# Al-Mansour University College
# كلية المنصور الجامعة

*First Cycle – Bachelor's Degree (B.Sc.) –Civil Engineering*

بكالوريوس هندسة مدنية

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# 1. Overview

This catalogue is about the courses (modules) given by the program of Civil Engineering to gain the Bachelor of Science degree. The program delivers (55) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

**نظره عامه**

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج الهندسة المدنية للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (55) مادة دراسية، مع (٦٠٠٠) إجمالي ساعات حمل الطالب و ٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

# 2. Undergraduate Courses 2023-2024

## UG I – Semester 1

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV11001 | Workshop Technology | 3 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 0 | 2+1 | 48 | 27 |
| **Description** | | | |
| Workshop Technology is a comprehensive course that covers various modules related to the practical aspects of manufacturing processes and workshop operations. These modules provide students with the necessary knowledge and skills to understand and work with different tools, machines, and techniques commonly used in workshops and manufacturing industries. | | | |

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV11002 | Computer Fundamentals and Programming I | 3 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 12 |
| **Description** | | | |
| Computer Fundamentals and Programming I is a module in civil engineering that provides students with a foundation in computer science and programming concepts. It aims to equip civil engineering students with the necessary skills to utilize computer programming languages and tools in their field. | | | |

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV11203 | Mathematics I | 5 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 4 | 0 | 63 | 62 |
| **Description** | | | |
| In civil engineering, the Mathematics I course is designed to provide students with a strong foundation in mathematical concepts and techniques that are relevant to their field of study. This course focuses on various modules that cover essential mathematical topics used in civil engineering. Here are some common modules covered in a Mathematics I course for civil engineering: Algebra and Equations, calculus, analytical Geometry, vectors.. etc. | | | |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV11104 | Engineering Drawings I | 5 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 3 | 78 | 47 |
| **Description** | | | |
| In civil engineering, the Engineering Drawings course is essential for students to develop the skills and knowledge required to read, interpret, and create engineering drawings. Engineering drawings serve as a means of communication and documentation in the field, providing precise and detailed information about design, construction, and dimensions of civil engineering projects. Here are some common modules covered in an Engineering Drawings course for civil engineering: Introduction to Engineering Drawings, Drawing Instruments and Techniques, Orthographic Projection, Geometric Construction, .. etc. | | | |

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| MUC11001 | Human Rights and Democracy | 2 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | | 33 | 17 |
| **Description** | | | |
| The course on Human Rights and Democracy focuses on the study of fundamental human rights and the principles and practices of democracy. It examines the historical, philosophical, legal, and social aspects of human rights and their relationship to democratic governance. | | | |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV11205 | Physics | 5 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 62 |
| **Description** | | | |
| Physics plays a crucial role in civil engineering, providing a foundation for understanding the physical principles and phenomena that govern the behavior of structures, materials, and forces. In a Physics course for civil engineering, several modules are typically covered to equip students with the necessary knowledge and skills. | | | |

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV11106 | Engineering Mechanics I | 5 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Engineering Mechanics I is a foundational course in civil engineering that focuses on the principles of statics and dynamics. It provides students with a fundamental understanding of the behavior of structures and the analysis of forces and motion. Here are some common modules covered in an Engineering Mechanics I course for civil engineering: Introduction to Engineering Mechanics, Forces and Moments, Free-Body Diagrams, Analysis of Structures, .. etc. | | | |

**Module 8**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| MUC11002 | Arabic Language | 2 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | | 33 | 17 |
| **Description** | | | |
| This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program. | | | |

## UG I – Semester 2

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| MUC12203 | English Language I | 2 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | | 33 | 17 |
| **Description** | | | |

English Language I in civil engineering is a course designed to improve students' English language proficiency, with a focus on developing the language skills necessary for effective communication in the field of civil engineering. The course covers various modules that target different language components and communication skills.

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV12201 | Chemistry | 4 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 37 |
| **Description** | | | |
| In analytical chemistry, students will be introduced to various analysis techniques, including They will learn how to express concentrations and contents, use standard solutions, determine reactant and product amounts, and understand chemical equilibrium. The module also covers the relationship between chemical kinetics and equilibrium, electrochemistry, gravimetric and volumetric analysis, titrations (acid-base, precipitation, complexometric, and redox), and their calculations. This comprehensive module provides a foundation analytical chemistry, equipping students with knowledge and skills to understand and analyze chemical systems. | | | |

