



**IQRA NATIONAL UNIVERSITY, PESHAWAR**  
**DEPARTMENT OF CIVIL ENGINEERING**

<b>Department of Civil Engineering</b>									
<b>Iqra National University Peshawar</b>									
<b>Curriculum (Scheme of Studies)</b>									
<u>Semester 1</u>					<u>Semester 2</u>				
S. No:	Course Code	Course Title	Credit Hrs		S. No:	Course Code	Course Title	Credit Hrs	
			Th	Prat				Th	Pract
1	BH-111	English Communication Skills	3	0	1	CS-121	Introduction to Computer Fundamentals and Programming	1	1
2	NS-112	Calculus And Analytical Geometry	3	0	2	CE-122	Engineering Mechanics	2	1
3	CE-113	Engineering Drawing for Civil Engineers	1	1	3	CE-123	Introduction to Architecture and Town planning	2	0
4	EE-114	Basic Electro Mechanical Engineering	2	1	4	BH-124	Ideology and Constitution of Pakistan	2	0
5	BH-115	Islamic Studies	2	0	5	BH-125	Arts and Humanities	2	0
6	CE-116	Civil Engineering Materials	1	0	6	CE-126	Engineering Geology	2	0
7	CE-117	Concrete Technology	1	1	7	CE-127	Civil Engineering Drawing and Graphics	1	1
8	GSQ-001	Holy Quran (Tarjuma, tajweed & Tafseer)	0	0					
		<b>TOTAL</b>	13	3			<b>TOTAL</b>	12	3
			<b>16</b>					<b>15</b>	
<u>Semester 3</u>					<u>Semester 4</u>				
S. No:	Course Code	Course Title	Credit Hrs		S. No:	Course Code	Course Title	Credit Hrs	
			Th	Pract				Th	Pract



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1	CE-211	Engineering Surveying-I	2	1
2	CE-212	Soil Mechanics	2	0
3	CE-213	Mechanics of Solids-I	2	0
4	NS-214	Linear Algebra and Differential Equations	3	0
5	CE-215	Construction Engineering	2	0
6	BH-216	Professional Ethics	1	0
7	CE-217	Introduction to Information and Communication Technology ( ICT )	1	1
<b>TOTAL</b>			13	2
			<b>15</b>	

**Semester 5**

S. No:	Course Code	Course Title	Credit Hrs	
			Th	Prac
1	CE-311	Structural Analysis-II	3	0
2	CE-312	Fluid Mechanics-II	3	1
3	CE-313	Geotechnical and Foundation Engineering	3	1
4	CE-314	Transportation Engineering-I	3	0
5	CE-315	Reinforced Concrete Design-I	3	0

1	CE-221	Mechanics of Solids-II	2	1
2	CE-222	Structural Analysis-I	3	0
3	CE-223	Engineering Surveying-II	3	1
4	CE-224	Fluid Mechanics-I	3	1
5	NS-225	Numerical Analysis	3	0
6	CE-226	Geo-informatics	0	1
<b>TOTAL</b>			14	4
			<b>18</b>	

**Semester 6**

S. No:	Course Code	Course Title	Credit Hrs	
			Th	Pract
1	CE-321	Quantity Surveying and Estimation	2	1
2	CE-322	Environmental Engineering-I	3	0
3	CE-323	Transportation Engineering-II	3	1
4	CE-324	Engineering Economics	2	0
5	NS-325	Probability and Statistics	3	0
6	CE-326	Reinforced Concrete Design-II	3	0



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		TOTAL	15	2			TOTAL	16	2
			17					18	
<u>Semester 7</u>					<u>Semester 8</u>				
S. No:	Course Code	Course Title	Credit Hrs		S. No:	Course Code	Course Title	Credit Hrs	
			Th	Pract				Th	Pract
1	BH-411	Technical Report Writing and Presentation Skills	3	0	1	CE-421	Engineering Hydrology	3	0
2	CE-412	Environmental Engineering-II	2	1	2	CE-422	Irrigation Engineering	2	0
3	CE-413	Steel Structures	3	0	3	CE-423	Introduction to Structural Dynamics and Earthquake Engineering	3	0
4	CE-414	Hydraulic Engineering	2	0	4	CE-424	Project Management	1	1
5	CE-415	Civil Engineering Software Application	0	2	5	CE-425	Entrepreneurship	2	0
6	CE-416	Occupation Healthy, Safety and Environment	2	0	6	CE-426	Final Year Project (Part-II)	0	3
7	CE-417	Final Year Project (Part-I)	0	3	7	BH-427	Civics and Community Engagement	1	1
		TOTAL	12	6			TOTAL	12	5
			18					17	
Total =								134	



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**Curriculum of the Department of Civil Engineering at Iqra National  
University Peshawar with the United Nations Sustainable Development Goals  
(SDGs)**

Specific courses and mapping to relevant SDGs. Below is a detailed linkage of each semester's courses to appropriate SDGs:

**Semester 1**

**1. English Communication Skills (BH-111)**

*SDG 4: Quality Education*

Enhances communication skills, critical for lifelong learning and professional development.

