جامعة الإسراء
ISRA UNIVERSITY

Course Syllabus

According to JORDAN National Qualification Framework (JNQF)

Course Name: Strength of Materials LAB

Course Number: 0403220

General Course Information:

Course title	Strength of Materials LAB
Course number	(0403220)
Credit hours	one credit hour
Education type	Face-to-Face
Prerequisites/corequisites	Strength of Materials -403221
Academic Program	BSc in civil Engineering
Program code	0403
Faculty	Engineering
Department	Civil Engineering
Level of course	Bachelor
Academic year /semester	second semester 2021/2022
Awarded qualification	BSc
Other department(s) involved in teaching the course	Non
Language of instruction	English
Date of production/revision	feb. /2022

Course Coordinator:

Coordinator'sname	Dr.Mutaz Qutob
Office No	4310 Engineering Building
Office Phone extension number	2483
Office Hours	12:00-2:00 Sunday, Tuesday, and Thursday, 10:00-11:00 Monday and Wednesday
Email	Mutaz_qutob@iu.edu.jo

Other Instructors:

Instructorname	NON
Office No	
Office Phone extension number	
Office Hours	
Email	

Course Description*(English/Arabic)*:

English	Covers. experiments include Tensile test, Buckling test, Torsion test, Creep test, stiffness test, Beam bending test, Impact test, and Hardness test
Arabic	تشمل التجارب اختبار الشد واختبار الالتواء واختبار الزحف واختبار الصلابة واختبار ثني العارضة واختبار التأثير واختبار الصلابة

Textbook: ***Author(s), Title, Publisher, Edition, Year, Book website.***

Strength Of Materials Lab Manual, Dr.WalidM.Z.Hasan,, Al-Isra University

References: ***Author(s), Title, Publisher, Edition, Year, Book website.***

Required book (s), assigned reading and audio-visuals: 1. Mechanical Behavior of Materials by Norman E. Dowling, 2nd Ed., Prentice Hall, 1999

Course Educational Objectives (CEOs):

1.	Students will be able to understand Mechanical properties of materials	
2.	Students will learn how to collect data	
3.	Provide students with hands-on testing of engineering materials	

IntendedLearning Outcomes (ILO's):

	Subject Intended learning outcomes (ILOs) describe what students are expected to know and be able to do at the end of the course. These outcomes are related to the knowledge, skill and competence that students acquire:	**Relationship to CEOs**	**Contribution to PLOs**	**Bloom Taxonomy Levels***	**Descriptors****
A	Knowledge and Understanding:				
A1	The student should be able to articulate the basic mechanical properties of engineering materials (elastic constants, yield strength, ultimate strength, and ductility	1,2	6	1,2	K
A2	The engineering student should be able to measure specimen accurately using calipers and/or micrometer; understand the significance of uncertainty and the importance of repeated measurement	1,2,3	6	2,3&4	K
A3	The engineering student should be able to articulate the fundamental concepts of Strength of Materials effectively in laboratory reports with appropriate data plots and format	1,2,3	6	2,3&4	K

***Bloom Taxonomy Levels**

Level#	1	2	3	4	5	6
Level Name	Knowledge	Comprehension	Application	Analysis	Evaluation	Synthesis

**** Descriptor (National Qualification Framework Descriptors): K : Knowledge, S: Skill, C: Competency.**

Program Learning Outcome (PLOs):

Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the (BSc in civil engineering) program will demonstrate:		Descriptors**		
		K	S	C
1.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	K		
2.	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors			C
3.	An ability to communicate effectively with a range of audiences		S	
4.	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts			C
5.	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives		S	
6.	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions		S	
7.	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	K		C

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule *(please choose the type of teaching)*

Face to Face

Hybrid*(2 Lectures**Face – To - Face**+1 Lecture** Asynchronous)*

Hybrid (*1Lectures**Face – To - Face**+1 Lecture** Asynchronous)*

Online *(2Lectures**Synchronous +1 lectureAsynchronous**)*

Week	First Lecture (Monday)	Ach. ILOs	Ach. PLOs	Descriptors**
1	Introduction	A1,A2,A3	6	K

2	Data collection, measurement, statistical analysis, and uncertainty	A1,A2,A3	6	K
3	Tensile Testing of Metals and analysis of stress-strain curves	A1,A2,A3	6	K
4	Torsion	A1,A2,A3	6	K
5	Hooke‘s Law for Springs and Tension Testing of Common Materials	A1,A2,A3	6	K
6	Creep test	A1,A2,A3	6	K
7	Bending Moment and Deflection of Beams test	A1,A2,A3	6	K
8	Buckling test	A1,A2,A3	6	K
9	Impact test	A1,A2,A3	6	K
10	Hardness test	A1,A2,A3	6	K
11	exam Hooke‘s Law for Springs and Tension Testing of Common Materials	A1,A2,A3	6	K
12	Data collection, measurement, statistical analysis, and uncertainty	A1,A2,A3	6	K
13	Tensile Testing of Metals and analysis of stress-strain curves	A1,A2,A3	6	K
14	Torsion	A1,A2,A3	6	K
15	Final exam			K

* **K: Knowledge, S: Skills, C: Competency**

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Face to face lectures
- Discussion Forums
- Homework
- Quizzes

Course Policies:

A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

B- Absences fromexams andhandingin assignmentson time:

Midterm exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

C- Academic Health and safetyprocedures

D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviourwill result in zero grade and further disciplinary actions may be taken.

E- Grading policy:

- All homework isto be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes)**20 %**

- Midterm**30%**
- Final Exam **50 %**

F- Available university services that support achievement in the course:**E-Learning Platform, Labs, Library.**

Required equipment:

- **PC / Laptop**
- **Access to the IU E-Learning Platform at: https://elearn.iu.edu.jo/**
- **E-learning plan**
- **Satisfaction questionnaires for online and face-to-face learning**
- **Software for e-learning**

Assessment Toolsimplemented in the course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Discussion Forums

Responsible Persons and their Signatures:

Course Coordinator	**Dr. Mutaz Qutob**	**Completed Date**	**19 /10/2021**
		Signature	

Received by (Department Head)	**Dr.IbraheemVaroqa**	**Received Date**	**19 /10/2021**
		Signature	