

DAYANANDA SAGAR ACADEMY OF TECHNOLOGY & MANAGEMENT



PHASE - 2

4 DAYS FACULTY IMMERSION PROGRAM REPORT

on

OBE OUTCOME-
BASED
EDUCATION

for

Faculties handling 1st Sem & 5th Sem

14th November 2022 to 18th November 2022

By

Dr. M RAVISHANKAR

PRINCIPAL


Principal

**Dayananda Sagar Academy of
Technology & Management
Udayapura, Kanakapura Road,
Opp. Art of Living, Bangalore-560 082**

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List of Faculties attended FIP Phase-2 on Outcome Based Education

Mechanical Engineering		
Sl. No.	Faculty Name	Designation
1	Vijayvardhana.C	Assistant professor
2	Deepak Kumar.B.N	Assistant professor
3	Ramakrishnaiah	Assistant professor
4	Ujwal. U	Assistant professor
5	Shivaprakash K.S	Assistant professor
Electrical & Electronics Engineering		
Sl. No.	Faculty Name	Designation
6	Gopal Sarkar	Associate Professor
7	Renuka Prasad	Assistant professor
8	Dr. Kasi Viswanathan	Assistant professor
9	Rajath.R	Assistant professor
Civil Engineering		
Sl. No.	Faculty Name	Designation
10	Dr. M K Harikeerthan	Associate Professor
11	Dr. Deepak GB	Assistant professor
12	Dr.Shubhalakshmi BS	Assistant professor
13	Sandhya V	Assistant professor
14	Girish P	Assistant professor
15	Vinayak A Hosur	Assistant professor
16	Jayatheertha HS	Assistant professor
Computer Science & Engineering		
Sl. No.	Faculty Name	Designation
17	Chaithra Y R	Assistant professor
18	Apoorva Busad	Assistant professor
19	Shylaja	Assistant professor
20	Sreenidhi	Assistant professor


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21	Arpitha	Assistant professor
22	Keerthana	Assistant professor
23	Asha	Assistant professor
24	Deepashree	Assistant professor
25	Sumanth Reddy	Assistant professor
26	Jahnavi .S	Assistant professor
27	Vijaylakshmi	Assistant professor

Electronics & Communication Engineering

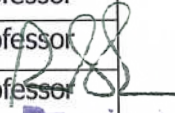
Sl. No.	Faculty Name	Designation
28	Dr. Sumaiya M N	Associate Professor
29	R V Manjunath	Assistant Professor
30	Dr. Tripti Kulkarni	Assistant Professor
31	Manu H M	Assistant Professor
32	Sindhu K	Assistant Professor
33	Apoorva R	Assistant Professor
34	Bharath K N	Assistant Professor

Information Science & Engineering

Sl. No.	Faculty Name	Designation
35	Sowmya S.R	Assistant professor
36	Surabhi K.R	Assistant professor
37	Swethasree R	Assistant professor
38	Supriya R.K	Assistant professor
39	Spandana S G	Assistant Professor

Architecture Branch

Sl. No.	Faculty Name	Designation
40	Dr Sapna Papu	Professor & Head
41	Ar Shivalinge Gowda	Assistant Professor
42	Ar Shabbir Lahiri	Assistant Professor
43	Ar Radha Dhawad	Assistant Professor
44	Ar Savita Masttiholi	Assistant Professor
45	Ar Vidya	Assistant Professor
46	Nisreen Ahmed	Assistant Professor


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47	Sakthi Srinivas	Assistant Professor
Artificial Intelligence & Machine Learning		
Sl. No.	Faculty Name	Designation
48	Dr. Sandhya N	Professor & Head
49	Sowbhagya	Assistant Professor
Basic Science – Department of Physics		
Sl. No.	Faculty Name	Designation
50	Dr. Srilatha	Associate Professor
51	Dr. Madhusudhan	Assistant professor
52	Dr. Girish	Assistant professor
53	Asha Rani	Assistant professor
Department of Chemistry		
Sl. No.	Faculty Name	Designation
54	Dr. Shiva Kumar BS	Assistant professor
55	Dr. Nandhini	Assistant Professor
56	Anand	Assistant Professor
57	Lavanya	Assistant Professor
58	Dr. Sunil Kumar	Assistant Professor
59	Dr. N Revathi	Assistant Professor
Department of Mathematics		
Sl. No.	Faculty Name	Designation
60	Dr. Nagaraj C	Professor & Head
61	Dr. Vatsala G A	Associate Professor
62	Dr. Vidya K A	Assistant professor
63	Dr. Shilpa	Assistant professor
64	Dr. Mythra	Assistant professor
65	Dr. Bhavya Shivaraj	Assistant professor
66	Vinodalakshmi	Assistant professor
67	Raghavendra	Assistant professor
68	Chaitra	Assistant professor


