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 :25/9/2021

Dean's Name
Date : / /
Signature

Dean's Assistant For Scientific Affairs
Date : / /
Signature

The College Quality Assurance And University Performance Manager
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	Chemical Engineering
3. Program Title	
4. Title of Final Award	Bachelor Degree in Chemical engineering
5. Modes of Attendance offered	semester
6. Accreditation	
7. Other external influences	
8. Date of production/revision of this specification	25/9/2021
9. Aims of the Program	
(1) Achieving the university's goals within the field of chemical engineering. (2) Gives a sound education in the basics of chemical engineering. (3) develop the skills and confidence necessary to solve, based on engineering and scientific principles, problems in the biochemical, chemical and other industries. (4) Continuing to find graduates with high ability. (5) Providing education compatible with the needs of the labor market linked to the Syndicate of Chemical 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 chemical 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 industrial engineering problems, taking into account 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.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A1- Necessary facts, concepts, principles and theories of chemical engineering.
A2- Understand the constraints facing the engineer in making the right decision.
A3- Basic mathematics and science.
A4-Techniques used.
A5-Management ideas and concepts

B. The skills goals special to the program :

B1- Ethics and professionalism of the profession.
B2- The impact of engineering activities on society and civilization.
B3- Compatibility with future issues.

Teaching and Learning Methods

Assessment methods

C. Affective and value goals:

C1- Solve industrial problems that may be specific to known or unknown circumstances.
C2- Analyzing and discussing the available data or conducting specific experiments to obtain more data.
C3- Design units and processes and make the necessary improvements.
C4- The ability to apply new technologies and possess a holistic view of industrial engineering problems, taking into account cost, safety, quality and environmental impacts, and the ability to assess and manage risks.
C3.
C4.

Teaching and Learning Methods

Assessment methods

D. General and Transferable Skills (other skills relevant to employability and personal development):

D1- Applying mathematical skills in practical problems.
D2- Skills in verbal and written communication and effective use of information and communication.
D3- Control of time and resources and working within one team.
D4- The ability to design and work in analyzing problems and extracting information from published sources.

Teaching and Learning Methods

Assessment Methods

11. Program Structure

12. Awards and Credits

Level/Year	Course or Module Code	Course or Module Title	Credit rating
1st		Strength of materials	45 hr.

Bachelor Degree
Requires (x) credits

13. Personal Development Planning
14. Admission criteria .
15. Key sources of information about the program

Curriculum Skills Map																			
please tick in the relevant boxes where individual Program Learning Outcomes are being assessed																			
				Program Learning Outcomes															
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

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	Chemical Engineering
3. Course title/code	Strength of materias
4. Modes of Attendance offered	
5. Semester/Year	Semester
6. Number of hours tuition (total)	45
7. Date of production/revision of this specification	25/9/2021
8. Aims of the Course	
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.	

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals:

A1- Understand the basics of 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 power point 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 strength of material 2. Simple stresses.	Introduction to strength of material	lectures and presentation slides	Unannounced exams and self-assessment 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-assessment 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, stresses in composite materials	lectures and presentation slides	Unannounced exams and self-assessment 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-assessment 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)	1- SI Version, J. L. Merriam, L.G. Krieg, Engineering Mechanics, Volume 1, John Wiley and Sons Inc. 2008 2- Ferdinand L. Singer, Andrew Pytel, Strength of Materials, HRPER & ROW Publisher, New York, 1980
A- Recommended books and references (scientific journals, reports…).	1- Applied Statics and Strength of Materials (Available at the library of the Engineering College) Third Edition Authors: Leonard Spiegel George F. Limeburner
B-Electronic references, Internet sites…	http://www.kutub.info/library

12. The development of the curriculum plan