

**Ministry of Higher Education and Scientific Research**

**Scientific Supervision and Scientific Evaluation Apparatus**

**Directorate of Quality Assurance and Academic Accreditation**

**Accreditation Department**

**Academic Program and Course Description Guide Academic Program and Course Description Guide**

**Academic Program and Course Description Guide**

**2024**

**Introduction:**

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

**Concepts and terminology:**

**Academic Program Description**: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

**Course Description**: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

**Program Vision:** An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

**Program Mission:** Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

**Program Objectives:** They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

**Curriculum Structure:** All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

**Learning Outcomes:** A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

**Teaching and learning strategies:** They are the strategies used by the faculty members to develop students’ teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

**Academic Program Description Form**

**University Name: ................**

**Faculty/Institute: ..................**

**Scientific Department: ...............**

**Academic or Professional Program Name: ............**

**Final Certificate Name: ..............**

**Academic System:** …………

**Description Preparation Date:**

**File Completion Date:**

**Signature:**

**Head of Department Name:**

**Date:**

**Signature:**

**Scientific Associate Name:**

**Date:**

**The file is checked by:**

**Department of Quality Assurance and University Performance**

**Director of the Quality Assurance and University Performance Department:**

**Date:**

**Signature:**

**Approval of the Dean**

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| 1. **Program Vision** |
| Program vision is written here as stated in the university's catalogue and website. |

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| 1. **Program Mission** |
| Program mission is written here as stated in the university's catalogue and website. |

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| 1. **Program Objectives** |
| General statements describing what the program or institution intends to achieve. |

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| 1. **Program Accreditation** |
| Does the program have program accreditation? And from which agency? |

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| 1. **Other external influences** |
| Is there a sponsor for the program? |

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| --- | --- | --- | --- | --- |
| 1. **Program Structure** | | | | |
| **Program Structure** | **Number of Courses** | **Credit hours** | **Percentage** | **Reviews\*** |
| **Institution Requirements** |  |  |  |  |
| **College Requirements** |  |  |  |  |
| **Department Requirements** |  |  |  |  |
| **Summer Training** |  |  |  |  |
| **Other** |  |  |  |  |

\* This can include notes whether the course is basic or optional.

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| --- | --- | --- | --- | --- |
| 1. **Program Description** | | | | |
| **Year/Level** | **Course Code** | **Course Name** | **Credit Hours** | |
|  |  |  | **theoretical** | **practical** |
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| --- | --- |
| 1. **Expected learning outcomes of the program** | |
| **Knowledge** | |
| Learning Outcomes 1 | Learning Outcomes Statement 1 |
| **Skills** | |
| Learning Outcomes 2 | Learning Outcomes Statement 2 |
| Learning Outcomes 3 | Learning Outcomes Statement 3 |
| **Ethics** | |
| Learning Outcomes 4 | Learning Outcomes Statement 4 |
| Learning Outcomes 5 | Learning Outcomes Statement 5 |

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| 1. **Teaching and Learning Strategies** |
| Teaching and learning strategies and methods adopted in the implementation of the program in general. |

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| 1. **Evaluation methods** |
| Implemented at all stages of the program in general. |

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| 1. **Faculty** | | | | | | |
| **Faculty Members** | | | | | | |
| **Academic Rank** | **Specialization** | | **Special Requirements/Skills (if applicable)** | | **Number of the teaching staff** | |
| **General** | **Special** |  | | **Staff** | **Lecturer** |
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| **Professional Development** |
| **Mentoring new faculty members** |
| Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level. |
| **Professional development of faculty members** |
| Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc. |

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| 1. **Acceptance Criterion** |
| **(Setting regulations related to enrollment in the college or institute, whether central admission or others)** |

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| 1. **The most important sources of information about the program** |
| State briefly the sources of information about the program. |

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| 1. Program Development Plan |
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| **Program Skills Outline** | | | | | | | | | | | | | | | |
|  | | | | **Required program Learning outcomes** | | | | | | | | | | | |
| **Year/Level** | **Course Code** | **Course Name** | **Basic or optional** | **Knowledge** | | | | **Skills** | | | | **Ethics** | | | |
| **A1** | **A2** | **A3** | **A4** | **B1** | **B2** | **B3** | **B4** | **C1** | **C2** | **C3** | **C4** |
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* **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

