

## Department of Civil Engineering

Civil Engineering is known as an art of directing the great sources of power in nature for the use and convenience of human beings. Civil Engineering includes the research, development, planning, design, construction and maintenance associated with urban development, water supply, structure, energy generation and transmission, water treatment and disposal, and transportation systems. With the rapid increase in urbanization and industrialization, Civil Engineering has developed as a vibrant and challenging profession. Carving out meaningful careers in the arenas of building and managing infrastructures and sustaining environmental resources, civil engineers have to adopt the pace of technological change that could be an exciting and potentially rewarding challenge.

### Vision

To establish a platform for producing Civil Engineers, imbued with leadership qualities and moral character, for the professional growth and sustainable development.

### Mission

To provide high quality Civil Engineering education that is essential for undertaking professional challenges, enhancing, teamwork talents communication and inter-personal skills, and for providing a socially acceptable workable solutions through continuous life-long learning processes.

## Program Offered

- ♦ Bachelor of Science in Civil Engineering

# Faculty Members, Department of Civil Engineering

**Engr. Prof. Dr. Arshad Ali**

Dean, Faculty of Engg. & Technology,  
Ph.D Civil Engg. (Environmental Engg),  
UET Taxila

**Engr. Dr. Muhammad Rizwan**

Professor,  
Ph.D Civil Engg. (Structural Engg),  
UET Peshawar

**Engr. Adil Shahzad**

Assistant Professor  
MSc Civil Engg (Structural Engg),  
UET Peshawar

**Miss Asmarah Kanwal**

Assistant Professor,  
MS Mathematics,  
UET Peshawar

**Engr. Syed Zia Ud Din**

Assistant Professor,  
MS Electrical Engineering,  
COMSATS, Islamabad

**Engr. Muhammad Ibrahim**

Lecturer,  
MS Geotechnical Engineering,  
The Superior College, Lahore

**Engr. Hafiz Adil Shah**

Lab Engineer,  
BSc Civil Engineering,  
Sarhad University, Peshawar

**Engr. Dr Hanif Ullah**

Head / Assistant Professor,  
Ph.D Civil Engineering,  
CECOS University, Peshawar

**Engr. Dr Fazli Karim**

Associate Professor,  
Ph.D Civil Engineering,,  
UET Taxila

**Engr. Khurram Saleem**

Assistant Professor,  
MS Hydro-Power Engg,  
UET Lahore

**Engr. Muhammad Nouman**

Assistant Professor,  
MS Civil Engg (Structural Engg),  
UET Peshawar

**Engr. Osama Farid**

Lecturer,  
MS Construction Engg. & Mgt.,  
NUST, Islamabad

**Mr. Ameer Hamza**

Lecturer in Pakistan Studies,  
M.Phil in History,  
University of Peshawar

**Engr. Sangeen Khan**

Lab Engineer,  
BSc Civil Engineering,  
Sarhad University, Peshawar

**Engr. Prof. Fazal Khaliq**

Professor,  
MSc Public Health Engg.,  
UET, Lahore

**Engr. Shahab Ahmad**

Assistant Professor / Coordinator,  
MS Civil Engg. (Environmental Engg),  
UET, Peshawar

**Engr. Arbab Imran Khan**

Assistant Professor,  
MSc Transportation Engineering,  
UET Peshawar

**Engr. Obaid Ur Rehman**

Assistant Professor,  
MS Civil Engg (Structural Engg),  
CECOS University, Peshawar

**Engr. M. Aitzaz Ahsan**

Lecturer,  
MS Construction Engg. & Mgt.,  
The Superior College, Lahore

**Engr. Asad Ullah Khan**

Lecturer,  
MS Civil Engineering (Structural),  
CECOS University, Peshawar



# Bachelor of Science in Civil Engineering

Accredited by Pakistan Engineering Council (PEC)

## Program Details:

|                                      |                       |
|--------------------------------------|-----------------------|
| Program Code                         | 239                   |
| Number of Courses                    | 51 + FYDP             |
| Credit Hours                         | 140                   |
| Minimum Duration                     | 8 Semesters, 4 Years  |
| Maximum Duration                     | 14 Semesters, 7 Years |
| Minimum CGPA Required To Earn Degree | 2.00                  |

## Eligibility Criteria:

Candidates who have passed intermediate (Pre-Engineering/ \*Pre-Medical/ \*Computer Science) from a recognized BISE in Pakistan with at least 60% unadjusted marks.

