



## University of Mosul

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*240 ECTS*

*Bachelor's Degree (B.Sc.) – Department of Sustainable Energy Engineering*



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### 1. Overview

This catalogue presents the courses (modules) offered by the Department of Sustainable Energy Engineering within the Bachelor of Science degree program. The program consists of 51 modules with a total of 5750 student workload hours and 240 ECTS credits required to obtain the Bachelor's degree. The structure and delivery of the modules follow the Bologna Process.

### 2. Undergraduate Modules 2026-2027

#### Module 1

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Course/Module Title              | ECTS          | Semester    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|-------------|
| SEE101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Engineering Mechanics- Statics I | 5             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Lect/Lab./Prac./Tutor            | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1                                | 63            | 62          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                  |               |             |
| <p>This course provides an introduction to the fundamental concepts of statics and the analysis of forces acting on bodies in equilibrium. It covers the study of forces, moments, and couples and their effects on rigid bodies in two- and three-dimensional systems. The course includes methods for constructing and interpreting free body diagrams, analyzing and determining resultant forces, and applying equilibrium principles to simple trusses and frames. It also explores the phenomena of friction and its role in mechanical components, along with the determination of the centroid and center of gravity for various areas and rigid bodies.</p> |                                  |               |             |

## Module 2

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Course/Module Title   | ECTS          | Semester    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE102                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Mathematics I         | 6             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1                     | 78            | 72          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |               |             |
| <p>This course provides students with a comprehensive foundation in the principles of physics and their mathematical applications. It emphasizes the development of clear and rigorous mathematical reasoning, including the effective use of physical equations, and reinforces core physics concepts while enabling their practical application in real-world contexts. Students learn to translate physical descriptions into mathematical equations, interpret the physical meaning of results, and apply algebraic and geometric methods to solve problems. The course also covers the use of graphs and charts to present results effectively, the identification of appropriate solution strategies and necessary assumptions, and the cultivation of flexible and creative problem-solving skills, alongside building an integrated understanding of mathematics and improving the ability to communicate scientific ideas.</p> |                       |               |             |

## Module 3

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Course/Module Title   | ECTS          | Semester    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE103                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Electric Circuits     | 5             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3                     | 78            | 47          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |               |             |
| <p>This course is designed to equip students with the skills to identify, define, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. It emphasizes the use of circuit analysis techniques, including Ohm's Law, Kirchhoff's Voltage and Current Laws, and network theorems such as Thevenin and Norton, to analyze electrical circuits. Furthermore, the course trains students to design and perform precise measurements and tests with quality assurance, interpret and analyze results, and apply engineering judgment to make informed decisions.</p> |                       |               |             |

**Module 4**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Course/Module Title   | ECTS          | Semester    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE104                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Physics               | 4             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2                     | 63            | 37          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |               |             |
| <p>This course offers a focused introduction to classical mechanics, fluid mechanics, thermodynamics, modern physics, and basic electronics. It covers SI units, vector and scalar quantities, kinematics and dynamics including Newton's laws, work, energy, power, momentum, friction, Hooke's law, simple harmonic motion, and gravitation. In fluids, it addresses pressure, density, hydrostatics, buoyancy, Pascal's principle, continuity, and Bernoulli's equation. Heat transfer by conduction, convection, and radiation is introduced, along with atomic structure, electron shells, energy levels, valence electrons, ions, and the Bohr model. Basic electrical concepts include conductors, insulators, semiconductors, diodes, transistors, circuit elements, Ohm's law, power, energy, series and parallel circuits, and Kirchhoff's laws.</p> |                       |               |             |

**Module 5**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Course/Module Title                     | ECTS          | Semester    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------|-------------|
| SEE105                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Introduction to Sustainable Engineering | 5             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Lect/Lab./Prac./Tutor                   | SSWL (hr/sem) | USWL (hr/w) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2                                       | 63            | 62          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                         |               |             |
| <p>The course aims to understand the fundamental principles of energy and sustainability and their importance in modern society, identify different energy sources, including fossil fuels, nuclear, and renewables like solar, wind, and geothermal. Analyze the environmental, economic, and social impacts of energy production and consumption, promote awareness of sustainable practices in resource utilization to protect the environment and develop the skills and knowledge necessary for careers in environmental consulting, energy management, and sustainability policymaking.</p> |                                         |               |             |