**Course Description Form**

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| 1. Course Name: | | | | | | | | |
| Mechanics of materials I | | | | | | | | |
| 1. Course Code: | | | | | | | | |
| WBM-31-02 | | | | | | | | |
| 1. Semester / Year: | | | | | | | | |
| Semester | | | | | | | | |
| 1. Description Preparation Date: | | | | | | | | |
| 19/3/2024 | | | | | | | | |
| 1. Available Attendance Forms: | | | | | | | | |
| Presence in the classroom | | | | | | | | |
| 1. Number of Credit Hours (Total) / Number of Units (Total) | | | | | | | | |
| 45 h/ 2 units | | | | | | | | |
| 1. Course administrator's name (mention all, if more than one name) | | | | | | | | |
| Name: Hussain Ameer Aljawad  Email: [Hussein.aljawad@uowa.edu.iq](mailto:Hussein.aljawad@uowa.edu.iq) | | | | | | | | |
| 1. Course Objectives | | | | | | | | |
| **Course Objectives** | | | | The aim of teaching the curriculum for this subject is to learn the basics of the resistance of materials to external forces and pressures and how to calculate loads, stresses and other mechanical issues and their effect on the materials of objects internally. Materials force field, also known as materials mechanics, refers to various methods for calculating stresses and strains in structural members, such as beams and columns. Methods used to predict the response of a structure under loading and its susceptibility to different failure modes take into account material properties such as yield strength, ultimate strength, Young's modulus, and Poisson's ratio. | | | | |
| 1. Teaching and Learning Strategies | | | | | | | | |
| **Strategy** | | 1- Making the student able to demonstrate real knowledge of engineering concepts related to materials mechanics during the academic level and their applications in the fields of biomedical engineering.  2- Learn and understand the basic definitions used in materials mechanics, such as stresses, ductility, bending moments, cutting force, and other concepts.  3- Learn and understand solution methods and mathematical applications in solving applications industry problems in the field of biomedicine.  4- Learn and apply the laws and formulas that the student learns from numerous examples, which make him able to understand the future problems that will be faced in medical engineering industries and applications. | | | | | | |
| 1. Course Structure | | | | | | | | |
| **Week** | **Hours** | | **Required Learning Outcomes** | | **Unit or subject name** | | **Learning method** | **Evaluation method** |
| 1 | 3 | | Units and common principles  And Analysis of Internal Forces and Stresses | | Units and common principles, SI Units (System International Units), Types of Support in Structure, Types of Loads in Structures, Types of Beams in Structures, Determinate and Indeterminate Problems.  Analysis of Internal Forces and Stresses, Introduction, Analysis of Internal Forces (Three-dimensional system (3D), Two-dimensional system (2D)). | | Presented the lectures and explain it. | Daily exams + classwork |
| 2 | 3 | | Normal stress  And Shear stress and safety Factor | | Normal stress, Simple Normal Stress, Tensile Stress, Compressive Stress, Beam Stress.  Shear stress and safety Factor, Simple Shear Stress, Direct shear stress, Double shear stress, Punching shear stress, Allowable and Factor of Safety. | | Presented the lectures and explain it. | Daily exams + classwork |
| 3+4 | 3 | | Torsion of Circular Shaft  And  Torsion of non- circular section | | Torsion of Circular Shaft, Introduction, Torsion, Torsional shear stress, Angle of Twist, Polar Moment of Inertia, Composite Shaft, Power Transmitted by Shaft.  Torsion of circular shaft 2, Examples and Solutions.  Torsion of non- circular sections, Shear Stress and Angle of Rotation. | | Presented the lectures and explain it. | Daily exams + classwork |
| 5-7 | 3 | | Thin walled pressure vessels | | Thin walled pressure vessels, Types of stresses in Cylindrical thin-walled pressure vessels, Cylindrical Thin-Walled Pressure Vessels, Tangential (Hoop or Circumferential) Stress, Longitudinal Stress, Spherical Shell. | | Presented the lectures and explain it. | Daily exams + classwork |
| 8 | 3 | | Simple Strain and Deformations of Axially Loaded Members | | Simple Strain and Deformations of Axially Loaded Members, Simple Strain, Sign Convention, Stress-Strain Diagram, Hooke’s Law, Poisson' s Ratio, Cases of Poisson’s Ratio. | | Presented the lectures and explain it. | Daily exams + classwork |
| 9+10 | 3 | | Deformation of axially loaded members | | Deformation of axially loaded members, Case 1: prismatic bar, Case 2: Non-prismatic bar, Case 3: Bar with varying cross-sectional and varying axial force | | Presented the lectures and explain it. | Daily exams + classwork |
| 11+12 | 3 | | Statically indeterminate problems | | Statically indeterminate problems, Examples and Solutions. | | Presented the lectures and explain it. | Daily exams + classwork |
| 13 | 3 | | Thermal stresses and strains | | Thermal stresses and strains, Thermal strain, Thermal Deformation. | | Presented the lectures and explain it. | Daily exams + classwork |
| 14-15 | 3 | | The Columns | | The Columns, Definition, The Critical load of column, Radius of Gyration. | | Presented the lectures and explain it. | Daily exams + classwork |
| 1. Course Evaluation | | | | | | | | |
| 1- Theoretical lectures.  2- Discussion Tutorials.  3- Application in group to activate the team spirit at work | | | | | | | | |
| 1. Learning and Teaching Resources | | | | | | | | |
| Required textbooks (curricular books, if any) | | | | | | MECHANICS OF MATERIALS/ R. C. HIBBELER | | |
| Main references (sources) | | | | | | MECHANICS OF MATERIALS, E. J. HEARN | | |
| Recommended books and references (scientific journals, reports...) | | | | | | Strength of material/schaums outline/William Nash | | |
| Electronic References, Websites | | | | | |  | | |