*\*The candidates with an intermediate Pre-Medical or Computer Science background have to study an additional course of remedial Mathematics and Chemistry, respectively, during the initial 1-2 Semesters, in accordance with PEC guidelines.*

Candidates possessing 3-years Post-Matric Diploma of Associate Engineer in the relevant technology with at least 60% unadjusted marks.

Candidates possessing B-Tech (Hons) in the relevant field are also eligible for admission against the 2% reserved seats on open merit

All candidates are required to pass an entry test conducted by NTS / ETEA or any registered testing agency or University with at least 33% cumulative score.

Foreign candidates need to pass entry/aptness test conducted by the University. For further details, see clause 4 in Admission Process.

## Program Educational Objectives (PEOs) :

The following PEOs have been designed to address the requirement and expectations of various stakeholders, in accordance to the vision and mission of the Department of Civil Engineering.

**PEO1 (Engineering Practice):** Graduates will be knowledgeable and competent, and will play an effective role to meet the industrial requirements by providing best comprehensive solutions.

**PEO2 (Professional Growth):** Graduates will enhance learning through professional higher education and continued development of technical expertise.

**PEO3 (Societal Service):** Graduates will possess high moral and ethical values and will understand the principles of sustainable development.

**PEO4 (Teamwork Abilities):** Graduates will possess effective communication and inter-personal skills, along with teamwork abilities.

## Outcome Based Education (OBE) System :

Outcome-based education (OBE) is an educational theory that bases each part of an educational system around the goals. By the end of the educational period, each student should have achieved the desired goals. The Department of Civil Engineering, at SUIT, has adopted Outcome Based Education (OBE) and Outcome Based Assessment (OBA) for its Bachelor of Civil Engineering Degree Program since 2015, as recommended by the Engineering Accreditation Board (EAB) of the Pakistan Engineering Council, to satisfy the requirements of the Washington Accord 2013. Currently, the framework of the Civil Engineering Degree Program at SUIT is set in accordance with the PEC Accreditation Manual 2019.

## Scheme of Studies

### 1st Semester

| Course Code                                              | Course Title                                        | Cr. Hrs.18 |
|----------------------------------------------------------|-----------------------------------------------------|------------|
| CE 102                                                   | Civil Engineering Materials                         | 2-1        |
| EE 100                                                   | Applied Physics and Electro-Mechanical Fundamentals | 2-1        |
| CE 101                                                   | Engineering Drawing                                 | 1-2        |
| GE 101                                                   | Functional English                                  | 3-0        |
| MA 115                                                   | Quantitative Reasoning I                            | 3-0        |
| IT 107                                                   | Applications of ICT                                 | 2-1        |
| CH 100                                                   | *Basic Chemistry                                    | 2-1        |
| MA 116                                                   | *Basic Mathematics                                  | 3-0        |
| (*Only for the students with ICS/Pre-Medical Background) |                                                     |            |

### 2nd Semester

| Course Code | Course Title                                                             | Cr. Hrs.19 |
|-------------|--------------------------------------------------------------------------|------------|
| CE 107      | Engineering Surveying                                                    | 2-1        |
| GS 120      | Geology for Engineers                                                    | 2-0        |
| GS 123/240  | Islamic Studies/ Ethics                                                  | 2-0        |
| CE 100      | Engineering Mechanics                                                    | 2-1        |
| GE 201      | Ideology and Constitution of Pakistan                                    | 2-0        |
| AI 320      | Applied Artificial Intelligence                                          | 2-1        |
| MA 131      | Quantitative Reasoning II                                                | 3-0        |
| QT 101      | Understanding of Holy Quran-I (only for Muslims)                         | 0-1        |
| MR 101      | Minority Rights in the Constitution of Pakistan-I (only for Non-Muslims) | 1-0        |

### 3rd Semester

| Course Code | Course Title                           | Cr. Hrs.18 |
|-------------|----------------------------------------|------------|
| CE 200      | Civil Engineering Drawing and Graphics | 1-2        |
| CE 202      | Advanced Engineering Surveying         | 2-1        |
| CE 204      | Fluid Mechanics                        | 2-1        |
| CE 105      | Mechanics of Solids I                  | 2-1        |
| CE 234      | Structural Analysis I                  | 3-0        |
| MA 201      | Advanced Calculus                      | 3-0        |

### 4th Semester

| Course Code | Course Title                 | Cr. Hrs.18 |
|-------------|------------------------------|------------|
| MGT 215     | Construction Engineering     | 2-0        |
| GS 221      | Professional Ethics          | 2-0        |
| MA 207      | Applied Mathematics          | 3-0        |
| CE 217      | Mechanics of Solids II       | 2-1        |
| CE 219      | Soil Mechanics               | 2-1        |
| MGT 300     | Engineering Economics        | 2-0        |
| CE 221      | Quantity and Cost Estimation | 2-1        |

