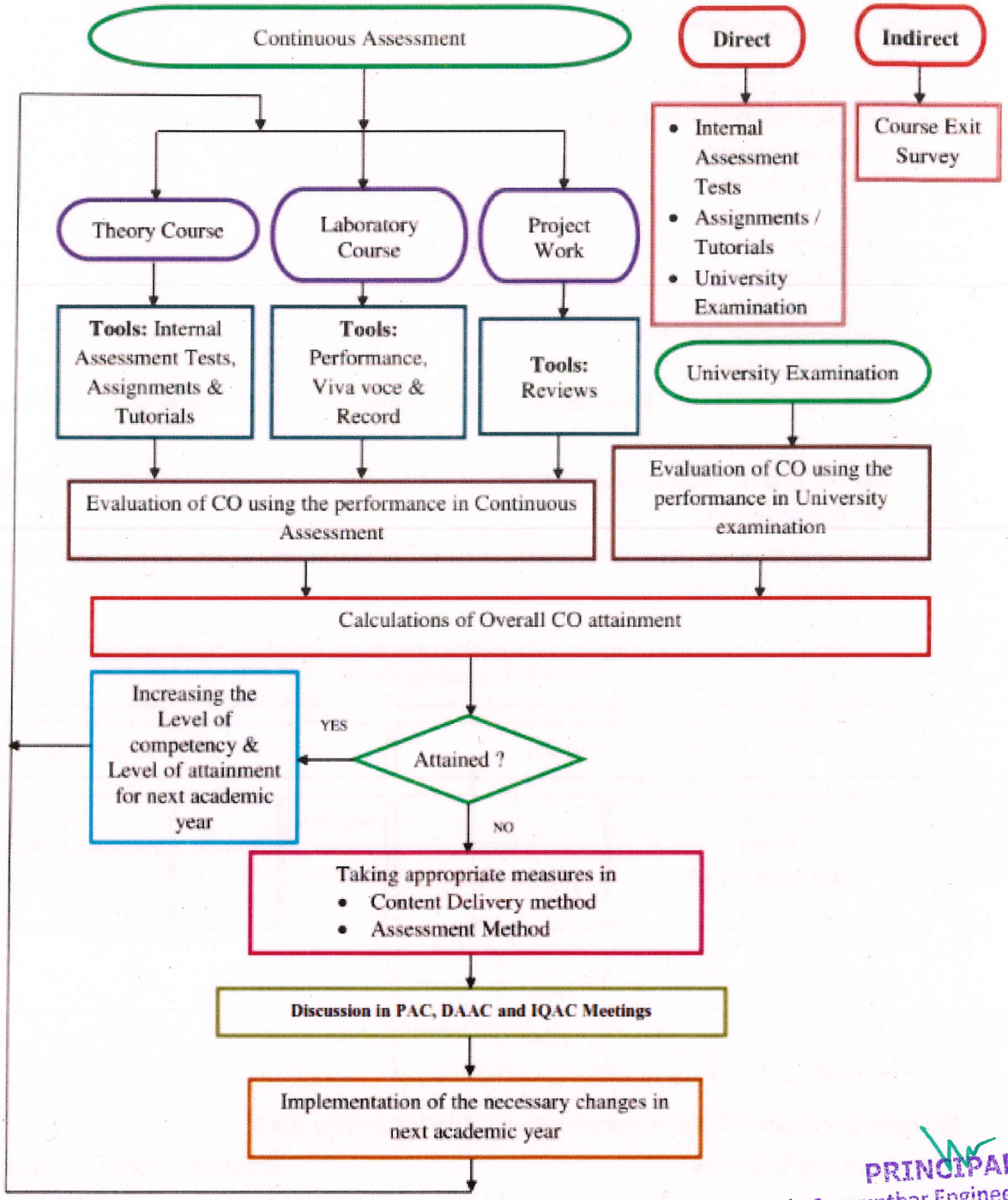

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Illustration of CO-PO Attainment & Mapping