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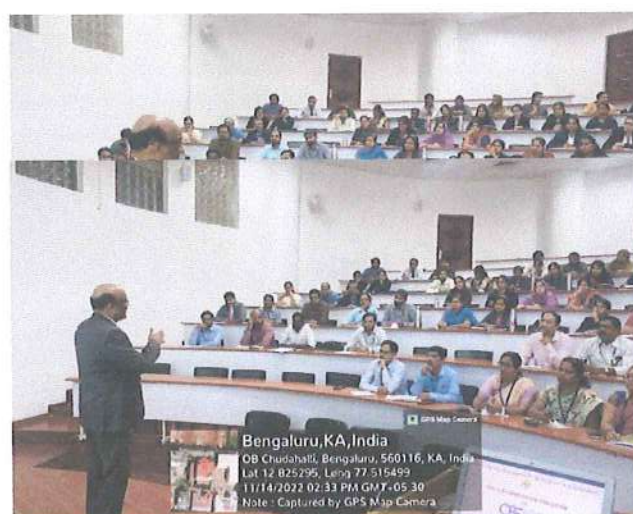
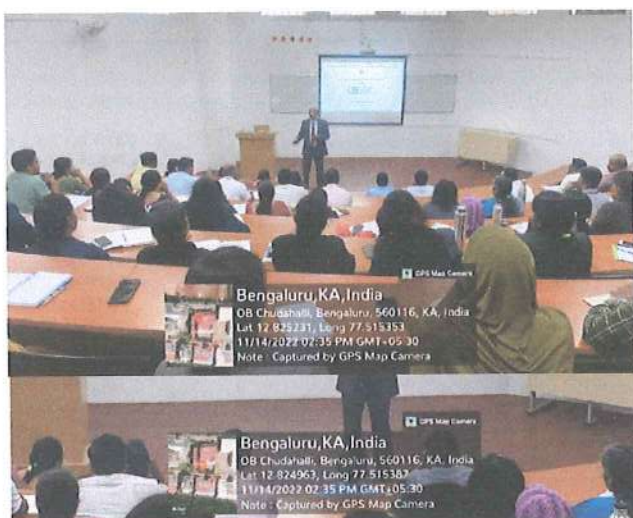
DAY - 1



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Event Name	FIP on Outcome Based Education – Day -1
Theme	Outcome Based Education (OBE)
Date & Time	14 th November 2022 Time : 2.30 PM to 5.00 PM
Venue	Architecture Block Seminar Hall
Faculty	1 st & 5 th Semester Faculty Members – DSATM



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Report on day 1 of FIP on Fundamentals of OBE

I. Objectives of the Topic:

- to fetch student centric teaching-learning process
- to enhance traditional content based education to outcome based education.
- to bring the focus of formal education to what the students learn rather than what they were taught.
- to help faculties to plan the course delivery and assessment with the outcomes.

II. Purpose:

The purpose is to concentrate on what students learn, what students can do and what qualities and skills they can develop during the program. The most important aspect of an outcome is that it should be observable and measurable. It focuses on measuring student performance i.e. outcomes at different levels in order to improve their higher order thinking skills (HOTS)

III. About the topic:

Outcome-based education (OBE) is an educational delivery model that focuses on mapping, measuring, and achieving predetermined educational goals to help students learn, develop, and nurture skills that would help them grow in their professional as well as personal life.


Bloom's taxonomy of learning identifies three domains of learning: Cognitive, affective and psychomotor.

Outcomes are based on curriculum, assessment, and Teaching – Learning methodology which can be measured at the end of a program or a course.

OBE has Knowledge, skills and attitude (KSA). Through this,

- ✓ What students want to achieve- Skillset
- ✓ How do student achieve- facilitator / guide
- ✓ How to assess their activity- Evaluation
- ✓ How to improve the outcome- using feedback

IV. OBE principles:


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1. Clarity of focus

This means that everything teachers do must be clearly focused on what they want students to know, understand and be able to do. In other words, teachers should focus on helping students to develop the knowledge, skills and personalities that will enable them to achieve the intended outcomes that have been clearly articulated.

2. Designing down

It means that the curriculum design must start with a clear definition of the intended outcomes that students are to achieve by the end of the program. Once this has been done, all instructional decisions are then made to ensure achieve this desired end result.