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV12102 | Mathematics II | 5 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Mathematics II in civil engineering builds upon the foundational mathematical concepts covered in Mathematics I, further exploring mathematical techniques and applications relevant to the field. This course focuses on advanced mathematical topics that are essential for solving engineering problems encountered in civil engineering. Here are some common modules covered in a Mathematics II course for civil engineering: Differential Equations, Linear Algebra, Numerical Methods, ..etc. | | | |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV12103 | Computer-Aided Drawing II | 5 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 62 |
| **Description** | | | |
| Computer-Aided Drawing II in civil engineering builds upon the foundational knowledge and skills acquired in Computer-Aided Drawing I, further enhancing students' proficiency in using computer-aided design (CAD) software for civil engineering applications. The course focuses on advanced techniques and applications of CAD in civil engineering projects. | | | |

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV12204 | Geology | 5 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 62 |
| **Description** | | | |
| Geology plays a crucial role in civil engineering, providing valuable insights into the behavior of Earth materials and the geological processes that shape the Earth's surface. A Geology course for civil engineering aims to familiarize students with the geological principles and their application in various civil engineering projects. Here are some common modules covered in a Geology course for civil engineering: Introduction to Geology, Geological Maps and Cross-Sections, Rock and Soil Mechanics, ..etc. | | | |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV12105 | Engineering Mechanics II | 5 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |

**Description**

- The student acquires knowledge and special skills to analyze simple geometric shapes and structures and find results using theories, hypotheses and laws related to dynamics.
- The student acquires special knowledge and skills to find the forces of friction and the most important relevant laws.
- The student acquires special knowledge and skills to find centers of gravity, centers of areas, and the most important relevant laws.
- Acquisition of the student's knowledge and special skills to find the moment of inertia and the most important relevant laws.

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV12106 | Material Technology | 4 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 37 |

**Description**

Material Technology in civil engineering is a course that focuses on the properties, behavior, and applications of construction materials used in the field. The course aims to provide students with a comprehensive understanding of various materials and their performance in civil engineering projects.

# UG II – Semester 3

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| MUC21003 | Crimes of the Defunct Baath Party | 2 | 3 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 0 | 33 | 17 |
| **Description** | | | |
| English Language II in civil engineering is a course designed to further enhance students' English language proficiency, with a specific focus on the language skills and communication strategies relevant to the field of civil engineering. The course builds upon the foundation laid in English Language I and provides students with advanced language skills necessary for academic and professional communication. | | | |

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV21001 | Computer Fundamentals and Programming II | 3 | 3 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 12 |
| **Description** | | | |
| Computer Fundamentals and Programming II in civil engineering is a course that builds upon the foundational concepts covered in Computer Fundamentals and Programming I. This course focuses on further developing students' understanding of computer systems, programming languages, and their applications in the field of civil engineering. | | | |

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV21202 | Mathmatics III | 5 | 3 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Mathematics III in civil engineering is an advanced course that builds upon the mathematical concepts covered in Mathematics I and Mathematics II. The course focuses on advanced mathematical topics that are essential for solving complex engineering problems encountered in civil engineering. Here are some common modules covered in a Mathematics III course for civil engineering: Differential | | | |

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| Equations and Partial Differential Equations, Complex Analysis, Vector Calculus, ..etc. |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV21103 | Mechanics of Materials I | 5 | 3 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Mechanics of Materials I in civil engineering is a course that focuses on the behavior and analysis of structural materials under various loading conditions. The course introduces students to the principles and theories of mechanics of materials, providing a foundation for analyzing the strength and deformation of structural components. | | | |

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV21104 | Concrete Technology | 5 | 3 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 2 | 78 | 47 |
| **Description** | | | |
| Concrete Technology is a specialized course in civil engineering that focuses on the study of concrete, its properties, production, and applications in construction. The course covers the fundamental principles and advanced concepts related to the design, manufacturing, and testing of concrete. | | | |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV21105 | Fluid Mechanics I | 5 | 3 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 62 |
| **Description** | | | |
| Fluid Mechanics I in civil engineering is a course that focuses on the study of fluid behavior and its application in civil engineering projects. The course introduces students to the principles and theories of fluid mechanics, providing a foundation for analyzing fluid flow in various civil engineering systems. | | | |

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV21106 | Geomatics I | 5 | 3 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 62 |
| **Description** | | | |
| Geomatics I in civil engineering is a course that focuses on the principles and applications of geospatial data collection, analysis, and management in civil engineering projects. The course covers various surveying techniques and technologies used to acquire and process spatial data for engineering applications. | | | |