**2. Calculus And Analytical Geometry (NS-112)**

*SDG 4: Quality Education*

Provides essential mathematical tools that support technical and engineering knowledge.

**3. Engineering Drawing for Civil Engineers (CE-113)**

*SDG 9: Industry, Innovation, and Infrastructure*

Lays the foundation for designing infrastructure projects with precision and innovation.

**4. Basic Electro Mechanical Engineering (EE-114)**

*SDG 7: Affordable and Clean Energy*

Covers principles of mechanical and electrical systems, key to energy-efficient infrastructure.

**5. Islamic Studies (BH-115)**

*SDG 16: Peace, Justice, and Strong Institutions*

Promotes ethical considerations, social justice, and moral responsibility in professional life.

**6. Civil Engineering Materials (CE-116)**

*SDG 12: Responsible Consumption and Production*

Encourages sustainable material usage in construction to minimize environmental impact.



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**7. Concrete Technology (CE-117)**

*SDG 11: Sustainable Cities and Communities*

Introduces sustainable practices in the use of concrete, vital for resilient infrastructure.

**Semester 2**

**1. Introduction to Computer Fundamentals and Programming (CS-121)**

*SDG 9: Industry, Innovation, and Infrastructure*

Provides computing skills that are essential for smart infrastructure and innovative solutions.

**2. Engineering Mechanics (CE-122)**

*SDG 9: Industry, Innovation, and Infrastructure*

Strengthens understanding of mechanics, essential for constructing safe and durable infrastructure.

**3. Introduction to Architecture and Town Planning (CE-123)**

*SDG 11: Sustainable Cities and Communities*

Focuses on sustainable urban planning and architecture, promoting livable cities.

**4. Ideology and Constitution of Pakistan (BH-124)**

*SDG 16: Peace, Justice, and Strong Institutions*

Encourages understanding of national laws and governance, key for peaceful and just societies.

**5. Arts and Humanities (BH-125)**

*SDG 4: Quality Education*

Promotes cultural understanding, creativity, and well-rounded education.

**6. Engineering Geology (CE-126)**

*SDG 13: Climate Action*

Prepares students to address geotechnical challenges related to natural disasters and climate change.



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**7. Civil Engineering Drawing and Graphics (CE-127)**

*SDG 9: Industry, Innovation, and Infrastructure*

Enhances skills in technical drawings, essential for developing infrastructure projects.

**Semester 3**

**1. Engineering Surveying-I (CE-211)**

*SDG 11: Sustainable Cities and Communities*

Equips students with skills to accurately survey land for responsible urban development.

**2. Soil Mechanics (CE-212)**

*SDG 15: Life on Land*

Addresses soil conservation and sustainable land use, crucial for sustainable land development.

**3. Mechanics of Solids-I (CE-213)**

*SDG 9: Industry, Innovation, and Infrastructure*

Enhances understanding of material strength, crucial for infrastructure resilience.

**4. Linear Algebra and Differential Equations (NS-214)**

*SDG 4: Quality Education*

Provides mathematical tools for modeling and solving complex engineering problems.

**5. Construction Engineering (CE-215)**

*SDG 9: Industry, Innovation, and Infrastructure*

Focuses on sustainable construction practices and innovation in building methods.

**6. Professional Ethics (BH-216)**

*SDG 16: Peace, Justice, and Strong Institutions*

Promotes ethical practices and integrity in engineering professions.

**7. Introduction to Information and Communication Technology (CE-217)**

*SDG 9: Industry, Innovation, and Infrastructure*

Introduces ICT solutions that drive innovation in infrastructure development.



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**Semester 4**

**1. Mechanics of Solids-II (CE-221)**

*SDG 9: Industry, Innovation, and Infrastructure*

Deepens understanding of material behavior under stress, contributing to safer infrastructure.

**2. Structural Analysis-I (CE-222)**

*SDG 11: Sustainable Cities and Communities*

Supports the design of resilient structures that withstand natural hazards and aging.

