DEPARTMENT OF CIVIL ENGINEERING
Aligarh Muslim University, Aligarh 2020002

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VISION
To develop a vibrant and broad-based graduate program with emphasis on up to date curriculum, quality faculty and staff, field and industrial training to prepare engineers with state-of-the-art knowledge for professional practice in civil engineering, guided by strong conviction towards morality and ethics.

MISSION
1. To rely on basic engineering sciences and contemporary computational tools for strengthening fundamental precepts of success for our students.
2. To create congenial environment for interaction amongst students, faculty and technical staff to facilitate open thinking and learning process.
3. Strive to maintain pace with the latest and most sophisticated innovations, research and development in the field of civil engineering within the ambit of sustainable development.
4. To be acquainted with requirements of stakeholders to incorporate changes in curriculum to facilitate acceptance of our graduates both at the national and international levels.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)
PEO1 Graduates will be able to analyze, design and propose a feasible solution to civil engineering problems by applying basic principles of mathematics, science and engineering.
PEO2 Graduates will be inculcated with necessary professional skills, effective oral and written communication to be productive engineers.
PEO3 Graduates will be able to work as a team in intra and interdisciplinary endeavors for development of new ideas and products to serve in contemporary societal contexts.
PEO4 Graduates will be able to face challenges of the world economic order by incorporating expertise gained by faculty in consultancy work, for educating students, involving modern tools and techniques.
PEO5 Graduates will achieve a high level of technical and managerial expertise to achieve excellence, outstanding leadership to succeed in positions in civil engineering profession with higher threshold start in employment background.

B.Tech. Programme

PROGRAM OUTCOMES (POs)
Civil Engineering Department of Zakir Husain College of Engineering & Technology trains the students for the cause of technical education. In this department, education means enrichment of analytical and application skills of engineering principles along with overall
personality development. The outcome is that our students are at par with the best of institutes of the country.

As part of the preparation process, the civil engineering department faculty, has adopted the specific program outcomes to be achieved at the civil engineering department are as follows:

a. An ability to apply knowledge of mathematics, science, and engineering.
b. An ability to design and conduct experiments, as well as to analyze and interpret data.
c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multi-disciplinary teams.
e. An ability to identify, formulate and solve civil engineering problems.
f. An understanding of professional and ethical responsibility.
g. An ability to communicate effectively.
h. The broad education necessary to understand the impact of civil engineering solutions in a global, economic, environmental, and societal context.
i. A recognition of the need for, and an ability to engage in life-long learning.
j. A knowledge of contemporary issues.
k. An ability to use the techniques, skills, and modern engineering tools necessary for civil engineering practice.
l. An ability to explain basic concepts and problem-solving processes used in management.

**Postgraduate Programme**

**M. Tech. (Structural Engineering)**

Program Educational Objectives (PEO's):

PEO1 To implement Civil Engineering principles and knowledge to create structural systems and services for the society and to improve quality of life while emphasizing on sustainable development.

PEO2 To inculcate state of the art technical expertise using theoretical, experimental and computational approaches for the analysis and design of structures

PEO3 To impart research skills with professional and ethical attitude amongst the post graduates.

PEO4 To enhance personal knowledge, communication, managerial and decision-making skills to succeed in Structural Engineering profession so as to be the preferred the choice of employers at global arena.

**Program Outcomes (PO's):**
As part of the preparation process, the Civil Engineering department has adopted the specific program outcomes to be achieved, as listed below:

a. An ability to apply knowledge of higher numerical analysis, science, and engineering to conduct experiments, analyze and interpret data for design of structures.

b. Development of problem solving skills to solve complex engineering problems, including the ability to evaluate and synthesize information and propose feasible solutions.

c. An ability to design a structural system and its components to serve desired needs within constraints, such as economic, socio-environmental, serviceability and safety within the purvey of sustainable development.

d. An ability to communicate and function in multidisciplinary teams, understanding professional, ethical responsibility and knowledge of contemporary issues related to structural engineering.

e. Recognition of lifelong learning and ability to use techniques, skills and modern engineering tools and managerial skills, necessary for structural engineering practice.

f. An ability to identify challenges in emerging areas and recommend solutions through collaborative and multidisciplinary research.

g. Ability to write reports and communicate through effective presentations.

M. Tech. (Environmental Engineering)

Program Educational Objectives (PEO's):

1. To produce graduate engineers who can improve quality of life by virtue of pollution free sustainable environment by applying basic engineering principles.

2. To enhance the ability of graduates in achieving peer recognition as an individual or in a team; through presentations, analytical skills, communication, managerial and decision-making skills.

3. To inculcate technical expertise among students using theoretical and state-of-the-art experimental protocols for environmental protection.

4. To prepare graduates to serve industry, state, academia, research under entrepreneurial and consultancy pursuit as educated expressive, ethical and responsible citizen.

Program Outcomes (PO's):

a) An ability to apply knowledge of mathematics, science and engineering in practice.

b) An ability to identify, analyse, formulate, and solve environmental engineering problems.

c) An ability to contribute by research and innovation to solve environmental engineering concerns.
d) An ability to devise and conduct experiments, interpret data and provide well informed conclusions.

e) An ability to select modern engineering tools, techniques and skills and apply them for environmental management and policy making.

f) Demonstrate ability to apply the principle of environmental engineering to design solutions to resolve environmental engineering problems.

g) Demonstrate proficiency in report writing and communication through effective presentations on projects of environment.

M. Tech. (Hydraulic Structures)

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1. To apply technical knowledge in planning, design, construction, and maintenance of hydraulic structures and to improve quality of life and minimization of damage to ecology and environment.

PEO2. To train the students to be life-long learners with spirit of enquiry and zeal to acquire new knowledge, skills and computational approaches for the analysis and design of water resources structures.

PEO3. To impart communication, entrepreneurial and other soft-skills to succeed in water resources engineering so as to enable them to be preferred choice of employers at global arena.

PEO4. To make them committed to the highest levels of professional ethics and focus on ensuring quality, safety, reliability and environmental sustainability in their professional activities.

Program Outcomes (PO's):

After successful completion of the programme the students shall have:

a. The knowledge of mathematics, science, and engineering to conduct experiments, analyze and interpret data for design of hydraulic structures.

b. An ability to model and simulate hydraulic structures, as well as to analyze and interpret the results.

c. An understanding to design various hydraulic structures satisfying desired objectives with realistic constraints related to economy, environment, social, political, safety and sustainability issues.
d. The potential to function in multidisciplinary teams and understanding professional, ethical responsibilities related to hydraulic engineering.

e. An excellence to use various techniques, soft computing skills, modern engineering tools and managerial skills necessary for effective water resources engineering and management.

f. An exposure to identify emerging areas and recommend solutions through collaborative and multidisciplinary research areas.

g. An ability to write research reports, communicate effectively, engage as lifelong learners and possess knowledge of contemporary issues.