# UG II – Semester 4

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV22201 | Mathematics IV | 5 | 4 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Mathematics IV in civil engineering is an advanced course that builds upon the mathematical concepts covered in Mathematics I, II, and III. The course focuses on mathematical techniques and theories relevant to civil engineering applications, with an emphasis on solving complex engineering problems. Here are some common modules covered in a Mathematics IV course for civil engineering: Numerical Methods, Probability and Statistics in Civil Engineering, Advanced Engineering Mathematics, ..etc. | | | |

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV22102 | Engineering Statistics | 5 | 4 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 0 | 48 | 77 |
| **Description** | | | |
| Engineering Statistics in civil engineering is a course that focuses on the principles and applications of statistical analysis in engineering. The course aims to provide students with the knowledge and skills to collect, analyze, and interpret data relevant to civil engineering projects. Here are some common modules covered in an Engineering Statistics course for civil engineering: Descriptive Statistics, Probability Theory, Statistical Inference, ..etc. | | | |

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV22103 | Building Construction | 5 | 4 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 2 | 78 | 47 |
| **Description** | | | |
| Building Construction is a specialized course in civil engineering that focuses on the principles, techniques, and processes involved in the construction of buildings. The course covers various aspects of building construction, including materials, methods, and management. Here are some common modules covered in a Building Construction course for civil engineering: Construction Materials, Construction Methods and Techniques, Building Structures, ..etc. | | | |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV22104 | Mechanics of Materials II | 5 | 4 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Mechanics of Materials II in civil engineering is an advanced course that builds upon the concepts covered in Mechanics of Materials I. The course focuses on advanced topics related to the behavior and analysis of structural materials under different loading conditions. It provides students with an in-depth understanding of the mechanics of materials and their applications in civil engineering. | | | |

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV22105 | Geomatics II | 4 | 4 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 2 | 63 | 37 |
| **Description** | | | |
| Geomatics II in civil engineering is an advanced course that builds upon the principles and concepts covered in Geomatics I. The course focuses on advanced geospatial data collection, analysis, and management techniques used in civil engineering projects. It provides students with a deeper understanding of surveying, mapping, and geospatial data analysis. | | | |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV22106 | Fluid Mechanics II | 4 | 4 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 2 | 78 | 22 |
| **Description** | | | |
| Fluid Mechanics II in civil engineering is an advanced course that builds upon the concepts covered in Fluid Mechanics I. The course focuses on more complex topics and applications of fluid mechanics in civil engineering projects. It provides students with a deeper understanding of fluid flow behavior, analysis, and design considerations. Here are some common modules covered in a Fluid Mechanics II course for civil engineering: Fluid Flow in Pipes, Open Channel Flow, Hydraulic Structures, ...etc. | | | |

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| MUC11004 | English Language II | 2 | 4 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | | 33 | 17 |
| **Description** | | | |
| English Language II in civil engineering is a course designed to improve students' English language proficiency, with a focus on developing the language skills necessary for effective communication in the field of civil engineering. The course covers various modules that target different language components and communication skills. | | | |

## UG III – Semester 5

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV31101 | Soil Mechanics I | 4 | 5 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 2 | 78 | 22 |
| **Description** | | | |
| Soil Mechanics I in civil engineering is a foundational course that focuses on the behavior and properties of soils. It provides students with an understanding of the fundamentals of soil | | | |

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| mechanics and its applications in civil engineering projects. The course covers various aspects of soil behavior, soil classification, and basic soil testing methods. Here are some common modules covered in a Soil Mechanics I course for civil engineering: Introduction to Soil Mechanics, Soil Classification, Soil Water, Soil Compaction, ..etc. |

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV31102 | Engineering and Numerical Analysis | 6 | 5 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 5 | 1 | 93 | 57 |
| **Description** | | | |
| Engineering and Numerical Analysis in civil engineering is a course that focuses on the application of numerical methods and computational tools in solving engineering problems. The course covers various mathematical techniques and numerical algorithms used in civil engineering analysis and design. In addition to learning the use of mathematical engineering programs in analyzing mathematical problems represented by the MathCAD program. | | | |

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV31103 | Theory of Structures I | 4 | 5 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 37 |
| **Description** | | | |
| Theory of Structures I in civil engineering is a foundational course that focuses on the fundamental principles and analysis techniques used in structural engineering. The course provides students with an understanding of the behavior and analysis of various structural elements&systems. It lays the groundwork for advanced courses in structural analysis&design. | | | |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV31104 | Reinforced Concrete Design I | 4 | 5 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 37 |
| **Description** | | | |

Reinforced Concrete Design I in civil engineering is a course that focuses on the principles and design considerations for reinforced concrete structures. It provides students with an understanding of the behavior, analysis, and design of reinforced concrete elements and systems. The course typically covers the following modules: Introduction to Reinforced Concrete Design, Structural Analysis of Reinforced Concrete Elements, Flexural Design of Reinforced Concrete Beams, ..etc.

