Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Authority
Department of Quality Assurance and Academic Accreditation

Academic Program Description Form for Colleges and Institutes Academic Year

University: Shatt Al-Arab
College/Institute: Engineering
Scientific Department: Civil
Date of Form Completion: 01/09/2025

Signature
Name of Head of Department:

Mr. Nabeel Najm Abdullah

Signature
Name of Scientific Assistant:

Dr. Jawad Kadhim

Reviewed by:
Quality Assurance and University Performance Division
Name of Division Director:

Signature:

الدكتور
جاسم محسن ياسر
Dr.Jasim Al-Battat

Dr. Jasem Mohsen Yasser

جامعة شط العرب
كلية الهندسة
العمادة
SHATT AL-ARAB UNIVERSITY

أ.م.د.احسان شاسم محمد
عميد كلية الهندسة

Dean's Approval

Course Description

Course Description

This course description provides a brief summary of the most significant characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating how they can maximize the available learning opportunities. It must be explicitly linked and aligned with the overarching Academic Program Description.

1. Educational Institution	Shatt Al-Arab University
2. Scientific Department / Center	College of Engineering
3. Academic Program Name	Department of Civil Engineering
4. Final Degree	Bachelor of Science (B.Sc.) in Civil Engineering
5. Educational System	Bologna Process (1st, 2nd, and 3rd Stages) Semester System (4th Stage)
6. Accreditation Program	N/A (No cohort has graduated yet)
7. Other external factors	Not
8. Date of Description Preparation	September 1, 2025

9. Course outcomes and methods of teaching, learning, and assessment

1. Cognitive Training: Providing students with the scientific and theoretical background needed to design, analyze, and implement infrastructure and construction projects.
2. Practical Connection: Enabling students to link mathematical, physical, and geological concepts to direct engineering solutions on construction sites.
3. Professional Qualification: Equipping students with skills to deal with design parameters, engineering codes, solving execution problems, and efficiently testing materials.

10. Required program outcomes and the methods of teaching, learning, and evaluation:

A. Cognitive Objectives (Knowledge and Understanding).

A1. Recall and explain the fundamental theories, principles, and governing equations related to the behavior of civil engineering structures and materials.
A2. Identify and classify geotechnical and structural variables and criteria relevant to specialized civil engineering problems.
A3. Interpret the physical and mechanical mechanisms governing the behavior of engineering materials (such as concrete, steel, soil, and water).
A4. Comprehend standard engineering codes, specifications, and manuals (e.g., Iraqi Building Code, ACI, ASTM) associated with the discipline.

B. Intellectual and Course-Specific Skills:

B1. Model, formulate, and analyze structural elements and civil systems using rigorous scientific and methodical approaches.
B2. Analyze engineering data and conduct precise mathematical calculations or laboratory material testing in accordance with standard specifications.
B3. Utilize modern software and technical tools standard in civil engineering practice (e.g., AutoCAD, STAAD.Pro, ETABS) to solve complex design challenges.

C. Affective and Value-Based Objectives (Attitudes and Professionalism):

C1. Develop critical engineering thinking and the capacity to make field decisions anchored in sustainable safety principles and economic feasibility.
C2. Adhere to civil engineering professional ethics, academic integrity, and professional honesty (preventing plagiarism and ensuring truthfulness in lab testing).
C3. Demonstrate the ability to work effectively within multidisciplinary engineering teams (covering project management, execution, and supervision).

D. General and Transferable Skills (Employability and Personal Development):

D1. Manage time and resources efficiently in both office and site environments, committing to the submission of tasks and technical reports on schedule.
D2. Communicate engineering concepts with high proficiency (both orally and in writing) through technical reports, bills of quantities (BOQ), and executive drawings.
D3. Possess self-directed and lifelong learning skills to keep pace with rapid advancements in smart building materials and modern construction technologies.

