Best Practice- II

Title of the Practice: Adopting **Outcome Based Education** for the effective Teaching-Learning process

Objectives of the Practice:

To assess students learning and effectiveness of all educational and operational activities.

The Context

In the Outcome Based Education (OBE) model, outcome assessment plan is prepared and informed to all stakeholders. It has defined standards of performance and academic expectations from students in the form of learning outcomes at course level and programme level

The Practice:

IMPLEMENTATION STRATEGY OF OBE

Since Outcome Based Education (OBE) focuses on student competency, it concentrates on the outcomes or goals instead of just marks or scores. So, the goals which could be a certain number of skills and knowledge that the learner should have at the end of the course.

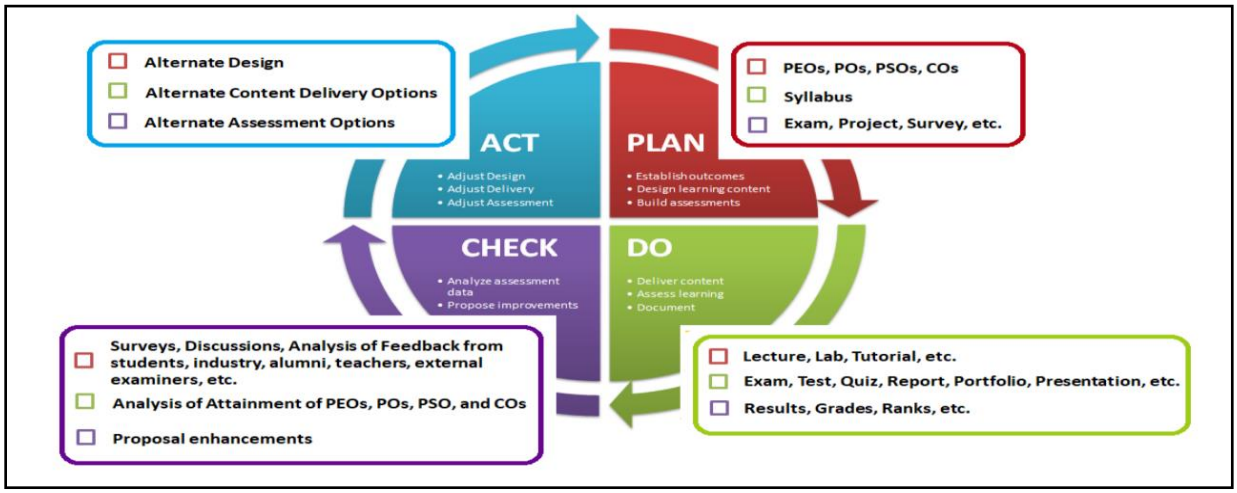

Figure: Implementation strategy of Outcome Based Education

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The assessment methods are defined to measure the achievement of these goals. The teachers take the role of being facilitators and mentors. Constructive feedback from the students also helps in reshaping the curriculum.

STEPS

1. Assessment of curriculum and needs
2. Defining outcomes
3. Collaboration and Implementation
4. Defining the role of assessments and results, and measuring success
5. Feedback and continuous evaluation

Adoption of Outcome Based Education (OBE)

