

OUTCOME BASED EDUCATION

(drawn from the power and functions of the University as per the UGC approved Memorandum of Association updated from time to time in consonance with UGC deemed to be University Regulations in force at time)

DRAWN FROM THE POWER AND FUNCTIONS OF THE UNIVERSITY AS PER THE UGC APPROVED MEMORANDUM OF ASSOCIATION (MOA) UPDATED FROM TIME TO TIME IN CONSONANCE WITH UGC (DEEMED TO BE UNIVERSITY) REGULATIONS IN FORCE AT TIME

Ref-1: Updated in line with UGC Approved MoA- Registration No: 275 of and UGC [Institutions Deemed to be Universities] Regulations, 2019

Ref-2: Approved by the 42nd Board of Management in its Meeting held on 21-01-2018 (Agenda Item No 6) and updated documents are approved in the 51st Meeting of the Board of Management (Extraordinary) Meeting held on 04-07-2020 (Agenda Item No 8)

EXTRACT FROM THE BOARD OF MANAGEMENT MINUTES

Item No.8

Considered the report submitted by the Registrar based on the recommendations of various subcommittees, Policies of the University, Service Rules, and AMET Rules and Regulations are updated and submitted for the Approval of Board of Management.

RESOLVED that above report is approved and polices of the University, Service Rules and AMET Rules and Regulations as presented in here shall be effected in force suitably by the authorities of the University.



OUTCOME-BASED EDUCATION (OBE)

Definition

Outcome-Based Education (OBE) is a student-centric teaching and learning methodology in which the course delivery, assessment is planned to achieve stated objectives and outcomes. It focuses on measuring student performance i.e. outcomes at different levels.

Some important aspects of the Outcome Based Education

- 1. Course** is defined as a theory, practical or theory cum practical subject studied in a semester. For Ex. Engineering Mathematics
- 2. Course Outcome (CO)** Course outcomes are statements that describe significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course. Generally three or more course outcomes may be specified for each course based on its weightage.
- 3. Programme** is defined as the specialization or discipline of a Degree. It is the interconnected arrangement of courses, co-curricular and extracurricular activities to accomplish predetermined objectives leading to the awarding of a degree. For Example: B.E., Marine Engineering

Knowledge levels for assessment of Outcomes based on Blooms Taxonomy

Level	Parameter	Description
K1	Remembering	Remembering is when memory is used to produce definitions, facts, or lists or to retrieve information
K2	Understanding	Understanding is all about constructing meaning from many different types of functions, be they written or graphic
K3	Applying	Applying refers to situations where the learned material is used in products such as diagrams, models, interviews, simulations, and presentations
K4	Analyzing	Analyzing is about breaking materials into parts, and then determining how the parts interrelate to each other or to an overall structure or purpose.
K5	Evaluating	Evaluating is about making judgements based on criteria and standards through checking and critiquing
K6	Creating	Creating is about combining elements to form a whole and also recognizing elements into new structures or patterns by planning and producing

The 12 Graduate Attributes in Outcome Based Education

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.
- 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.
- 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 public health and safety, and cultural,

societal, and environmental considerations.

4. Conduct investigations of complex problems:

The problems:

- that cannot be solved by straightforward application of knowledge, theories and techniques applicable to the engineering discipline.
 - that may not have a unique solution. For example, a design problem can be solved in many ways and lead to multiple possible solutions.
 - that require consideration of appropriate constraints/requirements not explicitly given in the problem statement. (like: cost, power requirement, durability, product life, etc.) which need to be defined (modeled) within appropriate mathematical framework.
 - that often require use of modern computational concepts and tools.
- 5. 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
 - 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
 - 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.
 - 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
 - 9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
 - 10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with the 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.
 - 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.

- 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

Programme Outcomes (POs) for Engineering and Technology Programmes

1. Engineering knowledge
2. Problem analysis
3. Design/development of solutions
4. Conduct investigations of complex problems
5. Modern tool usage
6. The engineer and society
7. Environment and sustainability
8. Ethics
9. Individual and team work
10. Communication
11. Project management and finance
12. Life-long learning

Programme Outcomes (POs) for General Higher Education Programmes (three years programmes)

1. Critical Thinking
2. Effective Communication
3. Social Interaction
4. Effective Citizenship
5. Ethics
6. Environment and Sustainability
7. Self-directed and Life-long Learning