Teaching and learning methods:

1- **Theoretical Lectures:** Presenting core civil engineering concepts, principles, and theories through brainstorming, scientific discussions, and interactive dialogue, while linking theory to real-world applications in buildings and infrastructure projects.
2- **Tutorials and Laboratory Sessions:** Solving engineering problems and conducting laboratory tests on construction materials (concrete, steel, soil, aggregates, and water), followed by analyzing and interpreting results per adopted engineering codes.
3- **Project-Based Learning:** Assigning mini-applied projects that simulate real civil engineering operations, such as structural design, highway engineering, soil/foundation analysis, water networks, and bills of quantities (BOQ) preparation.
4- **Software-Based Learning:** Training students on specialized civil engineering software (e.g., AutoCAD, ETABS, STAAD.Pro, Civil 3D) for analyzing, designing, drafting, and data processing, while building their capacity to interpret outputs and make sound engineering decisions.
5- **Case Studies Analysis:** Analyzing real-world problems and case studies from existing buildings, roads, bridges, and infrastructure projects to link theoretical knowledge with practical execution and foster engineering problem-solving skills.
6- **Collaborative and Team Learning:** Organizing students into working groups to execute applied tasks and projects, enhancing engineering communication, teamwork, and professional responsibility.
7- **Scientific Site Visits and Field Training:** Utilizing field trips and practical training at construction sites, infrastructure projects, and engineering laboratories to introduce students to actual work environments and align academic study with professional practice.
8- Training students to adopt and apply Building Information Modeling (BIM) technology and digital twins in project management and design, which helps enhance their ability to coordinate between different disciplines (structural, architectural, mechanical, electrical), reduce conflicts during implementation, and simulate the entire lifecycle of the structure.
9- Developing students' leadership and management skills by teaching them how to prepare project schedules (using Primavera or MS Project), calculate costs and economic feasibility, understand engineering contracts (like FIDIC contracts), and apply local and international construction laws and regulations.
10- Instilling a culture of safety on construction sites by teaching occupational health and safety standards, analyzing potential risks during

project execution, and setting up emergency and prevention plans to ensure the protection of human resources and equipment in the real work environment.

Assessment methods:

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes / Tests	2	10% (10)		
	Assignments / Tasks	2	10% (10)		
	Projects / Lab Practice	1	10% (10)		
	Technical Reports	1	10% (10)		
Summative assessment	Midterm Examination	2hr	10% (10)		
	Final Examination	2hr	50% (50)		
Total assessment			100% (100 Marks)		

Assessment methods:

Active participation and scientific interaction during lectures.
Homework submissions and engineering assignments.
Technical and laboratory reports.
Short evaluation quizzes.
Practical applications and course mini-projects.
Formative midterm and summative final examinations.
Evaluating the student's capability to analyze **civil engineering problems** and accurately interpret engineering findings.

