



Bangladesh Accreditation Council

Discipline/Subject Specific Requirements for Accreditation of Academic Program

Discipline/Subject: Mechanical Engineering

Standard 1: Governance

Governance system must work in a manner that ensures better management of the program towards the achievement of mission and objectives of the HEI/PoE in a way that effectively benefits the stakeholders.

Criterion 1.5: The HEI/PoE has a documented class size policy and maintains class size that is appropriate for effective management of the teaching-learning-assessment to ensure better attainment of learning outcomes.

Class size (number of students in a theoretical class): maximum **40/section**

Class size (number of students in a practical class): Maximum **25/group**

Standard 4: Curriculum

Curriculum must be outcome-based and consistent with the qualifications framework (QF) of Bangladesh for higher education. It should be comprehensive enough to guide the faculty and students towards systematic attainment of learning outcomes and fulfilment of mission and objectives of the PoE.

Criterion 4.2: Curriculum aims at producing graduates focusing on graduate attributes, that are defined following the identified needs of the stakeholders and learning domains in the QF of Bangladesh for higher education.

Graduate Attributes for Bachelor Degree Program:

1. Mechanical Engineering knowledge
2. Problem analysis
3. Design/development of solutions
4. Investigation and Research Skills
5. Modern tool usage
6. The engineer and society
7. Environment and sustainability

8. Ethics
9. Individual work and teamwork
10. Communication
11. Project management and finance
12. Life-long learning

(Note – Courses on ICT, Basic Sciences, Interdisciplinary Courses are also required)

Graduate Attributes for Master’s Degree Program by course:

1. Knowledge and Intellectual Breadth;
2. Research Skills;
3. Analytical and Problem Solving;
4. Creative and Critical Thinking;
5. Teamwork, Communication skills, and Leadership;
6. Professionalism and Ethics;
7. Independent and lifelong learning;

Criterion 4.7: In case of Bachelor degree program curriculum of the program includes minimum 25% of total credits for general education courses with clearly defined course learning outcomes and mapped with PLOs and learning domains of QF. In case of Master’s degree program curriculum of the program includes minimum 10% of total credits for general education courses with clearly defined course learning outcomes and mapped with PLOs and learning domains of QF.

A list of general education courses may include but not limited to:

1) English Literature	11) Industrial Management
2) Communication	12) Human rights
3) Economics	13) Constitution
4) Accounting	14) Human Resource Management
5) Bengali Language and Literature	15) Entrepreneurship Development
6) History of the emergence of independent Bangladesh	16) Governance
7) Sociology	17) Environmental Science
8) Industrial Psychology	18) Disaster Management
9) Industrial Law	19) Sustainability
10) Professional Ethics	20) Life Science

(Note: POE will select appropriate courses considering GA and PLO)

Criterion 4.9: Provisions of internship/project/dissertation/field work/work integrated learning opportunities are included in the curriculum.

Internship/project/dissertation/field work:

Open Ended Lab based on industry-linked problems, Industrial Attachment/Training, Mechanical Engineering Design Project, Project/Thesis

Standard 6: Student Admission & Support Services

The HEI/POE must set appropriate entry requirements and select the right candidates for a particular program under a fair and transparent admission policy. Students must have adequate and appropriate supports for better attainment of learning outcomes, exploring potentials, molding personality and preparing them for the real-life situation with sense of responsibility and integrity.

Criterion 6.1: The HEI/PoE maintains a clearly defined and well-communicated admission policy with transfer and withdrawal provisions, entry requirements that reflect the level of qualifications required to match with the nature of the discipline and mission of the PoE. Admission policy is effective to select students who have potentials and are able to afford the academic load to complete the program successfully.

Requisite qualifications for admission in the Bachelor Degree (Undergraduate) program:

SSC and HSC English (or Equivalent O and A Level) with Mathematics, Physics and Chemistry

Requisite qualifications for admission in the Master Degree (Graduate) program:

Bachelor of Science in Mechanical Engineering or relevant branch of engineering degree. Competence in relevant undergraduate-level courses of the discipline.

Criterion 6.7: PoE ensures and facilitates the participation of students in co-curricular activities and community services under the management of the HEI on a regular basis to promote creativity, social responsiveness, leadership qualities, values, molding personality towards holistic development.

List of co-curricular activities to support the defined GA but not limited to:

1. Project Show and Innovation Fair
2. Career Club
3. Student Society
4. Local and International Student Chapter
5. Debating and Cultural Club

(Note: Appropriate co-curricular activities will be selected by the POEs considering the defined GA & PLOs. The POE will encourage and confirm the participation of the students enrolled under the program)

Standard 7: Faculty and Professional Staff

The HEI/PoE must have a policy to ensure the availability of adequate qualified faculty and professional staff with reasonable teacher student ratio.

Criterion 7.8: The PoE maintains ideal combination of faculty with 10% Professor, 20% Associate Professor, 40% Assistant Professor and 30% Lecturer with reasonable teacher student's ratio, depending on the nature of discipline, as necessary for effective teaching learning in the academic program/discipline.

Teacher-Student ratio: 1:15

Class Load in a Semester/Year (No. of credit/Course): 12 Credit Hrs/Semester;

Standard 8: Facilities & Resources

The HEI/PoE must ensure availability and access to the appropriate and adequate facilities & resources necessary for effective teaching learning and research depending on the nature of discipline and program.

Criterion 8.4: Laboratory facilities, instructional technology & software, IT learning facilities that are identified through curriculum mapping as necessary to attain the defined learning outcomes of program and course(s) and to conduct research are in good condition with appropriate safety measures, appropriate, adequate and accessible when needed by the students and faculty members under a policy that ensures timely repair/replacement, supply and continuous improvement.

List of Essential Laboratories:

1. Thermodynamics Lab
2. CAD/CAM Lab
3. Computer and Simulation Lab
4. Materials and Metallurgy Lab
5. Fluid Mechanics and Machinery Lab
6. Applied Mechanics Lab
7. Measurement and Instrumentation Lab
8. Heat Engine Lab

9. Heat and Mass Transfer Lab
10. Machine Design Lab
11. Control Lab
12. Applied Thermodynamics Lab

List of other facilities essential for the discipline:

1. English Language Lab
2. Machine Shop
3. Welding Shop
4. Foundry Shop
5. Seminar

List of instructional technology and software (IT facilities):

MATLAB, Solid Works, Auto CAD, CFD