Course Outcomes/Program Outcomes			Internal Assessment															External Assessment	Indirect Assessment				
			C204.1			C204.2			C204.3			C204.4			C204.5				Course End Survey				
			75	25	100	75	25	100	75	25	100	75	25	100	75	25	100		CO1	CO2	CO3	CO4	CO5
S.NO	REG. NO	NAME	IAT1 & IAT3	Ass1	TOTAL	IAT1 IAT2& IAT3	Ass2	TOTAL	IAT2 & IAT3	Ass3	TOTAL	IIT & IAT3	Ass4	TOTAL	IIT & IAT3	Quiz	TOTAL	University Grade	3	3	3	3	3
1	7304xxxxxxxx	Aaaaaaaaaaaa	45	10	55	44	20	64	52	20	72	43	20	63	32	20	52	E	3	3	3	3	3
2			42	15	57	39	20	59	43	20	63	43	20	63	32	20	52	E	3	3	3	3	3
3			68	25	93	61	20	81	67	25	92	68	25	93	50	25	75	E	3	3	3	3	3
4			47	25	72	43	20	63	48	25	73	40	25	65	29	25	54	E	3	3	3	3	3
5			53	20	73	39	20	59	35	25	60	47	20	67	35	20	55	E	3	3	3	3	3
6			60	20	80	53	20	73	57	25	82	56	25	81	41	25	66	D	3	3	3	3	3
7			41	10	51	43	10	53	52	15	67	49	15	64	36	15	51	E	3	3	3	3	3
8			38	15	53	35	15	50	36	10	46	34	20	54	25	20	45	E	3	3	2	3	2
9			30	15	45	23	20	43	19	15	34	24	20	44	18	20	38	U	2	2	0	2	1
10			38	20	58	27	25	52	19	20	39	31	20	51	23	20	43	U	3	3	1	3	2
11			42	20	62	40	15	55	47	20	67	50	20	70	37	20	57	E	3	3	3	3	3
12			47	15	62	44	20	64	52	20	72	43	20	63	32	20	52	E	3	3	3	3	3
13			63	25	88	58	25	83	65	25	90	65	25	90	48	25	73	B	3	3	3	3	3
14			54	10	64	48	25	73	53	25	78	54	25	79	40	25	65	E	3	3	3	3	3
15			45	20	65	43	20	63	47	25	72	47	25	72	35	25	60	E	3	3	3	3	3
16			66	20	86	61	20	81	69	25	94	68	25	93	50	25	75	C	3	3	3	3	3
17			35	15	50	29	15	44	29	20	49	33	20	53	24	20	44	U	3	2	2	3	2
18			65	25	90	58	20	78	65	25	90	65	25	90	48	25	73	C	3	3	3	3	3
19			9	10	19	14	10	24	19	15	34	9	10	19	7	10	17	U	0	0	0	0	0
20			45	20	65	44	15	59	53	25	78	49	25	74	36	25	61	E	3	3	3	3	3
21			56	15	71	53	20	73	60	25	85	61	25	86	45	25	70	E	3	3	3	3	3
22			53	15	68	48	15	63	53	20	73	50	20	70	37	20	57	U	3	3	3	3	3
23			57	25	82	52	20	72	55	25	80	63	25	88	47	25	72	E	3	3	3	3	3
24			48	15	63	32	10	42	23	10	33	42	15	57	31	15	46	U	3	2	0	3	2
25			68	20	88	58	25	83	60	20	80	67	25	92	49	25	74	E	3	3	3	3	3
26			48	15	63	45	20	65	53	15	68	45	10	55	33	10	43	E	3	3	3	3	2
27			41	20	61	41	20	61	50	20	70	38	20	58	28	20	48	E	3	3	3	3	2
No of Students scored set attainment level					54			50			55			54			34	16	61	58	59	61	50
% of Students scored set attainment level					79			74			81			79			50	24	90	85	87	90	74
Level of Attainment					3			3			3			3			1	1	3	3	3	3	3

Course Outcomes	Attainment Level	Level 1:	Below 60% of students scored more than set Target
	Internal + External + Course End Assessment	Level 2:	60 to Below 69% of students scored more than set Target
C204.1	2.04	Level 3:	70 % and above of Students scored more than set Target
C204.2	2.04		
C204.3	2.04	Tools	Weightage / Overall Weightage in COs
C204.4	2.04	Direct	Internal 40 / University 60 — 80%
C204.5	1.40		
Average	1.91	Indirect	Course End Suevey — 20%

Actual Attainment of POS & PSOs

Course outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C204.1	2.04	2.04	2.04	2.04	-	1.36	1.36	-	-	-	-	1.36	2.04	1.36	-
C204.2	2.04	2.04	2.04	2.04	-	1.36	1.36	-	-	1.36	-	1.36	-	1.36	1.36
C204.3	2.04	2.04	-	-	-	1.36	1.36	-	-	1.36	0.68	1.36	0.68	1.36	1.36
C204.4	2.04	2.04	-	-	-	2.04	2.04	1.36	-	1.36	0.68	1.36	1.36	1.36	1.36
C204.5	1.4	1.4	1.4	1.4	-	1.4	1.4	0.933	-	-	0.467	0.933	0.933	0.933	0.9333
C204	1.91	1.91	1.83	1.83	-	1.50	1.50	1.15	-	1.36	0.61	1.27	1.25	1.27	1.25
Expected LEVEL	3	3	3	3	-	2.4	2.4	2	-	2	1	2	2	2	2
ATTAINED	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

CO-PO Mapping

C204.1	3	3	3	3		2	2					2	3	2	
C204.2	3	3	3	3		2	2			2		2		2	2
C204.3	3	3				2	2			2	1	2	1	2	2
C204.4	3	3				3	3	2		2	1	2	2	2	2
C204.5	3	3	3	3		3	3	2			1	2	2	2	2
C204	**3**	**3**	**3**	**3**		**2.4**	**2.4**	**2**		**2**	**1**	**2**	**2**	**2**	**2**