## Module 6

| Code                                                                                                                                                                                                                                                                     | Course/Module Title   | ECTS          | Semester    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| UOM1031                                                                                                                                                                                                                                                                  | Computer 1            | 3             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                             | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                        | 2                     | 63            | 12          |
| Description                                                                                                                                                                                                                                                              |                       |               |             |
| This course introduces students to the fundamentals of computers, their components, and practical skills in using key software applications. It prepares students to interact effectively with computers and provides hands-on experience with Microsoft Word and Excel. |                       |               |             |

## Module 7

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Course/Module Title   | ECTS          | Semester    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| UOM1011                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Arabic Language 1     | 2             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                     | 33            | 17          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |               |             |
| The course will cover the fundamental definitions of the Arabic language, key grammatical rules related to tenses, and the development of syntactic skills concerning singular and plural forms, as well as indeclinable nouns. Additionally, the curriculum will include rhetoric and its practical applications. By the end of the semester, students will have acquired a solid understanding of these concepts, achieved through a combination of theoretical lectures, tutorials, homework assignments, and relevant reports. |                       |               |             |

**Module 8**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Course/Module Title            | ECTS          | Semester    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------|-------------|
| SEE151                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Engineering Mechanics-Dynamics | 6             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Lect/Lab./Prac./Tutor          | SSWL (hr/sem) | USWL (hr/w) |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2                              | 78            | 72          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |               |             |
| <p>This course explores the fundamental principles of dynamics and their application in solving practical engineering problems. It develops students' proficiency in mathematical and physical analysis for kinematics and kinetics of particles and rigid bodies. Topics include linear and angular motion, translation, rotation, plane motion, and methods such as force–acceleration, work–energy, and impulse–momentum. The course also covers the determination of mass moments of inertia for solids and composite bodies.</p> |                                |               |             |

**Module 9**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Course/Module Title   | ECTS          | Semester    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE152                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mathematics II        | 6             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2                     | 78            | 72          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |               |             |
| <p>This course covers integral and differential calculus with applications. Topics include definite and indefinite integrals, area and volume calculations, arc length, surfaces of revolution, and centers of mass. It introduces transcendental functions, including logarithmic, exponential, inverse, trigonometric, and hyperbolic functions, and addresses L'Hospital's rule and relative growth rates. Integration techniques such as substitution, parts, trigonometric integrals, partial fractions, numerical integration, and improper integrals are covered, along with applications in probability. The course also introduces first-order differential equations, including solutions, slope fields, Euler's method, linear equations, systems of equations, phase planes, and their practical applications.</p> |                       |               |             |

**Module 10**

| <b>Code</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Course/Module Title</b>   | <b>ECTS</b>          | <b>Semester</b>    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------|--------------------|
| SEE153                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Engineering Drawing          | 5                    | 2                  |
| <b>Class (hr/w)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Lect/Lab./Prac./Tutor</b> | <b>SSWL (hr/sem)</b> | <b>USWL (hr/w)</b> |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3                            | 78                   | 47                 |
| <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                              |                      |                    |
| <p>This course offers an advanced introduction to engineering drawing for sustainable energy engineering using AutoCAD, focusing on precise geometric construction, projection methods, and professional presentation. It covers line types, curves, central and parallel projection theories, reference planes, and multi-view drawings, enabling students to create and link three-dimensional shapes through practical exercises and computer-aided techniques.</p> |                              |                      |                    |

