

**MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI**

**Diploma Programme in Mechanical Engineering  
I – Scheme**

**Programme Educational Objectives (PEOs)** (*What s/he will continue to do even after 3-5 years of working in the industry*)

- PEO 1. Provide socially responsible, environment friendly solutions to Mechanical engineering related broad-based problems adapting professional ethics.
- PEO 2. Adapt state-of-the-art Mechanical engineering broad-based technologies to work in multi-disciplinary work environments.
- PEO 3. Solve broad-based problems individually and as a team member communicating effectively in the world of work.

**Program Outcomes (POs)** given by NBA. (*What s/he will be to do at the entry point of industry soon after the diploma programme*)

- PO 1. **Basic knowledge:** Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad-based Mechanical engineering problems.*
- PO 2. **Discipline knowledge:** Apply Mechanical engineering knowledge to solve broad-based mechanical engineering related problems.*
- PO 3. **Experiments and practice:** Plan to perform experiments and practices to use the results to solve broad-based Mechanical engineering problems.*
- PO 4. **Engineering tools:** Apply relevant Mechanical technologies and tools with an understanding of the limitations.*
- PO 5. **The engineer and society:** Assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to practice in field of Mechanical engineering.*
- PO 6. **Environment and sustainability:** Apply Mechanical engineering solutions also for sustainable development practices in societal and environmental contexts.*
- PO 7. **Ethics:** Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Mechanical engineering.*
- PO 8. **Individual and team work:** Function effectively as a leader and team member in diverse/ multidisciplinary teams.*
- PO 9. **Communication:** Communicate effectively in oral and written form.*
- PO 10. **Life-long learning:** Engage in independent and life-long learning activities in the context of technological changes also in the Mechanical engineering and allied industry.*

**Program Specific Outcomes (PSOs)** (*What s/he will be to do in the Mechanical engineering specific industry soon after the diploma programme*)

- PSO 1. Modern Software Usage:** Use latest Mechanical engineering related softwares for simple design, drafting, manufacturing, maintenance and documentation of mechanical engineering components and processes.
- PSO 2. Equipment and Instruments:** Maintain equipment and instruments related to Mechanical Engineering.

PSO 3. **Mechanical Engineering Processes:** Manage Mechanical engineering processes by selecting and scheduling relevant equipment, substrates, quality control techniques, and operational parameters.

### Notes for All the Semesters

1. Every student has to **separately pass in End-Semester-Examination (ESE)** for **both theory and practical** by securing minimum of 40% marks, (i.e. 30 out of 75, 28 out of 70, 20 out of 50, and 10 out of 25).
2. **Progressive Assessment (PA) for Theory** includes Written Exam/micro projects/Assignment/Quiz/Presentations/attendance according to the nature of the course. The scheme and schedule for progressive assessment should be informed to the students and discussed with them at the start of the term. This scheme should also be informed in writing to the principal of the institute.
3. Teachers need to give **marks judiciously for PA of theory and practical** so that there is always a **reasonable correlation** between the **ESE marks** obtained by the student and the **PA marks** given by **respective teachers for the same student**. In case the PA marks in some courses of some students seems to be relatively inflated in comparison to ESE marks, then MSBTE may review the PA records of such students.
4. For developing self-directed learning skills, from each course about 15-20% of the topics/sub-topics, which are relatively simpler or descriptive in nature are to be given to the students for self-study and proper learning of these topics should be assured through classroom presentations by students (see implementation guideline for details).
5. Passing Criterion for Theory and Practical Courses for all Semesters

**a. Passing Criterion for Theory course:** - Each Theory course consists of 2 components, ESE (End Semester Examination) and PA (Progressive Assessment)

(i) The passing criterion for each theory course is obtaining minimum 40% of marks allotted to ESE & PA component together. [i.e. for total marks of ESE (70 marks) + PA(30 marks) together = (Total 70+30 =100), obtaining minimum 40 marks are mandatory for passing the Theory course.]

(ii) To qualify for above condition (i), obtaining minimum 40% of marks allotted to ESE component is mandatory. [i.e. for total marks of ESE = 70, obtaining minimum 28 marks are mandatory. For passing ESE component)

**b. Passing Criterion for Practical course:** - Practical course consists of 2 components, ESE (End Semester Examination) and PA (Progressive Assessment)

(i) ESE and PA components of Practical course are independent head of passing.

(ii) The passing criterion for ESE component is obtaining minimum 40 % of marks allotted to ESE component. [i.e. for total marks of ESE= 25, obtaining minimum 10 marks are mandatory for passing in ESE component]

(iii) The passing criterion for PA component is obtaining minimum 40 % of marks allotted to PA component. [i.e. for total marks of PA= 25, obtaining minimum 10 marks are mandatory for passing in PA component]

Note: - If Candidate not securing minimum marks for passing in the PA part of practical of any course of any semester then the candidate shall be declared as detained for that semester.