***

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Overall Attainment of CO

Course Outcome calculation for Internal Assessment, External Assessment

$$\text{\% of Students scored the set attainment level} = \frac{\text{No. of Students secured above the Target}}{\text{Total No. of Students Attended the course}}$$

Course Outcome calculation for Overall Attainment

Final CO Attainment = ((End Semester Examination Score x 0.8*) + (Internal Assessment Score x 0.2*) x 0.8)) + (Course End Survey x 0.2)

**Based on regulation*

Program Exit Survey (PES) Question Level Attainment	3	80% of the Students provided more than or equal to 3 Marks in Survey Question
	2	70% of the Students provided more than or equal to 3 Marks in Survey Question
	1	60% of the Students provided more than or equal to 3 Marks in Survey Question
Alumni Survey (AS) Question Level Attainment	3	80% of the Students provided more than or equal to 3 Marks in Survey Question
	2	70% of the Students provided more than or equal to 3 Marks in Survey Question
	1	60% of the Students provided more than or equal to 3 Marks in Survey Question

PO Attainment	Tools	Process
Indirect	• Program Exit Survey	On completion of program, a feedback is obtained from each student about the entire program experience.
	• Alumni Survey	During the alumni meet, graduation day the alumni survey are collected from the graduates based on the various parameters.

Overall Attainment of PO

The Overall PO & PSO attainment is calculated by using the following formula

Overall POm Attainment

=(POm Direct Attainment x 0.8) + (POm Indirect Attainment x 0.2)

Overall PSOm Attainment

=(PSOm Direct Attainment x 0.8) + (PSOm Indirect Attainment x 0.2)

Where m = number of Program Specific Outcomes

#Note: Appropriate % weightage distribution may be considered for any number of direct/indirectassessment tools with proper justification at department/faculty level

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Sample List of Activities with BTL

Activities	Possible BTL	PO Mapping
Tutorial	Understand, Apply	Any relevant PO from 1 to 4
Practical-Experiments	Understand, Apply, Analyse, Evaluate, Create	Any Relevant PO
Test/Quiz	Understand, Apply, Analyse	Any relevant PO from 1 to 4
Seminar Presentation	Understand, Apply, Analyse	Any PO from 1, 2, 8, 10
Case Study	Understand, Apply, Analyse	Any Relevant PO
Presentation/Oral	Understand	
Guest Lecture	Understand	
Industrial Visits	Understand	
Survey & Analysis	Apply & Analyse	
Workshop/Hands-on Training	Apply, Analyse, Evaluate	
Innovative Task	Evaluate, Create	
Mini Project	Create	

Note: Faculty/ department can conduct other than the mentioned activities with BTL, PO and properjustification.

Note: Department may use other additional criteria and justify the mapping level.

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Contribution of Course Attainment in PO Attainment

Illustration

Let us assume CO-PO-PSO mapping of a course

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	2	1	-	-	-	-	-	-	-	-	-	3	-	-
3	-	3	1	-	-	-	-	-	-	-	-	-	3	-	-
4	-	3	-	2	-	-	-	-	-	-	-	1	3	-	-
5	-	3	-	2	-	-	-	-	-	-	-	1	3	-	-
Average	3	3	1	2	-	-	-	-	-	-	-	1	3	-	-

Overall Attainment of CO is as below

CO	Direct Tool Attainment (A)	Indirect Tool Attainment (B)	Overall CO Attainment = 0.8x A + 0.2x B
1	2	3	2.2
2	3	3	3.0
3	2	3	2.2
4	1	3	1.4
5	1	3	1.4

Hence, final contribution of CO attainment in PO attainment can be done using the below formula,
CO Contribution = Overall CO attainment X (CO-PO Mapping weightage / 3)

CO	PO												PSO		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
1	2.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	2.00	1.00	-	-	-	-	-	-	-	-	-	3.00	-	-
3	-	0.73	0.73	-	-	-	-	-	-	-	-	-	2.80	-	-
4	-	2.60	-	1.73	-	-	-	-	-	-	-	0.46	2.60	-	-
5	-	2.60	-	1.73	-	-	-	-	-	-	-	0.86	2.60	-	-
Average	2.20	1.98	0.86	1.73	-	-	-	-	-	-	-	0.66	2.75	-	-

Sample calculations:

CO1- PO1 mapping attainment 2.2 x 3/3 = 2.20 (up to 2 decimal places)