### 5th Semester

| Course Code | Course Title                 | Cr. Hrs.17 |
|-------------|------------------------------|------------|
| MA 226      | Numerical Analysis           | 3-0        |
| CE 301      | Advanced Fluid Mechanics     | 2-1        |
| GE 301      | Expository Writing           | 3-0        |
| CE 303      | Geotechnical Engineering     | 3-1        |
| CE 305      | Reinforced Concrete Design I | 3-1        |

### 6th Semester

| Course Code | Course Title                    | Cr. Hrs.17 |
|-------------|---------------------------------|------------|
| CE 307      | Reinforced Concrete Design II   | 3-1        |
| CE 311      | Environmental Engineering       | 2-1        |
| CE 331      | Structural Analysis II          | 3-0        |
| CE 313      | Engineering Hydrology           | 2-1        |
| CE 321      | Highway and Traffic Engineering | 2-0        |
| GE 303      | Civics and Community Engagement | 2-0        |

### 7th Semester

| Course Code | Course Title                 | Cr. Hrs.17 |
|-------------|------------------------------|------------|
| CE 410      | Foundation Engineering       | 2-0        |
| CE 333      | Pavement Analysis and Design | 2-1        |
| CE 335      | Modelling and Simulation     | 1-1        |
| CE 337      | Hydraulics Engineering       | 2-1        |
| MGT 441     | Project Management           | 2-0        |
| GS 128      | Pakistan Studies             | 2-0        |
| RES 480     | FYDP (Part I)                | 0-3        |

### 8th Semester

| Course Code | Course Title                                                              | Cr. Hrs.16 |
|-------------|---------------------------------------------------------------------------|------------|
| CE 408      | Irrigation Engineering                                                    | 2-1        |
| CE 250      | Geoinformatics                                                            | 1-1        |
| CE 421      | Steel Structures                                                          | 2-0        |
| CE 409      | Architecture and Town Planning                                            | 2-0        |
| CE 440      | Occupational Health and Safety                                            | 1-0        |
| MGT 270     | Entrepreneurship                                                          | 2-0        |
| QT 300      | Understanding of Holy Quran-II (only for Muslims)                         | 0-1        |
| MR 300      | Minority Rights in the Constitution of Pakistan-II (only for Non-Muslims) | 1-0        |
| RES 480     | FYDP (Part II)                                                            | 0-3        |

## Bachelor of Science in Civil Engineering

### Program Learning Outcomes

- PLO-01 Engineering Knowledge:** Apply knowledge of mathematics, natural science, engineering fundamentals and engineering specialization to the solution of complex engineering problems. (WK-1-WK-4)
- PLO-02 Problem Analysis:** Identify, formulate, conduct research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. (WK-1-WK-4)
- PLO-03 Design/Development of Solution:** An ability to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations. (WK-5)
- PLO-04 Investigation:** Conduct investigation of complex engineering problems using research-based knowledge and research methods, including design of experiments, analysis, and interpretation of data, and synthesis of information to provide valid conclusions. (WK-8)
- PLO-05 Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modeling, to complex Engineering problems, with an understanding of the limitations. (WK-2 and WK-6)
- PLO-06 The Engineer and the World:** Analyze and evaluate sustainable development impacts to society, the economy, sustainability, health and safety, legal frameworks, and the environment while solving complex engineering problems. (WK-1, WK-5, and WK-7)
- PLO-07 Ethics:** Apply ethical principles and commit to professional ethics and norms of engineering practice and adhere to relevant National & International laws. Demonstrate an understanding of the need for diversity and inclusion. (WK-9)
- PLO-08 Individual and Collaborative Team Work:** Function effectively as an individual, and as a members or leader in diverse and inclusive teams and in multi-disciplinary, face-to-face, remote and distributed settings. (WK-09)
- PLO-09 Communication:** Communicate effectively and inclusively 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, and make effective presentations, taking into account cultural, language, and learning differences (WK-1 & WK-9)
- PLO-10 Project Management and Finance:** Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member & leader in a team, to manage projects in multidisciplinary environments. (WK-2 and WK-5)
- PLO-11 Life-Long Learning:** Recognize the need for, and have the preparation and ability for
- independent and life-long learning
  - adaptability to new and emerging technologies
  - critical thinking in the broadest context of technological change. (WK-8 and WK-9)

### Hierarchical Model of Outcomes at SUIT