**Module 11**

| <b>Code</b>                                                                                                                                                                                                                                                                                                                                                                                          | <b>Course/Module Title</b>   | <b>ECTS</b>          | <b>Semester</b>    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------|--------------------|
| SEE154                                                                                                                                                                                                                                                                                                                                                                                               | Environmental Pollution      | 5                    | 2                  |
| <b>Class (hr/w)</b>                                                                                                                                                                                                                                                                                                                                                                                  | <b>Lect/Lab./Prac./Tutor</b> | <b>SSWL (hr/sem)</b> | <b>USWL (hr/w)</b> |
| 2                                                                                                                                                                                                                                                                                                                                                                                                    | 3                            | 78                   | 47                 |
| <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                   |                              |                      |                    |
| <p>This course examines environmental pollution and its effects on ecosystems, emphasizing the importance of sustainability and ecological balance. It addresses various types and sources of pollution, including air, water, soil, and thermal pollution, explores control and mitigation strategies, and highlights the role of renewable and green energy in minimizing environmental impact</p> |                              |                      |                    |

**Module 12**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Course/Module Title   | ECTS          | Semester    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE155                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Chemistry             | 4             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2                     | 63            | 37          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |               |             |
| <p>By the end of this course, students will be able to understand the fundamental structure of the atom and electron configurations and explain their role in determining the chemical properties of elements. They will apply key concepts of chemical composition, including the mole concept, formula mass, and stoichiometric relationships, to solve quantitative chemical problems. Students will also analyze and classify different types of chemical reactions, perform stoichiometric calculations, identify limiting reactants, and compute theoretical and percentage yields. Furthermore, they will demonstrate an understanding of energy changes in chemical reactions through topics such as thermochemistry, calorimetry, and applications of Hess's Law.</p> |                       |               |             |

**Module 13**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Course/Module Title   | ECTS          | Semester    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| UOM1021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | English 1             | 2             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -                     | 33            | 17          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |               |             |
| <p>The goal of this course is to correctly learn English grammar rules to help students build accurate and understandable sentences, thereby reducing misunderstandings and ensuring effective communication of the intended meaning. In addition, the course aims to improve writing skills, as grammar serves as the foundation for constructing cohesive and organized texts such as letters, reports, and essays. It also focuses on developing listening and reading skills, since understanding grammar enhances the ability to analyze spoken and written sentences, facilitating comprehension and the interpretation of complex texts. Furthermore, the course prepares students for academic and professional exams, emphasizing that knowledge of grammar is essential for success in many internationally recognized English language tests often required for study or employment.</p> |                       |               |             |

## Module 14

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Course/Module Title       | ECTS          | Semester    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|-------------|
| UOM1040                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Democracy and Human Right | 2             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Lect/Lab./Prac./Tutor     | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -                         | 33            | 17          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                           |               |             |
| <p>This course focuses on developing a comprehensive understanding of human rights, democracy, and anti-corruption principles. It examines the origins and classifications of human rights, the historical evolution of their recognition, and the legal, institutional, and societal mechanisms established to protect them. Students will explore the concept and forms of democracy, its fundamental principles and values, as well as the nature and impact of administrative corruption and strategies to promote transparency, accountability, and good governance. Through this study, learners will be equipped to actively uphold and advocate for human rights and democratic practices within their communities.</p> |                           |               |             |

## Module 15

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Course/Module Title   | ECTS          | Semester    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE201                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Fluid Mechanics       | 7             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2                     | 93            | 82          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |               |             |
| <p>This course introduces the fundamental principles of fluid mechanics and their applications in engineering. It covers fluid properties, fluid statics, kinematics, and dynamics, with emphasis on the continuity, momentum, and energy equations. Students develop the ability to analyze pressure forces, flow behavior, and forces acting on immersed bodies. The course also addresses practical methods for measuring pressure, velocity, flow rate, and viscosity. Through lectures, tutorials, quizzes, homework, and practical activities, students develop problem-solving and critical-thinking skills. The acquired knowledge is applied to engineering systems involving pipes, channels, pumps, turbines, and heat exchangers. The course also provides a foundation for advanced studies in fluid machinery, energy conversion, and sustainable energy systems.</p> |                       |               |             |