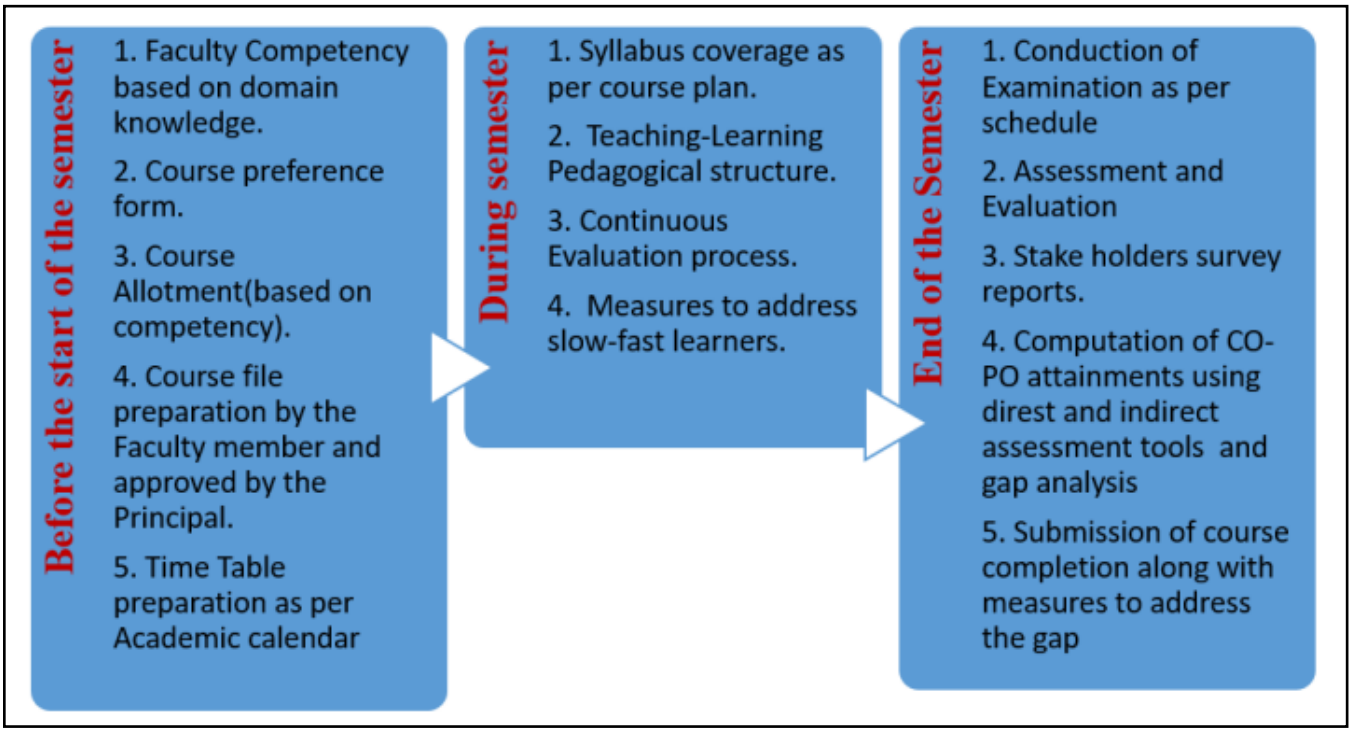

Figure: The Adoption of OBE in the College

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A set of graduate attributes are defined and aligned at all levels. The statements of learning outcomes are articulated from the graduate attributes. The learning outcomes are defined for all programmes and courses using measurable action verbs (blooms' taxonomy) to assess students learning at the end of the programme and course respectively. These outcomes are assessed by using at least one direct and one indirect assessment tool. Attainment of outcome indicates that the corresponding PEO is achieved. As these objectives flow from university level to domain, institution and programme level, and achievement of PEO indicates the corresponding objective at all levels is met. Some of the assessment tools are developed online and the results are reported in the standardized format domain-wise. Based on the results of implementation of outcome assessment, gaps are identified. The whole process is taken care by the outcome assessment committees constituted for the purpose. To enhance the knowledge on outcome based education the Department of Mechanical Engineering conducted 3 days Faculty Development Programme from January 6th to January 8th 2020 for the faculty members. A sample of Assignment and question paper with blooms' taxonomy as shown below.

Case Study: Based on the results of implementation of OBE, In the Mechanical Engineering Department, there is a slight change in the PO attainment.

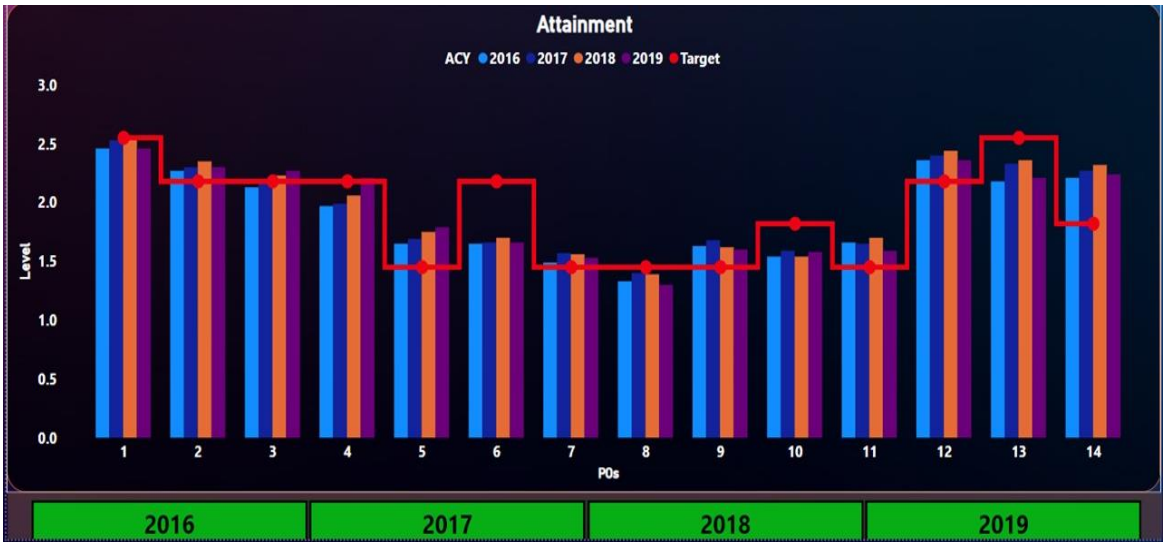

Figure: A Graph is drawn on PO attainment

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Subject Code : MA3251
Subject Title : STATISTICS AND NUMERICAL METHODS
(Regulations R- 2021)
Common to ALL branches