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV31105 | Sanitary Engineering I | 4 | 5 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 37 |
| **Description** | | | |
| Sanitary Engineering I in civil engineering is a course that focuses on the principles and practices of sanitation and wastewater management in civil engineering projects. It provides students with an understanding of the design, operation, and maintenance of sanitary systems. | | | |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV31106 | Engineering Management & Economics | 4 | 5 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 0 | 33 | 67 |
| **Description** | | | |
| Engineering Management & Economics in civil engineering is a course that focuses on the principles and practices of managing engineering projects and making informed economic decisions. It provides students with the necessary skills to plan, execute, and control engineering projects while considering economic factors. | | | |

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV31107 | Traffic Engineering I | 4 | 5 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 1 | 48 | 52 |
| **Description** | | | |
| Traffic Engineering I in civil engineering is a course that focuses on the principles and | | | |

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| practices of traffic engineering, including the design and analysis of transportation systems and the management of traffic flow. It provides students with an understanding of traffic behavior, traffic control measures, and the design of transportation facilities. |

## UG III – Semester 6

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV32101 | Soil Mechanics II | 5 | 6 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 2 | 78 | 47 |
| **Description** | | | |
| Soil Mechanics II in civil engineering is an advanced course that builds upon the concepts covered in Soil Mechanics I. The course focuses on more complex topics and advanced analysis techniques used in geotechnical engineering. It provides students with a deeper understanding of soil behavior, soil testing, and advanced geotechnical analysis methods. Here are some common modules covered in a Soil Mechanics II course for civil engineering: Soil Consolidation and Settlement, Shear Strength and Slope Stability, Lateral Earth Pressure and Retaining Structures, ..etc. | | | |

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| MUC32005 | Professional Ethics | 2 | 6 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 0 | 33 | 17 |
| **Description** | | | |
| Professional Ethics in civil engineering is a course that focuses on the ethical principles and standards that govern the professional conduct of civil engineers. It provides students with an understanding of the ethical responsibilities and dilemmas they may encounter in their engineering practice. | | | |

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV32102 | Theory of Structures II | 5 | 6 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |

| Description |
|---|
| Theory of Structures II in civil engineering is an advanced course that builds upon the concepts and analysis techniques covered in Theory of Structures I. The course focuses on more complex structural systems and advanced analysis methods. It provides students with an in-depth understanding of structural behavior and advanced structural analysis techniques. |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV32103 | Reinforced Concrete Design II | 5 | 6 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Reinforced Concrete Design II in civil engineering is an advanced course that builds upon the concepts and principles covered in Reinforced Concrete Design I. The course focuses on the design and analysis of more complex reinforced concrete structures and elements. It provides students with a deeper understanding of the behavior of reinforced concrete and advanced design considerations. | | | |

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV32104 | Sanitary Engineering II | 4 | 6 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2+1 | 78 | 22 |
| **Description** | | | |
| Sanitary Engineering II in civil engineering is an advanced course that delves deeper into the design and management of sanitary systems and infrastructure. It focuses on advanced topics and specialized aspects of sanitation and wastewater management. The course typically covers the following topics: the knowledge to study wastewater properties and water lab tests, design sewage networks, estimation of storm water and design wastewater treatment. | | | |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV32105 | Hydrology | 5 | 6 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 62 |
| **Description** | | | |

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| Hydrologic cycle and measurement of temperature, induty, and wind, and the type of precipitation and method of measurement. the stream flow and method of measure the stage, velocity and discharge. Rating curve. Evaporation and method of measurement. Subsurface water and ground water movement in confined and unconfined aquifer. Characteristic of hydrograph and separation of hydrograph. Unit storm. Stream flow routing And Applications like hydraulic design of spillway, sewage, reservoirs and dams. |

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV32106 | Environmental Engineering | 4 | 6 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 37 |
| **Description** | | | |
| Environmental Engineering in civil engineering is a course that focuses on the application of engineering principles to protect and improve the environment. It covers various aspects of environmental engineering, including water and wastewater treatment, air pollution control, solid waste management, and environmental impact assessment. | | | |

# UG IV – Semester 7

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV41101 | Project I | 2 | 7 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 0 | 2 | 33 | 17 |
| **Description** | | | |
| Project in 4$^{th}$ grade is a module that is typically included in the final year or advanced stages of a civil engineering program. It aims to provide students with an opportunity to apply their knowledge and skills to a research project in a specific area of civil engineering. | | | |

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV41102 | Elective I | 4 | 7 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 37 |
| **Description** | | | |

GIS (Geographic Information Systems) is a computer-based tool that uses spatial (geographic) data to analyze and solve real-world problems. This course is designed to introduce the student to the basic principles and techniques of GIS. The lab material will emphasize GIS data collection, entry, storage, analysis, and output using ArcView.