CO2- PO2 mapping attainment 3 x 2/3 = 2.00

CO2- PO3 mapping attainment 2.2 x 1/3 = 0.73

CO3- PO3 mapping attainment 2.2 x 1/3 = 0.73

CO4- PO12 mapping attainment 1.4 x 1/3 = 0.46

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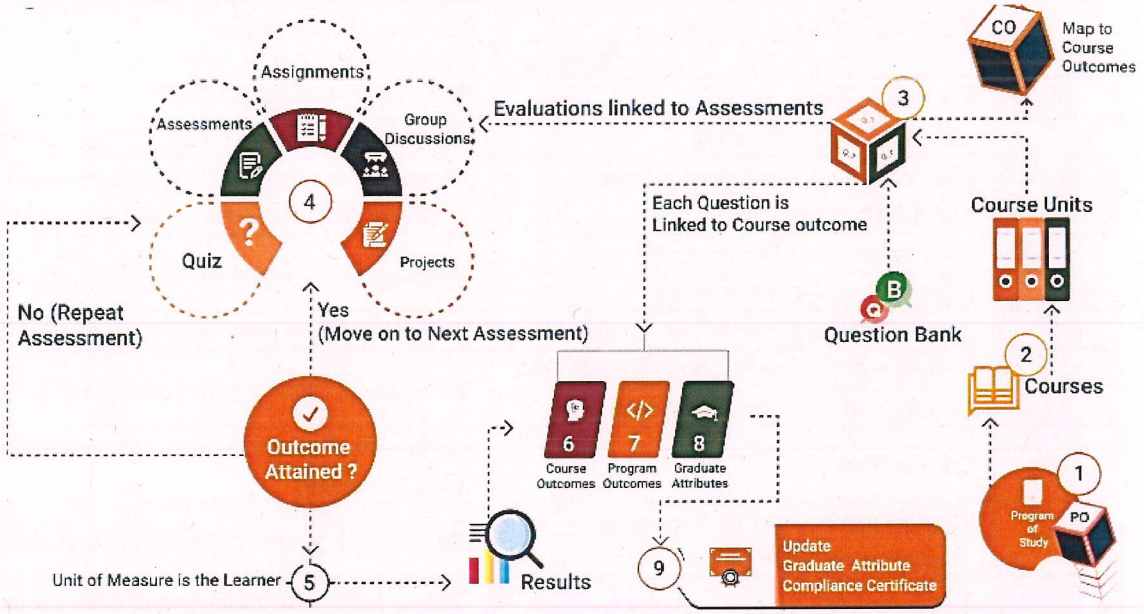
Continuous Improvement

A) Contribution of CO in PO attainment and Continuous Improvement (Faculty Level)



B) Continuous Improvement and Contribution of CO in PO attainment (PC / HoD Level)

Outcome	Action to be taken by faculty / PC / HoD
High attainment of all CO-PO	Set new higher targets or attainment levels for next Academic Year (A.Y.).
Moderate attainment of all CO-PO	Record observations, Continue action plan of last A.Y. with plan for improvements.
Low attainment of all CO-PO	Record observations, assess the target set, revise/improve action plan of last A.Y. to achieve the attainment with plan for improvements.
CO-PO not attained, poor performance	Record observations, Critical assessment of target with Program Assessment Committee (PAC), Revise action plan of last A.Y. at faculty/department level.

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List of Documents

Sl No.	Description	Responsibility
1	Vision, Mission of Institute	Maintain at Department Level (CC, PC and HoD) *CC – Course Co ordinator* *PC – program Co Ordinator* *HoD – Head of the Department*
2	Vision, Mission of Program	
3	PEO of Program, PEO-PO/PSO Mapping	
4	PO and PSO of Program	
5	CO + PO/PSO + Mapping	Maintained by every faculty in Course File
6	Revised Bloom's Taxonomy Level and OBE Framework	Print to be maintained in Course File of Faculty & displayed in department all labs
7	Course List with Course Codes	Maintain at Department Level (CC, PC and HoD)
8	List of PO Assessment Tools	
9	List of CO Assessment Tools Used	Maintained by every faculty in Course File
10	Program Assessment Committee & DAAC	Maintain at Department Level (CC, PC and HoD)
11	Course and Module Coordinators	
12	Course Plan	Along with delivery details and assessment tools by Faculty
13	Attainment Levels/ Targets of all courses of your program	Maintained by every faculty in Course File
14	Rubrics	Course wise rubrics to be maintained by every Faculty All activity rubrics to be maintained at Dept. Level
15	Record of all Assessment Details	Test Papers, Model Answers, Sample Answer Papers, Results, Sample Journals of students, Lab Manuals, Sample Seminar, Project Report & other record concerned with assessment to be maintained by Faculty
16	Slow-Advanced Learners	Identification, Action Taken Record to be maintained by Faculty
17	Course End Survey of every course	To be maintained by concerned Faculty
18	Student Exit Survey, Alumni Survey, Employer Survey, Parents Survey	End of Final Year: Maintain at Department Level (PC and HoD)
19	CO Attainment	At End of Course: Maintained by Faculty and to be submitted to department
20	PO Attainment	At end of A.Y.: (Direct + Indirect) to be maintained by CC, PC & HoD at Dept. Level
21	Impact Analysis and Continuous Improvement Related Documents	CO level documents to be maintained by concerned faculty. PO level documents to be maintained by PC and HoD.