11. Program Structure:

Stage	Semester	Code	Course Title	Course Type	Credits	Theory (hr)	Practical (hr)	SWL (hr/sem)	SSWL (hr/sem)	Total (hr/sem)	Exam Duration (hr)
Stage 1	Semester 1	E122.1	Mathematics 1	Basic	5	5	0	70	53	123	2
Stage 1	Semester 1	CE131.1	Engineering Mechanics 1	Core	6	6	0	84	64	148	2
Stage 1	Semester 1	CE126	Building Materials Science	Core	6	3	3	84	64	148	2
Stage 1	Semester 1	E115	Chemistry	Basic	3	1	2	42	31	73	2
Stage 1	Semester 1	U111.1	English Language I	Support	2	2	0	28	20	48	2
Stage 1	Semester 1	E120	Democracy & Human Rights	Basic	2	2	0	28	20	48	2
Stage 1	Semester 1	CE116	Engineering Geology	Basic	6	3	3	84	64	148	2
Stage 1	**Semester 1**	**Total**	**Semester 1 Total**	**—**	**30**	**22**	**8**	**420**	**316**	**736**	**14**
Stage 1	Semester 2	E122.2	Mathematics 2	Basic	5	5	0	70	53	123	2
Stage 1	Semester 2	CE131.2	Engineering Mechanics 2	Core	6	6	0	84	64	148	2
Stage 1	Semester 2	CE111	Engineering Drawing	Core	8	1	7	112	86	198	2
Stage 1	Semester 2	E125	Computer Science I	Basic	3	1	2	42	31	73	2
Stage 1	Semester 2	E116	Engineering Workshops	Support	3	1	2	42	31	73	2
Stage 1	Semester 2	E128	Physics	Basic	3	1	2	42	31	73	2
Stage 1	Semester 2	U121	Arabic Language I	Support	2	2	0	28	20	48	2
Stage 1	**Semester 2**	**Total**	**Semester 2 Total**	**—**	**30**	**17**	**13**	**420**	**316**	**736**	**14**
Stage 2	Semester 1	E212.1	Applied Mathematics	Basic	7	6	0	84	89	173	2
Stage 2	Semester 1	CE214.1	Fluid Mechanics I	Core	5	3	2	70	53	123	2
Stage 2	Semester 1	CE213.1	Strength of Materials I	Core	5	5	0	70	53	123	2
Stage 2	Semester 1	CE218	Building Construction	Core	3	2	2	28	45	73	2
Stage 2	Semester 1	CE217	Computer Science II	Basic	3	1	2	42	31	73	2
Stage 2	Semester 1	CE215.1	Engineering Surveying I	Core	5	3	2	70	53	123	2
Stage 2	Semester 1	U221	Arabic Language II	Support	2	2	0	28	20	48	2
Stage 2	**Semester 1**	**Total**	**Semester 1 Total**	**—**	**30**	**22**	**6**	**364**	**324**	**688**	**12**
Stage 2	Semester 2	CE214.2	Fluid Mechanics II	Core	5	3	2	70	53	123	2
Stage 2	Semester 2	CE213.2	Strength of Materials II	Core	5	5	0	70	53	123	2
Stage 2	Semester 2	CE215.2	Engineering Surveying II	Core	5	3	2	70	53	123	2
Stage 2	Semester 2	CE227	Statistics	Basic	4	2	2	28	70	98	2
Stage 2	Semester 2	CE216	Concrete Technology	Core	7	3	4	98	75	173	2
Stage 2	Semester 2	U212	Crimes of Ba'ath Party	Support	2	2	0	28	20	48	2
Stage 2	Semester 2	U211.2	English Language II	Support	2	2	0	28	20	48	2
Stage 2	**Semester 2**	**Total**	**Semester 2 Total**	**—**	**30**	**20**	**10**	**364**	**324**	**688**	**12**
Stage 3	Semester 1	CE311.1	Engineering Analysis	Core	5	5	0	70	53	123	2
Stage 3	Semester 1	CE312.1	Theory of Structures I	Core	6	6	0	84	64	148	2
Stage 3	Semester 1	CE314.1	Reinforced Concrete Design I	Core	6	6	0	84	64	148	2
Stage 3	Semester 1	CE313.1	Soil Mechanics I	Core	5	3	2	70	53	123	2
Stage 3	Semester 1	CE315.1	Irrigation Engineering I	Core	4	4	0	56	42	98	2
Stage 3	Semester 1	CE316	Project Management	Core	4	4	0	56	42	98	2
Stage 3	**Semester 1**	**Total**	**Semester 1 Total**	**—**	**30**	**28**	**2**	**420**	**318**	**738**	**12**
Stage 3	Semester 2	CE311.2	Numerical Analysis & Eng. App.	Core	5	2	3	70	53	123	2
Stage 3	Semester 2	CE312.2	Theory of Structures II	Core	6	6	0	84	64	148	2
Stage 3	Semester 2	CE314.2	Reinforced Concrete Design II	Core	6	6	0	84	64	148	2
Stage 3	Semester 2	CE313.2	Soil Mechanics II	Core	5	3	2	70	53	123	2
Stage 3	Semester 2	CE317	Traffic & Transportation Engineering	Core	4	2	2	56	42	98	2
Stage 3	Semester 2	CE315.2	Drainge Engineering	Core	4	4	0	56	42	98	2
Stage 3	**Semester 2**	**Total**	**Semester 2 Total**	**—**	**30**	**23**	**7**	**420**	**318**	**738**	**12**
Stage 4	Semester 1	CE411	Concrete Design	Core	6	6	0	84	64	148	2
Stage 4	Semester 1	CE412.1	Foundation Engineering I	Core	6	6	0	84	64	148	2
Stage 4	Semester 1	CE416	Water Supply Engineering	Core	5	3	2	70	53	123	2
Stage 4	Semester 1	CE417	Estimation & Construction Methods	Core	5	5	0	70	53	123	2
Stage 4	Semester 1	CE418	Engineering Hydrology	Core	4	4	0	56	42	98	2
Stage 4	Semester 1	CE413.1	Steel Design I	Core	4	4	0	56	42	98	2
Stage 4	**Semester 1**	**Total**	**Semester 1 Total**	**—**	**30**	**28**	**2**	**420**	**318**	**738**	**12**
Stage 4	Semester 2	CE412.2	Foundation Engineering II	Core	5	5	0	70	53	123	2
Stage 4	Semester 2	CE414	Hydraulic Structures	Core	6	6	0	84	64	148	2
Stage 4	Semester 2	CE416	Sanitary & Sewerage Engineering	Core	5	3	2	70	53	123	2
Stage 4	Semester 2	CE415	Highway Engineering	Core	6	4	2	84	64	148	2
Stage 4	Semester 2	CE420	Graduation Project & Eng. Ethics	Core	4	4	0	56	42	98	2
Stage 4	Semester 2	CE413.2	Steel Design II	Core	4	4	0	56	42	98	2
Stage 4	**Semester 2**	**Total**	**Semester 2 Total**	**—**	**30**	**26**	**4**	**420**	**318**	**738**	**12**