**3. Engineering Surveying-II (CE-223)**

*SDG 9: Industry, Innovation, and Infrastructure*

Expands surveying skills critical for planning sustainable cities and large infrastructure projects.

**4. Fluid Mechanics-I (CE-224)**

*SDG 6: Clean Water and Sanitation*

Focuses on fluid behavior, essential for water resource management and sanitation systems.

**5. Numerical Analysis (NS-225)**

*SDG 9: Industry, Innovation, and Infrastructure*

Provides computational methods for solving complex engineering problems efficiently.

**6. Geo-informatics (CE-226)**

*SDG 9: Industry, Innovation, and Infrastructure*

Covers GIS and remote sensing, crucial for spatial analysis in urban and environmental planning.

**Semester 5**

**1. Structural Analysis-II (CE-311)**

*SDG 9: Industry, Innovation, and Infrastructure*

Enables students to analyze structural systems, vital for safe and durable infrastructure.



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**2. Fluid Mechanics-II (CE-312)**

*SDG 6: Clean Water and Sanitation*

Advances knowledge in fluid dynamics, critical for designing efficient water systems.

**3. Geotechnical and Foundation Engineering (CE-313)**

*SDG 11: Sustainable Cities and Communities*

Focuses on designing foundations that ensure stable and safe infrastructure.

**4. Transportation Engineering-I (CE-314)**

*SDG 11: Sustainable Cities and Communities*

Addresses sustainable transportation systems to reduce urban congestion and emissions.

**5. Reinforced Concrete Design-I (CE-315)**

*SDG 9: Industry, Innovation, and Infrastructure*

Enhances skills in designing concrete structures that are critical to urban infrastructure.

**Semester 6**

**1. Quantity Surveying and Estimation (CE-321)**

*SDG 9: Industry, Innovation, and Infrastructure*

Teaches cost-effective management of materials, minimizing waste and promoting sustainability.

**2. Environmental Engineering-I (CE-322)**

*SDG 6: Clean Water and Sanitation*

Focuses on environmental protection through sustainable water treatment systems.

**3. Transportation Engineering-II (CE-323)**

*SDG 11: Sustainable Cities and Communities*

Delivers knowledge on planning and managing transportation systems sustainably.

**4. Engineering Economics (CE-324)**

*SDG 8: Decent Work and Economic Growth*

Teaches economic principles that support sustainable economic development in infrastructure projects.





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**5. Probability and Statistics (NS-325)**

*SDG 4: Quality Education*

Enhances decision-making and risk management in engineering projects.

**6. Reinforced Concrete Design-II (CE-326)**

*SDG 9: Industry, Innovation, and Infrastructure*

Develops advanced design skills for concrete structures.

**Semester 7:**

**1. BH-411: Technical Report Writing and Presentation Skills**

○ **Linked SDGs:**

- **SDG 4: Quality Education** - Promoting communication skills and effective dissemination of knowledge through technical writing and presentations.
- **SDG 9: Industry, Innovation, and Infrastructure** - Strengthening industry-relevant technical communication abilities, crucial for innovation in infrastructure development.

**2. CE-412: Environmental Engineering-II**

○ **Linked SDGs:**

- **SDG 6: Clean Water and Sanitation** - Focus on water treatment and environmental protection.
- **SDG 13: Climate Action** - Environmental sustainability and pollution control.

**3. CE-413: Steel Structures**

○ **Linked SDGs:**

- **SDG 9: Industry, Innovation, and Infrastructure** - Development of resilient and sustainable steel structures for urban infrastructure.
- **SDG 11: Sustainable Cities and Communities** - Focusing on safe and sustainable construction methods for buildings and cities.



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**4. CE-414: Hydraulic Engineering**

○ **Linked SDGs:**

- **SDG 6: Clean Water and Sanitation** - Emphasizes the design of water distribution systems and management of hydraulic resources.
- **SDG 13: Climate Action** - Managing water resources efficiently in response to changing climate conditions.

**5. CE-415: Civil Engineering Software Application**

○ **Linked SDGs:**

- **SDG 9: Industry, Innovation, and Infrastructure** - Promotes the use of modern tools and software for infrastructure development.
- **SDG 11: Sustainable Cities and Communities** - Using technology for planning and designing sustainable urban environments.

**6. CE-416: Occupation Health, Safety, and Environment**

○ **Linked SDGs:**

- **SDG 3: Good Health and Well-being** - Ensuring safe working environments in construction.
- **SDG 8: Decent Work and Economic Growth** - Promoting workplace safety and labor standards in civil engineering projects.