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Appendix

Action Verbs for Bloom's Taxonomy

LOTS(Lower Order Thinking Skills)			HOTS(Higher Order Thinking Skills)		
Remembering	**Understanding**	**Applying**	**Analysing**	**Evaluating**	**Creating**
Remember previously learned information	Demonstrate an understanding of the facts	Apply knowledge to actual situations	Break down objects or ideas into simpler parts and find evidence to support generalizations	Make and defend judgments based on internal evidence or external criteria	Compile component ideas into anew whole or propose alternative solutions
Key Words: Define Describe Draw Enumerate Identify Label List Locate Match Name Select Specify State Tabulate Underline	**Key Words:** Cite Classify Compare Convert Demonstrate Estimate Differentiate Discuss Distinguish Explain Generalize Indicate Show Summarize Write	**Key Words:** Apply Calculate Change Chart Choose Complete Compute Determine Discover Examine Experiment Illustrate Interpret Modify Relate Sequence	**Key Words:** Analyze Categorize Contrast Correlate Deduce Discriminate Focus Infer Make Order Outline Point out Separate Subdivide	**Key Words:** Appraise Assess Choose Compare Conclude Consider Decide Evaluate Grade Justify Measure Reframe Select Support Test Validate	**Key Words:** Arrange Compose Create Design Devise Express Formulate Generate Integrate Make Organize Produce Rearrange Rewrite Substitute Support
Technologies: book marking, flash cards, rote learning based on repetition, reading	**Technologies:** create an analogy, participating in cooperative learning, taking notes, storytelling, Internet search	**Technologies:** collaborative learning, create a process, blog, practice	**Technologies:** Fishbowls, debating, questioning what happened, run a test	**Technologies:** survey, blogging	**Technologies:** Create a new model, write an essay, network with others
Examples: Recite a policy. Quote prices from memory to a customer. Recite the safety rules.	**Examples:** Rewrite the principles of test writing. Explain in one's own words the steps for performing a complex task. Translate an equation into a computer spreadsheet.	**Examples:** Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test.	**Examples:** Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.	**Examples:** Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.	**Examples:** Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and process to improve the outcome.

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Action Verbs for Assessment

Level	Skill Demonstrated	Question cues / Verbs for tests
1. Remember	• Ability to recall of information like facts, conventions, definitions, jargon, technical terms, classifications, categories, and criteria • ability to recall methodology and procedures, abstractions, principles, and theories in the field • knowledge of dates, events, places • mastery of subject matter	list, define, tell, describe, recite, recall, identify, show, label, tabulate, quote, name, who, when, where
2. Understand	• understanding information • grasp meaning • translate knowledge into new context • interpret facts, compare, contrast • order, group, infer causes • predict consequences	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss
3. Apply	• use information • use methods, concepts, laws, theories in new situations • solve problems using required skills or knowledge • Demonstrating correct usage of a method or procedure	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify
4. Analyse	• break down a complex problem into parts • Identify the relationships and interaction between the different parts of a complex problem • identify the missing information, sometimes the redundant information and the contradictory information, if any	classify, outline, break down, categorize, analyze, diagram, illustrate, infer, select
5. Evaluate	• compare and discriminate between ideas • assess value of theories, presentations • make choices based on reasoned argument • verify value of evidence • recognize subjectivity • use of definite criteria for judgments	assess, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate
6. Create	• use old ideas to create new ones • Combine parts to make (new) whole, • generalize from given facts • relate knowledge from several areas • predict, draw conclusions	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

Reference: Examination reform policy published by AICTE in November 2018

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Department of _____ Engineering

Program Assessment Cell

ALUMNI SURVEY

Greetings from Department of _____, Erode Sengunthar Engineering College.

The faculty and alumni of Department of _____ of Erode Sengunthar Engineering College are dedicated to the continuous improvement of undergraduate engineering programs. The information that you provide through this survey will be very helpful for this process. We appreciate your help in filling out this survey. Thank you for your cooperation and support.

Name:_____ Gender: ☐ Male ☐ Female

Year of Graduation: _____

Employer:_____

Job Title:_____

Job Description:_____

_____

Mailing Address:_____

E-mail: _____Tel/Mobile:_____Fax:_____

Advanced Degrees (M.E. / Ph.D. if any):_____

University Honors/Recognitions (if any):_____

Employment Honors/Recognitions (if any):_____

Membership in Professional Societies (if any):_____

Have you attended any professional/technical society conference(s) since graduation?

☐ Yes ☐ No

Have you participated in a continuing education activity e.g.(short courses) since graduation?

