DEPARTMENT OF CIVIL ENGINEERING
Faculty of Engineering & Technology
Jamia Millia Islamia, New Delhi 110025

Bachelor of Technology in Civil Engineering: **PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

PEO - 1. Graduates shall apply professional skills for successful careers dealing with analysis, design and management of infrastructural projects, both in India and abroad.

PEO - 2 Graduates shall use civil engineering concepts so as to formulate, analyse and solve civil engineering and allied problems using the principle of mathematics and science.

PEO - 3. Graduates shall deliver a comprehensive and balanced understanding of several branches of civil engineering such as structural engineering, geotechnical engineering, transportation engineering, hydraulic and water resources engineering, environmental engineering and interdisciplinary areas.

PEO - 4. Graduates shall demonstrate high ethical standards, effective oral and written communication skills, and ability to work as part of teams on multidisciplinary projects in diverse professional environments, and should be able to relate engineering issues to the society and nation.

PEO - 5. Graduates shall acquire academic excellence, leadership and management skills, and engage in life-long learning to be successful in professional and entrepreneural world.

Bachelor of Technology in Civil Engineering: **PROGRAM OUTCOMES**

(A) PROGRAM OUTCOMES (POs)

Upon successful completion of the Bachelor of Technology Program in Civil Engineering, students will be be able to:

PO1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **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 the public health and safety, and the cultural, societal, and environmental considerations.

PO4. **Conduct investigations of complex problems:** 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

PO5. **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.

PO6. **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.

PO7. **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.

PO8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with 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.

PO11. **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.

PO12. **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

(B) PROGRAM SPECFIC OUTCOMES (PSOs)

PSO1	Analyse and design foundations and superstructures for different types of buildings using commercial software.
PSO2	Design hydraulic structures, highways, railways, airways, docks and harbors.
PSO3	Design and evaluate water, sewerage and industrial effluent conveying and treatment systems.
PSO4	Survey, map and plan layouts for buildings, roads, and hydraulic structures using modern tools such as the total station.