**7. CE-417: Final Year Project (Part-I)**

○ **Linked SDGs:**

- **SDG 4: Quality Education** - Developing research and problem-solving skills.
- **SDG 9: Industry, Innovation, and Infrastructure** - Promoting innovation and practical applications in civil engineering.

**Semester 8:**

**1. CE-421: Engineering Hydrology**

○ **Linked SDGs:**



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- **SDG 6: Clean Water and Sanitation** - Focus on managing and preserving water resources.
  - **SDG 13: Climate Action** - Developing strategies for dealing with hydrological changes due to climate variability.
2. **CE-422: Irrigation Engineering**
- **Linked SDGs:**
    - **SDG 2: Zero Hunger** - Optimizing irrigation for agricultural productivity.
    - **SDG 6: Clean Water and Sanitation** - Efficient use of water resources for irrigation.
    - **SDG 15: Life on Land** - Sustainable land use and water management.
3. **CE-423: Introduction to Structural Dynamics and Earthquake Engineering**
- **Linked SDGs:**
    - **SDG 9: Industry, Innovation, and Infrastructure** - Designing resilient structures capable of withstanding earthquakes.
    - **SDG 11: Sustainable Cities and Communities** - Ensuring the safety of urban infrastructure from natural disasters.
4. **CE-424: Project Management**
- **Linked SDGs:**
    - **SDG 8: Decent Work and Economic Growth** - Promoting efficient project management in civil engineering.
    - **SDG 9: Industry, Innovation, and Infrastructure** - Enhancing infrastructure project efficiency through effective management.
5. **CE-425: Entrepreneurship**
- **Linked SDGs:**
    - **SDG 8: Decent Work and Economic Growth** - Promoting entrepreneurial skills for economic development.
    - **SDG 9: Industry, Innovation, and Infrastructure** - Encouraging innovation and entrepreneurship in the civil engineering sector.



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**6. CE-426: Final Year Project (Part-II)**

○ **Linked SDGs:**

- **SDG 4: Quality Education** - Applying technical knowledge to practical projects.
- **SDG 9: Industry, Innovation, and Infrastructure** - Fostering research and innovation in civil engineering.

**7. BH-427: Civics and Community Engagement**

○ **Linked SDGs:**

- **SDG 11: Sustainable Cities and Communities** - Promoting community involvement in sustainable urban development.
- **SDG 16: Peace, Justice, and Strong Institutions** - Encouraging civic responsibility and engagement.



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**Department of Civil Engineering at Iqra National University Peshawar as per  
the SDG linkage framework**

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**1. Education Integrated Across Full Curriculum**

- **CE-122: Engineering Mechanics**
  - **CE-113: Engineering Drawing for Civil Engineers**
  - **CE-215: Construction Engineering**
  - **CE-223: Engineering Surveying-II**
  - **CE-311: Structural Analysis-II**
  - **CE-313: Geotechnical and Foundation Engineering**
  - **CE-323: Transportation Engineering-II**
  - **CE-413: Steel Structures**
  - **CE-423: Introduction to Structural Dynamics and Earthquake Engineering**
  - **CE-421: Engineering Hydrology**
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**2. Mandatory Education for All**

- **BH-115: Islamic Studies**
  - **BH-124: Ideology and Constitution of Pakistan**
  - **BH-216: Professional Ethics**
  - **BH-125: Arts and Humanities**
  - **NS-112: Calculus and Analytical Geometry**
  - **NS-214: Linear Algebra and Differential Equations**
  - **NS-225: Numerical Analysis**
  - **NS-325: Probability and Statistics**
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**3. Optional Education for All**

- **BH-427: Civics and Community Engagement**
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- **CE-425: Entrepreneurship**
  - **CE-126: Engineering Geology**
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**4. Education for SDGs Specific Courses on Sustainability**

- **CE-412: Environmental Engineering-II**
  - **CE-322: Environmental Engineering-I**
  - **CE-221: Mechanics of Solids-II**
  - **CE-224: Fluid Mechanics-I**
  - **CE-326: Reinforced Concrete Design-II**
- 

**5. Have Dedicated Courses (Full Degrees, or Electives) that Address Sustainability and the SDGs**

- **CE-416: Occupation Health, Safety, and Environment**
- **CE-421: Engineering Hydrology**
- **CE-324: Engineering Economics**
- **CE-322: Environmental Engineering-I**
- **CE-412: Environmental Engineering-II**