☐ Yes ☐ No

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3

Please rate each of the following Program Outcomes and Program Specific Outcomes in terms of their importance and usage in your job, and state how well your education at Department of ECE, Erode Sengunthar Engineering College has prepared you for these.

You can rate them in the following three grades.

High	**Level 3**
Medium	**Level 2**
Low	**Level 1**

Program Outcomes		*Level of Attainment*		
		3	*2*	*1*
PO1:	**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.	☐	☐	☐
PO2:	**Problem analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences	☐	☐	☐
PO3:	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.	☐	☐	☐
PO4:	**Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.	☐	☐	☐
PO5:	**Modern tool usage:** Create, select, and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	☐	☐	☐
PO6:	**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	☐	☐	☐
PO7:	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.	☐	☐	☐
PO8:	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	☐	☐	☐
PO9:	**Individual and team work:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.	☐	☐	☐
PO10:	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.	☐	☐	☐
PO11:	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	☐	☐	☐
PO12:	**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	☐	☐	☐

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Program Specific Outcomes			
PSO1: Interpretation Skills: Acquire skills to design, verify and validate electronic functional elements for a variety of applications.	☐	☐	☐
PSO2: Core Competences: Ability to use hardware and software tools to solve complex problems in VLSI, Communication, RF and Embedded Systems.	☐	☐	☐
PSO3: Attitude: Develop an attitude of lifelong learning for sustained career advancement and adapt to the changing multidisciplinary profession	☐	☐	☐

1. Would you recommend Erode Sengunthar Engineering College to a friend or a relative?

☐ Strongly recommend ☐ Recommend ☐ Don't recommend

2. Comments (if any):

Signature of the Alumni

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Department of _____ Engineering

Program Assessment Cell

EMPLOYER SURVEY

Greetings from Department of _____, Erode Sengunthar Engineering College.

The Erode Sengunthar Engineering College is expanding its efforts to improve the quality of its undergraduate programs. As a major stakeholder of our college, we are seeking your assessment on how we are serving your needs through the quality of our graduates. Kindly fill the survey form and sent it to us. Thank you for your cooperation and support.

Name: _____

Company/Organization: _____

Department/Division: _____ Position: _____

Years in position: _____ E-mail:_____

Tel/Mobile: _____ _____ Fax: _____

-Which ONE of the following best describes your organization **as a whole**?

- ☐ Government
- ☐ Private Company
- ☐ Other (please specify) _____

- Job nature of engineering staff:
  (e.g. design, programming, maintenance, procurement, etc): _____

- Number of engineers employed in your company (if known): _____

- Number of Erode Sengunthar Engineering College graduates
  working in your company (if known): _____

Now we are in the process of evaluating the Engineering graduate attributes, Program Outcomes and Program Specific Outcomes attained by our graduates during their education here in our institution. Based on the performance of our graduates in your company, Kindly rate the attainment levels of Engineering graduate attributes furnished below.

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b

You can specify the level of attainment in the following three grades.

High **Level 3**
Medium **Level 2**
Low **Level 1**

Program Outcomes	*Level of Attainment*		
	3	2	1
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.	☐	☐	☐
PO2: Problem analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences	☐	☐	☐
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.	☐	☐	☐
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.	☐	☐	☐
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	☐	☐	☐
PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	☐	☐	☐
PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.	☐	☐	☐
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	☐	☐	☐
PO9: Individual and team work: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.	☐	☐	☐
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.	☐	☐	☐
PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	☐	☐	☐
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	☐	☐	☐
Program Specific Outcomes			
PSO1: Interpretation Skills: Acquire skills to design, verify and validate electronic functional elements for a variety of applications.	☐	☐	☐
PSO2: Core Competences: Ability to use hardware and software tools to solve complex problems in VLSI, Communication, RF and Embedded Systems.	☐	☐	☐
PSO3: Attitude: Develop an attitude of lifelong learning for sustained career advancement and adapt to the changing multidisciplinary profession	☐	☐	☐

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-Did you provide additional (on the job or off the job) training at the first year of recruitment to improve your newly appointed engineers?

☐Yes ☐No

-If **yes**, what training did you provide? Please be specific.

_____

_____

_____

_____

Signature of the Employer

Thank you for completing this survey.
Your feedback will be used to improve the preparation of
Erode Sengunthar Engineering College graduates to be employable.

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& Accredited by National Board of Accreditation (NBA), New Delhi.)

Perundurai, Erode 638 057

Department of _____ Engineering

Program Assessment Cell

STUDENTS EXIT SURVEY FORM

(A part of Quality Assurance cum Assessment)

Greetings from Department of _____, Erode Sengunthar Engineering College.

The faculty and students of Department of _____ of ESEC are dedicated to the continuous improvement of B.E. _____ Program. The information that you provide through this survey will be very helpful in this process. Kindly fill it and hand over to us.Thank you for your cooperation and support.

