

Republic of Iraq  
Ministry of Higher Education & Scientific  
Research Supervision and Scientific  
Evaluation Directorate Quality Assurance  
and Academic Accreditation International  
Accreditation Dept.

## Academic Program Specification Form For The Academic

University: Diyala  
College: Engineering  
Number Of Departments in The College: Chemical Engineering Date of Form  
Completion: 19/9/2023

Dean 's Name  
Date :     /     /

Dean 's Assistant  
For Scientific  
Affairs

The College Quality  
Assurance and University  
Performance Manager

Signature

Date :     /     /  
Signature

Date :     /     /  
Signature

Quality Assurance And University Performance  
Manager Date :     /     /  
Signature

# TEMPLATE FOR PROGRAMME SPECIFICATION

## HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

### PROGRAMME SPECIFICATION

This Program Specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

1. Teaching Institution	University of Diyala
2. University Department/Centre	Materials Engineering
3. Program Title	
4. Title of Final Award	Bachelor's degree in Materials engineering
5. Modes of Attendance offered	Semester
6. Accreditation	
7. Other external influences	
8. Date of production/revision of this specification	19/9/2023
9. Aims of the Program	
(1) Achieving the university's goals within the field of Materials engineering. (2) Gives a sound education in the basics of Materials engineering. (3) Develop the skills and confidence necessary to solve problems in the Materials, Biomaterials, and other industries based on engineering and scientific principles. (4) Continuing to find graduates with high ability. ( 5 ) Providing education compatible with the needs of the labor market linked to the Syndicate of Materials Engineers	
The program provides opportunities for students to develop and display knowledge, understanding, qualities, skills, and other characteristics in the following areas: 1- Knowledge and understanding: a . The necessary facts, concepts, principles, and theories of Materials engineering,	

and an understanding of the constraints facing the engineer in making the right decision.

b - Basic Mathematics, Science and Techniques. c - Ideas and Concepts of Management.

2- Awareness and understanding:

- a- Ethics and professionalism of the profession.
- b- The impact of engineering activities on society and civilization.
- c- compatibility with future issues.

3- Cultural capabilities:

- a -Solve industrial problems that may be specific to known or unknown circumstances.
- b- Analyzing and discussing the available data or conducting specific experiments to obtain more data.
- c - Design units and processes and make the necessary improvements.
- d- The ability to apply new technologies.
- e- Possess a holistic view of Materials engineering problems, considering the cost, safety, quality, and environmental impacts, and the ability to assess and manage risks.

4. Practical skills:

- a . The use of multiple technologies and devices with software related to specialization.
- b - Using laboratory equipment to find data.
- c- Develop and provide a safe work environment.

5. Transferable skills:

- a- Applying mathematical skills to practical problems.
- b - Oral and written communication skills.
- c - Use information and communicate effectively.
- d - control of time and resources.
- e- Work within one team.
- f- To be creative, especially in designs.
- g- work in problem analysis
- h- Extracting information from published sources.



# TEMPLATE FOR COURSE SPECIFICATION

## HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

### COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	University of Diyala
2. University Department/Centre	Materials Engineering
3. Course title/code	Strength of materials
4. Modes of Attendance offered	
5. Semester/Year	Semester
6. Number of hours tuition (total)	45
7. Date of production/revision of this specification	19/9/2023
8. Aims of the Course	
<p>The strength of materials represents the basis in the calculations of structural, mechanical and structural designs for any structure, so by teaching the student the science of statics and resistance of materials, he will be able to make the necessary calculations in the design process.</p>	

9. Learning Outcomes, Teaching, Learning, and Assessment Method

A- Cognitive goals:

A1- Understand the basics of the strength of materials.

A2- Understand forces and analyze them and know their effects on parts, structures, or mechanical systems.

A3- The extent to which the material of the parts used is affected by forces imposed on them.

B. The skills goals special to the course.

B1- Learn how to use the basics of statics and materials resistance in designing parts that are subjected to force Within the safety and security specifications without failure.

#### Teaching and Learning Methods

1- Lectures.

2- Presentation of power point slides.

3- Discussions

#### Assessment methods

1- Unannounced sudden exams.

2- Home and class duties.

3- Monthly exams.

4- Final exam

C. Affective and value goals :

C1- The ability to make calculations of force and stress.

C2- Using them in the design of parts

#### Teaching and Learning Methods

1- Lectures.

2- Presentation of powerpoint slides.

3- Discussions

#### Assessment methods

1- Unannounced sudden exams.

2- Home and class duties.

3- Monthly exams.

4- Final exam

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

- D1.
- D2.
- D3.
- D4.

10. Course Structure

Week	Hours	ILOs	Topic Title	Teaching Method	Assessment Method
1-2	6	1. Definition of the strength of material 2. Simple stresses.	Introduction to the strength of the material	lectures and presentation slides	Unannounced exams and self-assessments during the lecture
3-4	6	1. Single shear 2. Double shear	Shear stresses	lectures and presentation slides	Unannounced exams and self-assessment during the lecture
5-6	6	1- Stresses in thin cylinders 2- Vertical stress calculations 3- Horizontal stress calculations	Stresses in thin cylinders	lectures and presentation slides	Unannounced exams and self-assessments during the lecture
7-8	6	1. Calculation of strain in solid columns 2. Calculations of strain in hollow columns 3- Calculations of stresses in composite materials	Strain, and stresses in composite materials	lectures and presentation slides	Unannounced exams and self-assessments during the lecture
9-10	6	1- Definition of beams 2- Types of beams 3- Calculations of forces and reactions in beams	Beams	lectures and presentation slides	Unannounced exams and self-assessments during the lecture
11-12	6	1- Schemes and calculations of shear force and bending moment in beams	Schemes of shear force and bending moment in beams	lectures and presentation slides	Unannounced exams and self-assessment during the lecture
13-14	6	1-Bending stress in beams 2-Shear stress in beams	stresses in beams	lectures and presentation slides	Unannounced exams and self-assessment during the lecture
15	3	Calculations of deformation in beams of all kinds	deformation in beams	lectures and presentation slides	Unannounced exams and self-assessment during the lecture

11. Infrastructure

1. Books Required reading:	
2. Main references (sources)	<p>1- SI Version, J. L. Merriam, L.G. Krieg, Engineering Mechanics, Volume 1, John Wiley and Sons Inc. 2008</p> <p>2- Ferdinand L. Singer, Andrew Pytel, Strength of Materials, HRPER &amp; ROW Publisher, New York, 1980</p>
A- Recommended books and references (scientific journals, reports...).	<p>1- Applied Statics and Strength of Materials (Available at the library of the Engineering College)</p> <p>Third Edition</p> <p>Authors: Leonard Spiegel George F. Limeburner</p>
B-Electronic references, Internet sites...	<p><a href="http://www.kutub.info/library">http://www.kutub.info/library</a></p>
12. The development of the curriculum plan	