**Module 16**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Course/Module Title   | ECTS          | Semester    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE202                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Thermodynamics        | 7             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2                     | 93            | 82          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |               |             |
| <p>This course provides students with a fundamental understanding of thermodynamics and its applications in Sustainable Energy Engineering. It introduces the basic concepts of thermodynamic systems, properties, equations of state, heat, work, and energy interactions. Students apply the First Law of Thermodynamics to closed systems and control volumes, including steady and unsteady flow processes. The course covers the Second Law of Thermodynamics, entropy, reversible and irreversible processes, and Carnot principles. Students analyze practical thermal devices and thermodynamic cycles, including gas and vapor power cycles, turbines, and nozzles. Through lectures, tutorials, problem-solving, quizzes, assignments, and projects, students develop analytical and critical-thinking skills. The course provides a foundation for understanding and analyzing thermal systems and energy-conversion technologies in sustainable energy applications.</p> |                       |               |             |

**Module 17**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Course/Module Title   | ECTS          | Semester    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Applied Electronics   | 5             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2                     | 63            | 62          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |               |             |
| <p>This course introduces the fundamental principles of applied electronics, semiconductor materials, and electronic devices used in engineering applications. It covers semiconductor properties, diode operation, V-I characteristics, biasing, breakdown, and performance parameters. Students analyze and evaluate diode-based circuits and rectifier systems for AC-to-DC power conversion. The course also introduces controlled and uncontrolled single-phase rectifiers, DC-to-DC converters, AC-to-AC cycloconverters, and three-phase rectifier circuits. Through lectures, tutorials, homework, quizzes, and practical exercises, students develop analytical and problem-solving skills. Students are also introduced to simulation-based analysis and apply theoretical concepts to practical electronic circuit design. The course provides essential knowledge for understanding power electronic systems used in sustainable energy and electrical engineering applications.</p> |                       |               |             |

**Module 18**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Course/Module Title   | ECTS          | Semester    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE206                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Applied Mathematics 1 | 6             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2                     | 78            | 72          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |               |             |
| <p>This course introduces fundamental mathematical concepts and analytical methods essential for solving engineering problems. It covers multivariable functions, differential equations, Fourier series, vector algebra, vector functions, and vector calculus. Students develop the ability to formulate and solve mathematical models related to engineering applications using appropriate analytical techniques. Emphasis is placed on problem-solving, critical thinking, and connecting mathematical theory with practical engineering applications. Interactive lectures, tutorials, classroom discussions, assignments, quizzes, and seminars are used to reinforce students' understanding and analytical skills. Students are also encouraged to use modern educational and e-learning resources to support independent learning and collaborative work. The course provides a mathematical foundation for advanced engineering, energy systems, and applied science courses.</p> |                       |               |             |

**Module 19**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Course/Module Title   | ECTS          | Semester    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| UOM2032                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Computer2             | 3             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2                     | 63            | 12          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |               |             |
| <p>This course provides students with fundamental knowledge and practical skills in computer technologies, communication networks, the Internet, and artificial intelligence. It introduces computer hardware and software, their interaction, basic networking concepts, network types, components, and security. Students learn about Internet applications, electronic commerce, electronic banking services, and effective use of online resources for academic and practical purposes. The course also develops basic computer troubleshooting skills and introduces common diagnostic techniques and tools. In addition, students are introduced to artificial intelligence, its fundamental techniques, approaches, applications, and role in daily life. The course addresses the social and ethical challenges of AI and its applications in areas such as education, healthcare, and marketing. Practical activities, presentations, homework, laboratory work, and assessments are used to develop students' digital skills and prepare them for emerging technologies.</p> |                       |               |             |