Name: _____ Gender: ☐ M ☐ F

Year of Graduation: _____

Overall CGPA and CLASS: _____

Future plans (check all that apply)

☐ I intend to work in the government sector. ☐ I intend to work in the private sector.

☐ I intend to go to higher studies. ☐ I intend to start my own business.

☐ I intend to do other things (please specify): _____

Hope you are aware of an Program Educational Objectives (PEOs).The PEOs for B.E (Electronics and Communication Engineering) are as below.

I. Impart the learners, an ability to understand and use analytical, academic and communication skills effectively with special emphasis to fulfill societal needs

II. Inspire the beginners to enrich their skills throughout career by learning about emerging technologies, adapting and accepting the changes to achieve leadership position in industry or academia

III. Prepare graduates to innovate products/solutions through research to real life problems for boosting the economy of the region and the nation

IV. Prepare graduates to work effectively as a team and practice ethics in the profession with a sense of social responsibility

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Now we are in the process of measuring the attainment levels of the Program Outcomes and Program Specific Outcomes so as to ensure the quality of education. We often here in an institution to enable you to possess engineering graduate attributes.
Based on your experience in an institution,kindly rate each of the following Program Outcomes / Program Specific Outcomes in terms of how well your education at ESEC prepared you for them.

You can rate them in the following three grades.

High **Level 3**
Medium **Level 2**
Low **Level 1**

1. Assessment of Program Outcomes/Program Specific Outcomes

Program Outcomes		*Level of Attainment*		
		3	*2*	*1*
PO1:	**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.	☐	☐	☐
PO2:	**Problem analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences	☐	☐	☐
PO3:	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.	☐	☐	☐
PO4:	**Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.	☐	☐	☐
PO5:	**Modern tool usage:** Create, select, and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	☐	☐	☐
PO6:	**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	☐	☐	☐
PO7:	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.	☐	☐	☐
PO8:	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	☐	☐	☐
PO9:	**Individual and team work:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.	☐	☐	☐
PO10:	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.	☐	☐	☐

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PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	☐	☐	☐
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	☐	☐	☐
Program Specific Outcomes			
PSO1: Interpretation Skills: Acquire skills to design, verify and validate electronic functional elements for a variety of applications.	☐	☐	☐
PSO2: Core Competences: Ability to use hardware and software tools to solve complex problems in VLSI, Communication, RF and Embedded Systems.	☐	☐	☐
PSO3: Attitude: Develop an attitude of lifelong learning for sustained career advancement and adapt to the changing multidisciplinary profession	☐	☐	☐

2. Assessment of the Learning Environment at ESEC

Please indicate your satisfaction with each of the following aspects of your experience at ESEC.

	Level of Attainment		
	3	*2*	*1*
A. Quality of instruction and support for learning provided by the faculty members in:			
- Sciences (Mathematics, Physics, Chemistry)	☐	☐	☐
- Computers (Programming and usage of software packages)	☐	☐	☐
- Humanities and Social Sciences	☐	☐	☐
- General Engineering,	☐	☐	☐
- Core Engineering	☐	☐	☐
B. Quality of instruction and support for learning given by technical and supporting staff within major.	☐	☐	☐
C. Quality of advice by the faculty with respect to:			
- Academic planning	☐	☐	☐
- Career planning	☐	☐	☐
D. Equity of treatment by:			
- Principal, HoD, Faculty and other administrators	☐	☐	☐
- Technical and supporting staff	☐	☐	☐
- Fellow students	☐	☐	☐
E. Quality of the facilities:			
- Class rooms	☐	☐	☐
- Science Laboratories	☐	☐	☐
- Engineering Laboratories	☐	☐	☐

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- Computing facilities	☐	☐	☐
- Libraries	☐	☐	☐

3. Assessment of Support Services

Please rate the quality of services provided by the listed offices. In addition, please indicate the amount of interaction that you had with each office.

	Level of Attainment		
	3	*2*	*1*
A. Academic Services:			
Admissions	☐	☐	☐
Training and placement office	☐	☐	☐
Library	☐	☐	☐
Book Stores	☐	☐	☐
B. Administrative Offices:			
Students' affairs office in your department	☐	☐	☐
Administrative offices in the college	☐	☐	☐
C. Other Services:			
Health services	☐	☐	☐
Food services	☐	☐	☐
Parking	☐	☐	☐
Recreation and Athletics	☐	☐	☐
Others (specify) _____	☐	☐	☐

Signature of the Student

Please provide your address and contact particulars for future correspondence:

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Perundurai, Erode 638 057

Department of _____ Engineering

Program Assessment Cell

PARENTS SURVEY FORM

(A part of Quality Assurance cum Assessment)

Greetings from Department of _____, Erode Sengunthar Engineering College.

The faculty of Department of _____ of ESEC are dedicated to the continuous improvement of B.E. _____ Program. The information that you provide through this survey will be very helpful in this process. We appreciate your effort in filling out this survey. Thank you for your cooperation and support.

