

NATIONAL INSTITUTE OF TECHNICAL TEACHERS TRAINING AND RESEARCH, BHOPAL

Programme Plan: Design Laboratory Framework for Outcome-Based Education (OBE-6)

1. **Rationale:** Laboratory experiences are the vital instructional components since laboratories are incubation centres for attainment of practical learning outcomes by students needed for developing required competencies. Therefore, there is utmost necessity to design proper laboratory framework and appropriate lab experiments in view of the desired outcome(s) of the programme. In order that students attain outcomes with integration of knowledge and skills, it is essential that teachers develop their understanding and strategies in creating and formulating such kind of laboratory experiments. Systematic and scientific design of laboratory experiments with innovative approaches, keeping student's attainment in focus will benefit teachers of different disciplines in developing their ability to explore the possibilities of creating such opportunities for students within & beyond the curricular provisions. This programme intends to provide training to teachers on such aspects and in designing at least two laboratory experiences along with assessment scheme that can open way to the development of relevant laboratory outcomes in the students by developing lab manual for their respective courses in tune with special focus on Outcome Based Education.

2. Programme Outcomes:

The participants of the programme will be able to:

- Understand the concept of outcome-based education.
- Formulate laboratory framework with reference to the need for improvement in the area of laboratory practices.
- Identify COs and LOs for planning and designing laboratory experiences.
- Design laboratory experiments in order to develop expected outcomes.
- Develop laboratory manuals for identified courses.
- Develop assessment scheme for assessing the student performance in laboratory.
- Develop assessment tools.
- Use virtual teaching and learning environment aimed at developing laboratory skills.

3. Programme Contents:

Laboratory framework, Outcome based education, Overview of NBA and Outcomes terminology, PO/PSO, CO and Learning Outcomes through Laboratory, Designing laboratory experiences, Lab-based mini- project, Assessment of student performance in Lab and workshop, Assessment tools, Laboratory Management Aspects, Laboratory Maintenance, Overview of Virtual Labs.

4. **Instructional Strategy:** Following participative strategies will be employed:

- Input sessions
- Individual Assignment and Practice
- Group assignments

- Discussions
- Plenary session for presentation

5. **Dates and Venue:** 17 to 21 July 2023 at NITTTR Bhopal
6. **Target Group:** Faculty members of Science and Engineering Disciplines from Polytechnic and Engineering colleges
7. **Coordinator: Prof. (Mrs.), Susan S. Mathew**, Associate Professor, Department of Electrical and Electronics Engineering Education and Associate Dean (Academic and Research)

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National Institute of Technical Teachers Training and Research, Bhopal (M. P.)

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Tentative Schedule

DAY/ DATE	Session I 10.00 - 11.30	Session II 11.45-1.30	Session III 2.00-3.30	Session IV 3.45- 6.00
17-07-2023 Monday	<ul style="list-style-type: none"> • Registration • Expectations • Programme Objectives 	Laboratory framework	<ul style="list-style-type: none"> • Overview of Outcome based education and Curriculum • PO, CO and Learning Outcomes through Laboratory. Task 1 - Write the COs and relevant PrOs for the identified course	
18-07-2023 Tuesday	Designing laboratory experiments	Task 2 - Design laboratory experiment	Lab based Project work (Micro/mini project)	Task 3 Design Lab based Micro Project
19-07-2023 Wednesday	Assessment of learning in laboratory/workshop	Assessment tools Rubrics	Task 4 Prepare assessment scheme to assess the student's performance in designed experiments Develop Rubrics for the assessment scheme prepared	
20-07-2023 Thursday	Laboratory Management Aspects		Laboratory Maintenance	Task 5 On Laboratory Maintenance
21-07-2023 Friday	Overview of Virtual Labs	Activity Prepare Action Plan for the improvement of lab/workshop Plenary Session		<ul style="list-style-type: none"> • Summarization of learning • Assessment of learning • Valedictory