ASSIGNMENT I

PART-A

1.	Define Type 1 and Type 2 errors in hypothesis testing.	BTL1	CO 1
2.	A real estate agent claims that 60% of all private residence building today are 3-bedroom homes. To test this claim, a large sample of new residence is inspected; the proportion of these homes with 3 bedrooms is recorded and used as our test statistic. State the null and alternative hypotheses to be used in this test.	BTL 2&4	CO 1
3.	What is meant by level of significance and critical region?	BTL1	CO 1
4.	Define the following terms: Statistic, Parameter, Standard Error and degree of freedom	BTL1	CO 1
5.	State any two uses of chi-square test?	BTL1	CO 1

PART-B

1.	In a rural area where no development was undertaken 160 out of a sample of 250 farmers were indebted. In another area, where development work was in progress, 84 out of a sample of 150 farmers were indebted. Would you consider that the latter area is enjoying greater prosperity as indebted by a lower percentage of indebted?	BTL 2,3&5	CO 1
2.	The average income of persons was Rs.210 and with Rs. 10 for S.D in a sample of 100 people of city. For another sample of 150 people the average income was Rs.220 with S.D of Rs.12. Test whether there is significant difference between the average income of the locality.	BTL 2,3&5	CO 1
3.	A group of 5 patients treated with medicine 'A' weigh 42, 39, 48, 60 and 41 kg; the second group of 7 patients from the same hospital treated with medicine 'B' weigh 38, 42, 56, 64, 68, 69 and 62 kg. Do you agree with the claim that medicine 'B' increases the weight significantly?	BTL 2,4&5	CO 1
4.	From the following two sample values, find out whether they have come from the same population. Sample I: 17, 27, 18, 25, 27, 29, 27, 23, 17 Sample II: 16, 16, 20, 16, 20, 17, 15, 21	BTL 2,4&5	CO 1
5.	Mechanical engineers, testing a new arc-welding technique, classified welds both with respect to appearance and an X-ray inspection. Appearance: Bad / Normal / Good X-ray: Bad (20, 7, 3); Normal (13, 51, 16); Good (7, 12, 21) Using Chi-square statistic, test for independence using $\alpha=0.05$.	BTL 2&5	CO 1

Figure: A Sample Assignment with blooms' taxonomy

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Reg. No:

AALIM MUHAMMED SALEGH COLLEGE OF ENGINEERING
INTERNAL ASSESSMENT – I 3rd APRIL 2024
Course Code & Title: GE3251-ENGINEERING GRAPHICS
(Regulations R 2021)
(Common to AI&DS/CSE/EEE/ECE/MECH/IT)

CO1 Use BIS conventions and specifications for engineering drawing.
CO2 Construct the conic curves, involutes and cycloid.
CO3 Solve practical problems involving projection of lines.
BT-1: Remember **BT-2: Understand** **BT-3: Apply** **BT-4: Analyze** **BT-5: Evaluate** **BT-6: Create**

Time: 3 Hours **Maximum : 100 Marks**

Answer ALL Questions.
PART – A(5 x 20 = 100 Marks)

1.	A	Draw an ellipse given the following: (i) Distance of the focus from the directrix = 50 mm (ii) eccentricity = 2/3	20	BT-1	CO2
		OR			
1.	B	Draw the involute of a circle of diameter 40 mm	20	BT-1	CO2
2.	A	Draw a hyperbola given the distance of the focus from the directrix as 50 mm and eccentricity as 1.5.	20	BT-3	CO2
		OR			
2.	B	A circle of diameter 50mm rolls on the outside of another circle of diameter 200 mm without sliding. Draw the path traced by a point on the smaller circle	20	BT-3	CO2
3.	A	Draw a parabola given the distance of the focus from the directrix as 60 mm	20	BT-1	CO2
		OR			
3.	B	Draw the cycloid given the diameter of the generating circle as 40 mm	20	BT-3	CO2
4.	A	Draw the involute of a regular square of side 40 mm	20	BT-3	CO2
		OR			
4.	B	A circle of diameter 50mm rolls along the inside of another circle of diameter 200 mm without sliding. Draw the path traced by a point on the smaller circle	20	BT-3	CO2
5.	A	One end P of a line PQ, 55 mm long is 35 mm in front of the VP and 25 mm above the HP. The line is inclined at 40° to the HP and 30° to the VP. Draw the projections of PQ	20	BT-3	CO3
		OR			
5.	B	A line NS, 80 mm long has its end N, 10 mm above the HP and 15 mm in front of the VP. The other end S is 65 mm above the HP and 50 mm in front of the VP. Draw the projections of the line and find its true inclinations with the HP and VP	20	BT-3	CO3

Prepared by — Subject coordinator — HOD — Principal

Figure: A Sample Question Paper with blooms' taxonomy.

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Evidence of Success:

It helped in identifying the areas of improvement Institutions had proposed action plan in their implementation report for improvements in teaching pedagogy, infrastructure, learning resources, facilities and support system etc., Four programmes such as **(Mech. Engg., CSE, ECE and I.T) are accredited by the National Board of Accreditation (NBA) for Three Years from June 2024** that itself indicates success in the implementation of the OBE.

Problems Encountered and Resources Required:

The problems faced by the College in the OBE implementation are as under:

a. Training of faculty members.

To develop framework for alignment of PEOs.

b. Collecting the data for indirect Attainment method like Student Exit Survey is time consuming.

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