Name of the Parent: _____ Gender: ☐ M ☐ F

Name of the Student: _____

Year of Graduation: _____

Overall CGPA and CLASS: _____

You are one of our valuable stakeholders as a parent of our student. We want you to be aware of our Program Educational Objectives (PEOS) in respect of BE/ECE.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

I. Impart the learners, an ability to understand and use analytical, academic and communication skills effectively with special emphasis to fulfill societal needs

II. Inspire the beginners to enrich their skills throughout career by learning about emerging technologies, adapting and accepting the changes to achieve leadership position in industry or academia

III. Prepare graduates to innovate products/solutions through research to real life problems for boosting the economy of the region and the nation

IV. Prepare graduates to work effectively as a team and practice ethics in the profession with a sense of social responsibility

We are keen in providing educational opportunities for your son/daughter in enabling them to obtain certain engineering graduate attributes; we call us Program Outcomes and Program Specific Outcomes. Please rate each of the following Program Outcomes and Program Specific Outcomes in terms of how well your wards education at ESEC prepared him/her.

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Since your son/daughter is having been graduated from our college we want you to rate the attainment levels of Program Outcomes and Program Specific Outcomes of your wards in the following three grades.

High **Level 3**
Medium **Level 2**
Low **Level 1**

1. Assessment of Program Outcomes and Program Specific Outcomes

Program Outcomes		*Level of Attainment*		
		3	*2*	*1*
PO1:	**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.	☐	☐	☐
PO2:	**Problem analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences	☐	☐	☐
PO3:	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.	☐	☐	☐
PO4:	**Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.	☐	☐	☐
PO5:	**Modern tool usage:** Create, select, and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	☐	☐	☐
PO6:	**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	☐	☐	☐
PO7:	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.	☐	☐	☐
PO8:	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	☐	☐	☐
PO9:	**Individual and team work:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.	☐	☐	☐
PO10:	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.	☐	☐	☐
PO11:	**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	☐	☐	☐

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PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	☐	☐	☐
Program Specific Outcomes			
PSO1: Interpretation Skills: Acquire skills to design, verify and validate electronic functional elements for a variety of applications.	☐	☐	☐
PSO2: Core Competences: Ability to use hardware and software tools to solve complex problems in VLSI, Communication, RF and Embedded Systems.	☐	☐	☐
PSO3: Attitude: Develop an attitude of lifelong learning for sustained career advancement and adapt to the changing multidisciplinary profession	☐	☐	☐

Signature of the Parent

Please provide your address and contact particulars for future correspondence:

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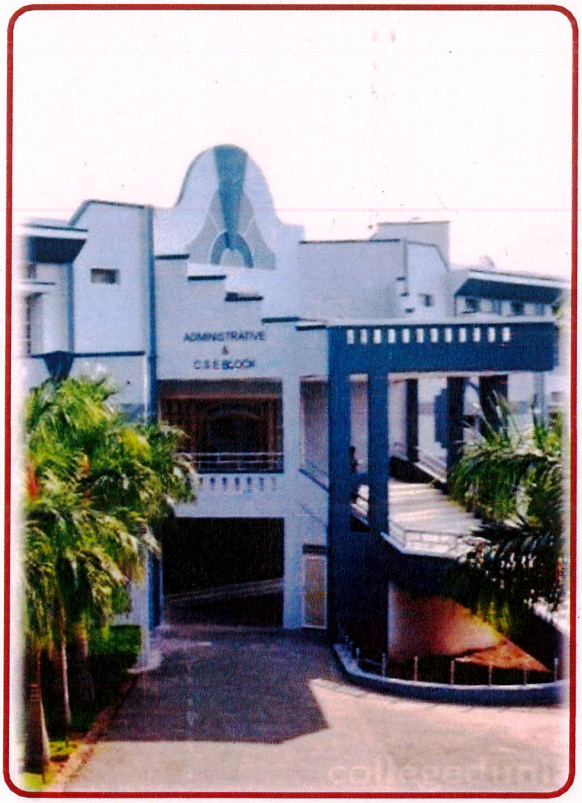

Vision

To become a World Class Technical Institution and Scientific Research Centre for the Benefit of the Society

Mission

1. To Create Positive difference to Society through Innovative Teaching – Learning Process.
2. To Impart Value Based Technical Education to the Students from across various Socio Economic backgrounds.
3. To Build State of art infrastructure for high quality Research and Development capabilities on par with the finest in the Globe and widen student's horizons beyond Class Room.
4. To Bring out Competent, Ethically Strong and Quality Professionals.

Quality Policy

We are committed to impart World Class Technical Know-How to the Students from diverse Socio Economic backgrounds and to transform their lives by nurturing Multi-Skills and facilitating them to develop holistically.

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CONTACT DETAILS

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Official You Tube Channel -
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