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.

Bachelor of Civil Engineering

Vision
To provide quality education/training to bring up technical manpower in the field of civil engineering with the competency to take on challenges of engineering profession and the society.

Mission
To educate/train students in both theory and practice of core areas of Civil Engineering. The focus is to impart knowledge which will enable the students to help solve the problems of their community and make them useful to the nation. The department provides vast potentials at the frontier of knowledge and innovation.
Program Objectives:

- Engineering Practice: Graduates will play an effective role with quality assurance while practicing civil engineering and will become experts at national and international level.
- Professional Growth: Graduates will enhance and improve their skills through professional growth and development activities.
- Societal Service: Graduates will serve the society and engineering profession with ethics considering social, environmental, national and global concerns.

Program Outcomes:

- An ability to apply knowledge of mathematics, science, engineering, fundamentals and an engineering specialization to the solution of complex engineering problems. (Engineering Knowledge)
- An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. (Problem Analysis)
- 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. (Design/Development of Solutions)
- An ability to investigate complex engineering problems in a methodical way including literature survey, design and conduct of experiments, analysis and interpretation of experimental data, and synthesis of information to derive valid conclusions. (Investigation)
- An ability to 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. (Modern Tool Usage)
- An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solution to complex engineering problems. (The Engineering & Society)
- An ability to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development. (Environment & Sustainability)
- Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice. (Ethics)
- An ability to work effectively, as an individual or in a team, on multifaceted and / or multi disciplinary settings. (Individual &Team Work)
- An ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend 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. (Communication)
- An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in an multi disciplinary environment. (Project Management)

Eligibility Criteria:

I. Candidates who have passed Intermediate (Pre-Engineering Examination) with the subjects of mathematics, physics, and chemistry from a recognized BISE in Pakistan or any other equivalent examination with at least 60% unadjusted marks.

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

All candidates are required to appear in ETEA/centralized entry test.

Foreign students need to pass entry/aptitude test conducted by the University.
## Scheme of Studies for Bachelor of Civil Engineering

### Semester-I

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Cr Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 103</td>
<td>Engineering Mechanics</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 103L</td>
<td>Engineering Mechanics Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>CE 101</td>
<td>Engineering Drawing</td>
<td>1-0</td>
</tr>
<tr>
<td>CE 101L</td>
<td>Engineering Drawing Lab</td>
<td>0-2</td>
</tr>
<tr>
<td>CS 116</td>
<td>Computer Programming</td>
<td>2-0</td>
</tr>
<tr>
<td>CS 116L</td>
<td>Computer Programming Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>MA 101</td>
<td>Calculus &amp; Analytical Geometry</td>
<td>3-0</td>
</tr>
<tr>
<td>ENG 111</td>
<td>Basic Communication Skills</td>
<td>3-0</td>
</tr>
<tr>
<td>GS 128</td>
<td>Pakistan Studies</td>
<td>2-0</td>
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**Cr Hrs=18**

### Semester-II

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Cr Hrs</th>
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</thead>
<tbody>
<tr>
<td>CE 105</td>
<td>Mechanics of Solids I</td>
<td>2-0</td>
</tr>
<tr>
<td>CE 105L</td>
<td>Mechanics of Solids I Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>CE 102</td>
<td>Civil Engineering Materials</td>
<td>2-0</td>
</tr>
<tr>
<td>CE 102L</td>
<td>Civil Engineering Materials Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>GS 123</td>
<td>Islamic Studies (for Muslims) OR</td>
<td>2-0</td>
</tr>
<tr>
<td>GS 240</td>
<td>Values, Ethics, &amp; Society</td>
<td>2-0</td>
</tr>
<tr>
<td>EE 102</td>
<td>Basic Electro-Mechanical Engg</td>
<td>2-0</td>
</tr>
<tr>
<td>EE 102L</td>
<td>Basic Electro-Mechanical Engg, Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>MA 242</td>
<td>Applied Differential Equations</td>
<td>3-0</td>
</tr>
<tr>
<td>GS 119</td>
<td>Engineering Geology &amp; Seismology</td>
<td>3-0</td>
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**Cr Hrs=17**