**Module 20**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Course/Module Title   | ECTS          | Semester    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| UOM2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Arabic Language 2     | 2             | 1           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       | 33            | 17          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |               |             |
| <p>This course develops students' ability to use the Arabic language accurately and effectively in academic, scientific, and professional contexts. It focuses on reading and analyzing literary and linguistic texts, including selected Qur'anic verses, Hadith, poetry, and literary applications. Students study essential topics in Arabic morphology, grammar, numbers, lexicon, rhetoric, and common linguistic errors. The course enhances students' written and oral communication skills through lectures, tutorials, classwork, homework, quizzes, and reports. Particular emphasis is placed on clear and precise expression and the correct use of Arabic in scientific and engineering contexts. Students also develop linguistic analysis, critical-thinking, presentation, and discussion skills. The course supports students in preparing reports and official correspondence and strengthens their confidence in professional communication.</p> |                       |               |             |

**Module 21**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Course/Module Title   | ECTS          | Semester    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE251                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Engineering Materials | 6             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3                     | 78            | 72          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |               |             |
| <p>This course introduces the fundamental principles of engineering materials, with emphasis on their structure, properties, processing, and engineering applications. It covers atomic and crystalline structures, mechanical properties, deformation, mechanical testing, solidification, defects, fracture, and strengthening mechanisms of metals. Students study binary alloy systems, alloy steels, alloying elements, heat treatment processes, hardenability, and surface hardening techniques. The course also introduces nonferrous metals and alloys, polymers, ceramics, composites, and other advanced engineering materials. Emphasis is placed on understanding the relationship between material microstructure, mechanical properties, and engineering performance. Students develop skills in material selection and learn about standard alloy specifications and advanced applications, including nanotechnology. Lectures, quizzes, assignments, laboratory activities, discussions, seminars, and reports are used to develop students' analytical and practical skills in selecting and applying engineering materials.</p> |                       |               |             |

**Module 22**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Course/Module Title   | ECTS          | Semester    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE252                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Power Electronics     | 4             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2                     | 63            | 37          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       |               |             |
| <p>This course introduces the fundamental principles and applications of power electronics, with emphasis on power semiconductor devices and power conversion systems. It covers basic power electronics concepts, power calculations, Fourier analysis, and steady-state and transient circuit analysis. Students study the characteristics and operation of semiconductor switching devices and analyze uncontrolled and controlled rectifier circuits. The course addresses single-phase and three-phase half-wave and full-wave rectifiers, AC-to-AC converters, cycloconverters, and DC-to-DC converters. Students are also introduced to inverter circuits and their applications in electrical and sustainable energy systems. Through lectures, tutorials, homework, quizzes, projects, reports, and problem-solving exercises, students develop analytical and practical skills. The course provides essential knowledge for understanding power conversion technologies used in renewable energy systems, electric drives, and modern energy applications.</p> |                       |               |             |

**Module 23**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Course/Module Title   | ECTS          | Semester    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE253                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Applied Mathematics 2 | 6             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2                     | 78            | 72          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |               |             |
| <p>This course builds upon the mathematical foundations developed in Applied Mathematics 1 and introduces advanced analytical methods for engineering applications. It covers Laplace transforms, complex functions, eigenvalues and eigenvectors, and vector calculus. Students develop the ability to formulate, analyze, and solve mathematical problems associated with engineering systems using appropriate analytical techniques. Emphasis is placed on applying mathematical methods to differential equations, linear systems, and vector-based engineering problems. Interactive lectures, tutorials, classroom discussions, assignments, quizzes, and seminars are used to strengthen students' problem-solving and critical-thinking skills. Students are encouraged to use modern analytical and e-learning tools to support independent and collaborative learning. The course provides essential mathematical preparation for advanced studies in engineering, energy systems, modeling, and numerical analysis.</p> |                       |               |             |

**Module 24**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Course/Module Title   | ECTS          | Semester    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE254                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Heat Transfer         | 7             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2                     | 93            | 82          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       |               |             |
| <p>This course introduces the fundamental principles of heat transfer and their applications in engineering and sustainable energy systems. It covers the three primary modes of heat transfer: conduction, convection, and thermal radiation. Students study heat transfer laws, one-dimensional and unsteady-state conduction, and combined conduction–convection processes. The course develops students’ ability to analyze and solve practical heat transfer problems using appropriate analytical methods. It also introduces radiation heat transfer and its engineering applications, with emphasis on improving thermal performance and energy efficiency. Experimental laboratory activities complement theoretical lectures and provide practical experience in investigating heat transfer processes. The course provides essential knowledge for the analysis and design of thermal systems, cooling equipment, heat exchangers, and other energy-related engineering applications.</p> |                       |               |             |