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV41103 | Foundation Engineering I | 5 | 7 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Foundation Engineering I" is a module in civil engineering that focuses on the principles and practices related to the design and analysis of foundations for structures. It provides students with an understanding of the behavior of soil and the design considerations for various types of foundations. The module typically covers the following modules: Introduction to Foundation Engineering, Soil Mechanics Fundamentals, Bearing Capacity and Settlement Analysis, ..etc. | | | |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV41104 | Geometric Design of Highways | 5 | 7 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Geometric Design of Highways is a module in civil engineering that focuses on the principles and practices involved in designing the geometric features of highways and roadways. It covers various aspects of highway design, including alignment, cross-section, intersections, and interchanges. | | | |

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV41105 | Steel Design I | 5 | 7 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Steel Design I" is a module in civil engineering that focuses on the design and analysis of structural steel elements and systems. It provides students with the knowledge and skills necessary to design steel structures that can withstand various loads and ensure structural safety. To make the student able to | | | |

| |
|---|
| analyze and design essential structural steel members according to the AISC - ASD and AISD – LRFD Specifications. |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV41106 | Reinforced Concrete Design III | 5 | 7 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Reinforced Concrete Design III" is a module in civil engineering that focuses on advanced topics related to the design and analysis of reinforced concrete structures. Building upon the knowledge gained in previous reinforced concrete design modules, this module typically covers the following topics: Flexural Design of Beams, Design of Columns, ..etc. | | | |

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV41107 | Hydraulics | 4 | 7 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 37 |
| **Description** | | | |
| In civil engineering, the study of hydraulics encompasses several important modules that are essential for understanding and designing various water-related systems. Here are some key modules in the field of hydraulics: Fluid Properties, Fluid Statics, Flow in Pipes, ..etc. | | | |

# UG IV – Semester 8

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV42101 | Project II | 2 | 8 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 0 | 2 | 33 | 17 |
| **Description** | | | |
| Project in 4$^{th}$ grade is a module that is typically included in the final year or advanced stages of a civil engineering program. It aims to provide students with an opportunity to apply their knowledge and skills to a research project in a specific area of civil engineering. | | | |

**Module 2**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV42102 | Elective II | 5 | 8 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Environmental engineering is a branch of civil engineering that focuses on protecting and improving the environment through the application of scientific and engineering principles. It encompasses several modules that cover various aspects of environmental management and sustainability. | | | |

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV42103 | Foundation Engineering II | 5 | 8 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Foundation Engineering II is an advanced module in civil engineering that focuses on the design and analysis of deep foundations and complex geotechnical systems. It builds upon the knowledge and principles learned in Foundation Engineering I and delves into more specialized topics. | | | |

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV42104 | Pavement Engineering | 4 | 8 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 2 | 2 | 63 | 37 |
| **Description** | | | |
| Pavement Engineering is a specialized module in civil engineering that focuses on the design, construction, and maintenance of road pavements. It involves studying the behavior of pavement materials, traffic loads, and environmental factors to develop sustainable and durable road infrastructure. | | | |

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV42105 | Steel Design II | 5 | 8 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| T Steel Design II is an advanced module in civil engineering that focuses on the design and analysis of steel structures. Building upon the fundamentals of Steel Design I, this module delves deeper into complex steel structures and advanced design principles. To make the student able to analyze and design essential structural steel members according to the AISC - ASD and AISD – LRFD Specifications. | | | |

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV42106 | Reinforced Concrete Design IV | 5 | 8 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 62 |
| **Description** | | | |
| Reinforced Concrete Design IV is an advanced module in civil engineering that focuses on the design and analysis of reinforced concrete structures. It builds upon the foundational knowledge of Reinforced Concrete Design I, II, and III and delves into more specialized topics and advanced design principles. The student acquires knowledge and special skills to analyze and design of different types of reinforced concrete slabs using several methods specified and accepted by the current code provisions. | | | |

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| CIV42107 | Construction Methods & Estimation | 4 | 8 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/sem)** |
| 3 | 1 | 63 | 37 |
| **Description** | | | |
| Construction Methods & Estimation is a module in civil engineering that focuses on the planning, management, and estimation of construction projects. It encompasses various aspects of construction, including the principles of management and economics in engineering projects in order to manage engineering equipment and machinery in order to achieve the best productivity and at the lowest possible cost and manage their maintenance. | | | |