12. Personal Development Planning (PDP)

1. E-Learning: Engaging with digital educational platforms, virtual learning environments (VLEs), and synchronous/asynchronous online course delivery modes.
2. Utilization of the World Wide Web and the Internet: Leveraging online networks, academic databases, global informational repositories, and web-based research tools for knowledge acquisition.
3. Utilization of Modern Communication Methods: Mastering advanced digital interaction tools, cloud-based collaborative platforms, and computer-mediated communication channels to enhance professional networking.

13. Admission Criteria (Regulations Governing College or Institute Enrollment)

1. Central Admission System: Student enrollment is regulated through the national Central Admission framework managed by the Ministry of Higher Education and Scientific Research (MOHESR).
2. Student Grade Point Average (GPA) & Preferences: Students are allocated and distributed among specialized academic departments based on their high school GPA thresholds in alignment with their prioritized preference lists.

14. University Web Domain and Location

Institutional Identity: Shatt Al-Arab University.
Official Web Portal: https://www.sa-uc.edu.iq

15. Course Development Plan:

Labor Market Alignment: Periodically reviewing and updating lecture content and tutorials to ensure direct alignment with the practical requirements of construction companies and ongoing infrastructure projects in Iraq.
Digital Transformation: Intensely integrating advanced modeling, structural analysis, and geotechnical software into the curriculum to optimize modern technical skills and transition away from exclusive reliance on traditional manual calculations.
Laboratory Environment and Feedback Development: Updating laboratory testing frameworks and reporting methodologies to reflect the latest Iraqi Civil Engineering Codes and international standards (such as **ASTM** and **ACI**), while systematically utilizing student feedback questionnaires to enhance teaching performance and laboratory delivery.

CURRICULUM SKILLS MAPPING MATRIX (ACADEMIC YEAR 2025-2026)