**Module 25**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Course/Module Title   | ECTS          | Semester    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| SEE255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Laboratory I          | 3             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2                     | 33            | 42          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |               |             |
| <p>This course provides students with practical experience in applying fundamental engineering principles through laboratory experiments. It enables students to verify theoretical concepts presented in lectures and develop familiarity with experimental equipment, measurement techniques, and the scientific method. Students conduct experiments related to mechanical and electromechanical systems, including beam behavior, hardness, rope-belt systems, water jets, tensile testing, and center of pressure. Emphasis is placed on accurate observation, data collection, experimental analysis, and interpretation of results. Students develop skills in identifying experimental errors, drawing appropriate conclusions, and relating experimental results to theoretical principles. The course also develops students’ ability to prepare clear, concise, and technically sound engineering reports. Through hands-on experiments and practical activities, students gain essential skills in using engineering tools and applying experimental methods to real engineering problems.</p> |                       |               |             |

**Module 26**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Course/Module Title   | ECTS          | Semester    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|-------------|
| UOM2022                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | English II            | 2             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       | 33            | 17          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |               |             |
| <p>This course develops students' English language skills for academic, scientific, and engineering contexts, with particular emphasis on effective communication and academic writing. It covers essential grammar topics, including verb tenses, sentence structures, question forms, articles, prepositions, conjunctions, adjectives, adverbs, and comparative and superlative forms. Students develop academic vocabulary related to environmental and engineering fields and improve their reading, listening, and speaking skills through varied texts, videos, and classroom discussions. The course emphasizes academic writing, including sentence construction, paragraph development, writing styles, and the use of passive voice. Students also learn to describe and interpret charts and figures and develop skills in essay writing. Interactive lectures, tutorials, homework, quizzes, projects, and classroom activities are used to strengthen communication, critical thinking, and independent learning. The course prepares students to communicate effectively in academic and professional engineering environments.</p> |                       |               |             |

**Module 27**

| Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Course/Module Title         | ECTS          | Semester    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------|-------------|
| UOM2050                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Crimes of the Ba'ath Regime | 2             | 2           |
| Class (hr/w)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Lect/Lab./Prac./Tutor       | SSWL (hr/sem) | USWL (hr/w) |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                             | 33            | 17          |
| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |               |             |
| <p>This course provides students with an understanding of the crimes and human rights violations committed by the Baath regime in Iraq and their impact on Iraqi society. It introduces the concept of crimes and their classifications, with particular emphasis on political, social, psychological, environmental, and international crimes. The course examines major crimes and violations, including the suppression of popular uprisings, mass killings, mass graves, forced displacement, and other systematic violations. It also addresses the chemical attack on Halabja and the use of internationally prohibited weapons, as well as environmental crimes committed during the Baath regime. Students study documented cases of genocide and other serious violations to understand their social, humanitarian, and historical consequences. Through lectures, classroom activities, discussions, questions, and examinations, students develop awareness of the seriousness of such crimes and the importance of human rights, justice, and accountability.</p> |                             |               |             |

### 3. Contact

Program Manager:

Younis M. Najim | Ph.D. in Mechanical Engineering | Lecturer

Email: [mahalyounis@uomosul.edu.iq](mailto:mahalyounis@uomosul.edu.iq)

Office Tel. no.: 07719827223

Program Coordinator:

Ali A. Mohammed | Ph.D. in Mechanical Engineering | Lecturer

Email: [ali.alkhabbaz@uomosul.edu.iq](mailto:ali.alkhabbaz@uomosul.edu.iq)

Office Tel. no.:07744449122

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امسح الكود للوصول إلى النسخة الإلكترونية