### Semester-III

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Cr Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 234</td>
<td>Structural Analysis I</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 202</td>
<td>Engineering Surveying I</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 202L</td>
<td>Engineering Surveying I Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>CE 223</td>
<td>Fluid Mechanics I</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 223L</td>
<td>Fluid Mechanics I Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>CE 213</td>
<td>Building Construction &amp; Drawing</td>
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<tr>
<td>CE 213L</td>
<td>Building Construction &amp; Drawing Lab</td>
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<tr>
<td>MA 226</td>
<td>Numerical Analysis</td>
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**Cr Hrs=17**

### Semester-IV

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<tr>
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<th>Course Title</th>
<th>Cr Hrs</th>
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</thead>
<tbody>
<tr>
<td>CE 209</td>
<td>Geotechnical Engineering-I</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 209L</td>
<td>Geotechnical Engineering-I Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>CE 215</td>
<td>Mechanics of Solids-II</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 207</td>
<td>Concrete Technology</td>
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</tr>
<tr>
<td>CE 207L</td>
<td>Concrete Technology Lab</td>
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</tr>
<tr>
<td>GS 221</td>
<td>Professional Ethics</td>
<td>2-0</td>
</tr>
<tr>
<td>GS 250</td>
<td>Geoinformatics</td>
<td>3-0</td>
</tr>
<tr>
<td>CS 260</td>
<td>Quantity Surveying &amp; Estimation</td>
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**Cr Hrs=18**

### Semester-V

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Cr Hrs</th>
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</thead>
<tbody>
<tr>
<td>CE 331</td>
<td>Structural Analysis-II</td>
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</tr>
<tr>
<td>CE 302</td>
<td>Fluid Mechanics-II</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 302L</td>
<td>Fluid Mechanics-II Lab</td>
<td>0-1</td>
</tr>
<tr>
<td>CE 303</td>
<td>Engineering Surveying-II</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 303L</td>
<td>Engineering Surveying-II Lab</td>
<td>0-1</td>
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<tr>
<td>CE 304</td>
<td>Transportation Engineering I</td>
<td>3-0</td>
</tr>
<tr>
<td>MA 313</td>
<td>Probability &amp; Statistics</td>
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**Cr Hrs=17**

### Semester-VI

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Cr Hrs</th>
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</thead>
<tbody>
<tr>
<td>CE 305</td>
<td>Reinforced Concrete Design-I</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 326</td>
<td>Environmental Engineering-I</td>
<td>2-0</td>
</tr>
<tr>
<td>CE 326L</td>
<td>Environmental Engineering-I Lab</td>
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<tr>
<td>CE 314</td>
<td>Hydrology and Water Management</td>
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</tr>
<tr>
<td>CE 308</td>
<td>Geotechnical Engineering-II</td>
<td>3-0</td>
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<tr>
<td>CE 308L</td>
<td>Geotechnical Engineering-II Lab</td>
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<tr>
<td>ENG 323</td>
<td>Technical Report Writing &amp; its Presentation</td>
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**Cr Hrs=15**

### Semester-VII

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CE 401L</td>
<td>Civil Engineering Software Applications</td>
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</tr>
<tr>
<td>CE 412</td>
<td>Transportation Engineering-II</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 412L</td>
<td>Transportation Engineering-II Lab</td>
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</tr>
<tr>
<td>CE 409</td>
<td>Architecture &amp; Town Planning</td>
<td>2-0</td>
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<tr>
<td>CE 403</td>
<td>Steel Structures</td>
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</tr>
<tr>
<td>MGT 313</td>
<td>Construction Management</td>
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</tr>
<tr>
<td>MGT 313L</td>
<td>Construction Management Lab</td>
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<tr>
<td>RES 480</td>
<td>Final Year Project (Part I)</td>
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**Cr Hrs=18**

### Semester-VIII

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Cr Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 408</td>
<td>Irrigation Engineering</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 423</td>
<td>Geotechnical Design</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 445</td>
<td>Reinforced Concrete Design-II</td>
<td>3-0</td>
</tr>
<tr>
<td>CE 407</td>
<td>Environmental Engineering-II</td>
<td>2-0</td>
</tr>
<tr>
<td>CE 407L</td>
<td>Environmental Engineering-II Lab</td>
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</tr>
<tr>
<td>RES 480</td>
<td>Final Year Project (Part II)</td>
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</tbody>
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**Cr Hrs=15**

The courses will be offered subject to the availability of the faculty and reasonable number of students.