3. High expectations

It means that teachers should establish high, challenging standards of performance in order to encourage students to engage deeply in what they are learning. Helping students to achieve high standards is linked very closely with the idea that successful learning promotes more successful learning.

4. Expanded opportunities

Teachers must strive to provide expanded opportunities for all students. This principle is based on the idea that not all learners can learn the same thing in the same way and in the same time. However, most students can achieve high standards if they are given appropriate opportunities.

V. Why OBE?

OBE facilitates establishing the conditions and opportunities within the system that enable all students to achieve those essential outcomes. A system based on outcomes gives priority to outcomes, purposes, learning, accomplishments, and results.

Role of facilitator: To create creativity, self-learning and critical thinking among students.



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S.No	Objectives (Top-Bottom approach)	Outcomes (Bottom-Top approach)
1	Vision-Mission	Vision-Mission
2	PEO	PEO
3	PO	PO
4	Curriculum map	Curriculum map
5	OB teaching-Learning Delivery system	OB teaching-Learning Delivery system
6	Program assessment & Evaluation process	Program assessment & Evaluation process
7	Continuing QIP	Continuing QIP

VI. Address of the GAP:

Analyze the gap and bridging the gap through Outcomes, activities and assessment.

VII. Outcomes of the topic:

OBE has proven to be successful in helping faculties and institutions measure their learning outcomes and at the same time enabling students to develop new skills that prepare them to stand out with their global counterparts. More Challenging tasks can be assigned to students to improve their HOTS.



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DAY - 2



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Event Name	FIP on Outcome Based Education – Day -2	
Theme	Outcome Based Education (OBE)	
Date & Time	15 th November 2022	Time : 2.30 PM to 5.00 PM
Venue	Architecture Block Seminar Hall	
Faculty	1 st & 5 th Semester Faculty Members – DSATM	



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Report on day 2 of FIP on OBE program education objectives program outcomes revised bloom blooms taxonomy and course outcomes

Program Educational Objective

These are broader statements that describe expected achievements of graduates within the first few year of graduation.

PEO also tell us "what kind of career or graduates are prepared for and what kind of career accomplishment they will able to achieve undergoing this particular program"

PEO also give an analysis for filling the gap between Academy and industry.

Revised blooms taxonomy

There are 6 levels of cognitive learning according to the revised version of blooms taxonomy each level is conceptually different the six levels are

1. Remembering
2. Understanding
3. Applying
4. Analyzing
5. Evaluating
6. Creating

These levels can help in developing learning outcomes because certain verbs are particularly appropriate at each level and not appropriate at other level.

The first 3 levels of Revised Bloom's Taxonomy that is Remembering, Understanding and Applying are called Lower Order Thinking Skills (LOTS) and the next 3 levels of Revised Bloom's Taxonomy that is Analyzing Evaluating, Creating are classified as Higher Order Thinking Skills (HOTS)



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Program Outcomes

Program Outcomes are narrow statement that describes what the students are expected to know and be able to do upon graduation

There are 12 graduate attributes defined under the program or they are

PO 1 Engineering Knowledge: Graduates can apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to Civil Engineering related problems.

PO 2 Problem analysis: An ability to identify, formulate, review research literature, and analyze Civil engineering problems reaching substantiated conclusions using principles of mathematics and engineering sciences.

PO 3 Design/development of solutions: An ability to plan, analyse, design and implement engineering problems and design system components or processes to meet the specified needs.

PO 4. Conduct investigations of complex problems: An ability to 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: An ability to apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6. The engineer and society: An ability to apply contextual knowledge to assess societal, legal issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7. Environment and sustainability: An ability to 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: An ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9. Individual and team work: An ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings to accomplished a common goal.

PO 10. Communication: An ability to communicate effectively on engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, and make effective presentations

PO 11. Project management and finance: Ability to 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: An ability to engage in independent and life-long learning in the broadest context of technological change.



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Blooms taxonomy

It is a set of 3 categorized models used to classify educational learning objectives into level of complexity and specificity. The models organize learning objectives into three different domains:

The three different domains of blooms taxonomy is

1. Cognitive domain - Knowledge-based – PO1 to PO4
2. Affective domain – Emotion based – PO6, PO7, PO8, PO12
3. Psychomotor demine – Action based – PO5, PO9, PO11

PO1 - PO5 are disciplinary outcomes

PO 6 to PO12 are professional outcomes or generic or Transferrable outcomes

List of direct assessment tools for POs

- By using Bloom taxonomic Framework in Planning and designing of assessment of students learning the following points need to be considered
- The first three levels remembering understanding and applying kind to some extent for level analysing or assessment in continuous internal evaluation and semester and examination were students are given a limited amount of time
- In addition, abilities, analysis, evaluation and creation are assessed in extended Course work or in a variety of students work like course project, mini or major project internship experiences and final year projects.
- Program Outcomes are measured each academic year for graduating in batch.
- Program Outcomes are realized by curriculum teaching learning and assessment co-curricular and extra-curricular components may also include.