				Cognitive Objectives				Program-Specific and Intellectual			Affective and Value-Based Objectives			General, Transferable, and Employability Skills		
Stage	Course Title	Type	Course type	A1	A2	A3	A4	B1	B2	B3	C1	C2	C3	D1	D2	D3
1st	E122.1	Mathematics 1	Basic	✓	✓	✓				✓	✓	✓	✓			✓
	CE131.1	Engineering Mechanics 1	Core	✓		✓	✓	✓	✓			✓	✓	✓	✓	✓
	CE126	Building Materials Science	Core			✓	✓	✓	✓	✓	✓	✓	✓			
	E115	Chemistry	Basic	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓
	U111.1	English Language I	Support	✓	✓	✓				✓	✓	✓	✓			✓
	E120	Democracy & Human Right	Basic	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓
	CE116	Engineering Geology	Basic	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
	E122.2	Mathematics 2	Basic	✓	✓			✓	✓	✓	✓	✓				✓
	CE131.2	Engineering Mechanics 2	Core	✓	✓			✓	✓	✓	✓			✓	✓	✓
	CE111	Engineering Drawing	Core	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
	E125	Computer Science I	Basic	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
	E116	Engineering Workshops	Support	✓				✓	✓	✓			✓	✓	✓	
	E128	Physics	Basic	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
	U121	Arabic Language I	Support	✓				✓	✓	✓	✓			✓	✓	
2nd	E212.1	Applied Mathematics	Basic			✓	✓	✓	✓	✓			✓	✓	✓	✓
	CE214.1	Fluid Mechanics I	Core	✓	✓	✓	✓			✓	✓	✓	✓			✓
	CE213.1	Strength of Materials I	Core			✓	✓	✓	✓	✓	✓			✓	✓	✓
	CE218	Building Construction	Core	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
	CE217	Computer Science II	Basic	✓			✓	✓	✓	✓	✓	✓	✓	✓		
	CE215.1	Engineering Surveying I	Core	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
	U221	Arabic Language II	Support	✓	✓			✓	✓	✓	✓	✓			✓	✓
	CE214.2	Fluid Mechanics II	Core	✓	✓	✓			✓	✓	✓	✓	✓			✓
	CE213.2	Strength of Materials II	Core	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
	CE215.2	Engineering Surveying II	Core			✓	✓	✓	✓	✓	✓			✓	✓	✓
	CE227	Statistics	Basic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CE216	Concrete Technology	Core	✓	✓			✓	✓	✓	✓		✓	✓	✓	
	U212	Crimes of Ba'ath Party	Support		✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
	U211.2	English Language II	Support	✓		✓	✓	✓				✓	✓	✓		
3rd	CE311.1	Engineering Analysis	Core	✓	✓			✓	✓	✓	✓	✓		✓	✓	✓
	CE312.1	Theory of Structures I	Core	✓	✓	✓	✓				✓	✓	✓			✓
	CE314.1	Reinforced Concrete Desig	Core			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
	CE313.1	Soil Mechanics I	Core	✓				✓	✓	✓	✓	✓			✓	✓
	CE315.1	Irrigation Engineering I	Core	✓		✓	✓				✓	✓	✓	✓	✓	
	CE316	Project Management	Core	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓
	CE311.2	Numerical Analysis & Eng.	Core	✓				✓	✓	✓	✓			✓	✓	✓
	CE312.2	Theory of Structures II	Core	✓	✓			✓	✓	✓	✓	✓			✓	✓
	CE314.2	Reinforced Concrete Desig	Core	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
	CE313.2	Soil Mechanics II	Core	✓	✓	✓	✓	✓		✓	✓	✓			✓	✓
	CE317	Traffic & Transportation Er	Core				✓	✓	✓	✓	✓	✓	✓	✓		
	CE315.2	Drainage / Foundation Eng	Core	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓
4th	CE411	Concrete Structures Desigr	Core	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
	CE412.1	Foundation Engineering I	Core	✓	✓		✓	✓		✓	✓	✓		✓	✓	✓
	CE413	Water Supply Engineering	Core	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
	CE417	Estimation & Construction	Core	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	CE418	Engineering Hydrology	Core	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
	CE415.1	Steel Structures Design I	Core	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
	CE412.2	Foundation Engineering II	Core	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	CE414	Hydraulic Structures	Core	✓				✓	✓	✓			✓	✓	✓	✓
	CE416	Sanitary & Sewerage Engin	Core	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	CE415	Highway Engineering	Core	✓	✓	✓	✓				✓	✓	✓		✓	✓
	CE420	Graduation Project & Eng.	Core	✓	✓	✓		✓	✓	✓				✓	✓	✓
	CE413.2	Steel Structures Design II	Core	✓	✓		✓	✓		✓	✓		✓	✓		✓