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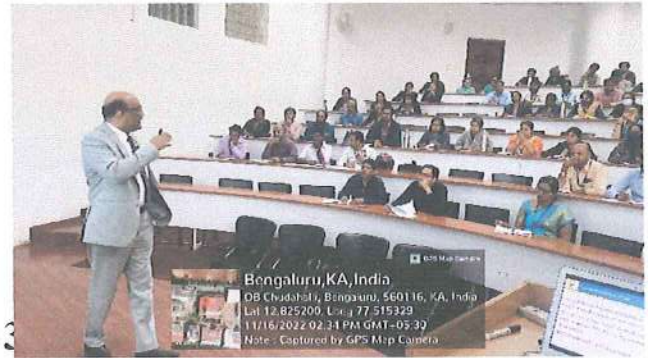
DAY - 3



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Event Name	FIP on Outcome Based Education – Day -3
Theme	Outcome Based Education (OBE)
Date & Time	16 th November 2022 Time : 2.30 PM to 5.00 PM
Venue	Architecture Block Seminar Hall
Faculty	1st & 5 th Semester Faculty Members – DSATM




Report on day 3 of FIP on OBE program education objectives program outcomes revised bloom blooms taxonomy and course outcomes

Rubrics for Writing the Course Outcomes

It is a good practice to write each Course outcome in relation to one bloom level except for bloom level 1 & 2 which is optional.

1. Multiple Course outcomes which does not map to any Program outcomes should be avoided.
2. Course outcomes must be designed for Theory, Lab, project, seminar and Internship.


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3. For Laboratory the course outcomes can be defined based on the activities for the individual programs such as
 - a. Procedure writing
 - b. Output
 - c. Experiment
 - d. Lab report
 - e. Viva
4. For each course the Course outcomes are defined based on syllabus, Teaching learning process and assessment tools
5. The Procedure for writing the course outcomes for theory subjects is explained with a sample course(DBMS). Which includes following the steps

Step-1: Start

Step-2: For each unit, first list all the possible questions that can be framed based on the syllabus of the course. Parallely map the questions to blooms level.


Step-3: Now, from all the units, select the questions that come under blooms-level 1 & 2. For all these questions, frame a common course outcome that includes action verb + learning outcome.

Step-4: Next, select all the questions mapped to apply (PO-1) from all the units and frame a generalized course outcome that includes action verb + learning outcome.

Step-5: Repeat this process for all the Bloom levels used to write the questions. Frame the individual course outcomes for each of the categories.

NOTE:

1. Remember that any of the course outcomes that have been designed using this procedure can be a part of more than one unit


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2. Elective subjects must be avoided in assessment of program outcomes.

However, the course outcomes can be defined for the same.



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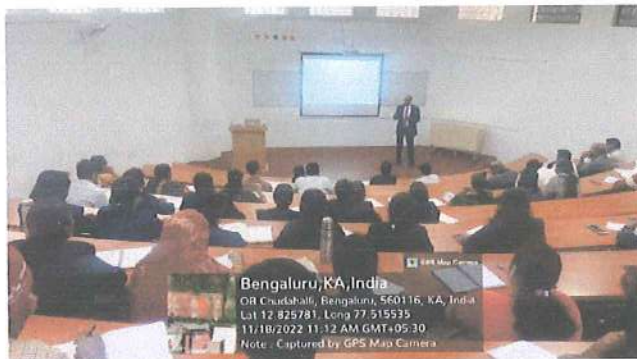
DAY - 4



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Event Name	FIP on Outcome Based Education – Day -4
Theme	Outcome Based Education (OBE)
Date & Time	18 th November 2022 Time : 11.00 PM to 1.30 PM
Venue	Architecture Block Seminar Hall – Morning Session
Faculty	1 st & 5 th Semester Faculty Members – DSATM



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Report on day 4 of FIP on CO-PO mapping, Assessment Plan and Attainment of Course Outcomes and Program Outcomes

Objective:

1. Understanding the strength of CO-PO, PSO mapping.
2. Discussion of Assessment plan.
3. Focus on Computation of CO, PO attainment

Contents of the session:

- The session took off with the discuss of CO-PO mapping with the discuss on threshold values for mapping CO with PO's.
- Re-framing of CO's are subject to attainment and the not to be changed frequently or if unattained.
- Levels of attainment and its percentage threshold was explained in the session, the threshold must be same for all courses in the department based on previous results.
- Preparation of assessment plan for CIE, question papers.
- Assessment tools for CO using direct assessment with CIE, SEE considering the Lower Order Thinking Skills
- Assessment tools for CO using indirect assessment with Course end survey considering.
- Attainment weightage is based Higher Order Thinking Skills oriented assessments. Percentage of weightage
- Consideration of online courses such as NPTEL, Hackathon to can be considered for skill assessment.
- Computation of CO, PO direct assessment by computation of average percentage and decide the level of attainment.
- Computation of CO, PO in direct attainment by deciding the division of marks using the survey questions and the answers given by students.

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- Computation of final CO attainment percentage wise and target level.
- Direct and indirect Assessment values for PO
- Final PO attainment level was discussed.

Outcomes:

- Understanding of direct, in direct assessment and assessment tools.
- Computation of CO PO PSO mapping and attainment and target percentage and level.



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(Affiliated to Visvesvaraya Technological University, Belagavi and Approved by AICTE, New Delhi)
CE, CSE, ECE, EEE, ISE and ME are Accredited by NBA, New Delhi
NAAC Accredited with A+ Grade



IQAC, DSATM

Event Name	Faculty Immersion Program on Outcome Based Education
Theme	OBE – Outcome Based Education
Date	17 th – 22 nd Oct,2022 & 14 th – 18 th Nov,2022 & 9 th – 12 th Jan, 2023
Venue	M Block Seminar Hall – DSATM

Objectives of the Program:

1. The objective of the program was to explain the importance of the outcome-based approach in the current education system and to differentiate the traditional and outcome-based approach.
2. To provide good exposure to ideas and concepts underlying Outcome-based Education, particularly with reference to teaching and learning.
3. To nurture knowledge on Attainment calculation and preparation of quality question paper for Internal exams

Coordinator:

Photos: (4 Geo Tagged Photos)



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Purpose:

Outcome-based education (OBE) is an educational theory or pedagogy that places students at the center of an academic program. It presupposes that by the end of a learning session, each student would have attained a level of mastery of the course so as to be in a position to realize on the completion of the course, a standard of achievement. The realization of the standard in all the courses which together constitute a program is the end goal. If through the Course outcomes (COs) in all the courses in the curriculum, certain Program outcomes (POs) are not addressed or attained, then it is said that there are curricular gaps in achieving the POs. These curricular gaps are addressed through co-curricular and extra-curricular activities, which are beyond the curriculum.

About the topic:

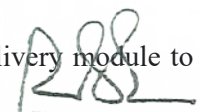
The program was to engage faculty of the institution in OBE practices and address the GAP in the TLP (Teaching Learning Process). The faculty members were addressed on the importance and need for OBE and student centric approach in the TLP. With the accreditation process and importance, emphasis being laid on the students to be able to think and explore various alternatives and opportunities, the design of curriculum and the implementation of the standards takes great precedence in the institute. The need to set higher order questions and inculcate the thinking and innovation capabilities of the students is of utmost importance. Demonstration of Bloom's Taxonomy, its importance and usage in design in curriculum was also discussed, The Graduate Attributes as per the Washington Accord was also deliberated upon for the better understanding and implementation by the faculty in curriculum design. Outcome-based education (OBE) is a student-centered instruction model that focuses on measuring student performance through outcomes. Outcomes include knowledge, skills and attitudes. The fourth-day program started with the attainment calculation of Course outcomes, Program outcomes & Program Specific outcomes and ended with the an explanation of the steps to prepare quality question paper for Internal exam.

Resource person: Dr. M Ravishankar – Principal, Dayananda Sagar Academy of Technology and Management

Addressing the GAP:**Preferably Measurable outcomes:**


At the end of the session, the participants were able to:

- Gain Knowledge on how to calculate the attainment of Course comes, Program outcome, and Program Specific outcome.
- Preparation of quality question paper for internals.
- Set and Design quality CO's and corresponding course content and delivery module to achieve the target Outcomes.


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Impact of the feedback:

- The feedback so obtained from the faculty was positive and analysis of the feedback indicates that faculty have gained considerable knowledge on OBE education.
- More case examples and patterns of subjects should be incorporated for better understanding of OBE and its design, especially for Non-circuit branches.
- The faculty have impressed on the need for more such programs for effective and efficient TLP.


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