Course E-Syllabus

1	**Course title**	Properties of Engineering materials lab
2	**Course number**	0906274
3	**Credit hours**	1
	Contact hours (theory, practical)	3 practical ***(3 practical hrs once a week)***
4	**Prerequisites**	IE0946273 - Properties of Engineering materials
5	**Program title**	Industrial Engineering
6	**Program code**	
7	**Awarding institution**	University of Jordan
8	**School**	School of Engineering
9	**Department**	Industrial Engineering
10	**Level of course**	2nd year
11	**Year of study and semester (s)**	2020-2021 First semester
12	**Final Qualification**	BSc
13	**Other department (s) involved in teaching the course**	None
14	**Language of Instruction**	English
15	**Teaching methodology**	☐Blended ☒Online
16	**Electronic platform(s)**	☒Moodle ☒Microsoft Teams ☐Skype ☐Zoom ☐Others……
17	**Date of production/revision**	28 June 2020

18 Course Coordinator:

Name: Prof. Issam Jalham
Office number:
Phone number: 22925
Email: jalham@ju.edu.jo

19 Other instructors:

Name:
Office number:
Phone number:
Email:

Name:
Office number:
Phone number:
Email:

20 Course Description:

This course is designed to supplement the classroom instructions in Materials Science and Engineering through demonstration of basic principles of material properties and heavily structured laboratory work to give the student a physical "feel" for some concepts in this subject.

21 Course aims and outcomes:

A- Aims:

This course is designed for use in industrial and manufacturing engineering courses. The main objectives of this course is to provide the students with the necessary knowledge about the standard procedures of conducting experiments in the field of materials science and engineering.

B- Intended Learning Outcomes (ILOs):
Upon successful completion of this course, students will be able to:

1. Prepare specimens for macro and macro-examination tests
2. Conduct macro and micro-examination tests
3. Construct the phase diagram of a binary alloys
4. Conduct a mass transfer experiments and Heat treatment
5. Conduct the hardness test
6. Conduct a Non-destructive testing of materials

22. Topic Outline and Schedule:

Week	Topic
1	Theoretical lecture that covers topics for weeks (2-8)
2	Introduction
3	Macroscopic Preparation & Examination of Metallic Materials
4	Microscopic Preparation & Examination of Metallic Materials
5	Grain size calculation
6	Phase Diagram (1) [Plotting]
7	Phase Diagram (2) [Plotting]
8	Phase Diagram (3) [Micro examination]
9	Theoretical lecture that covers topics for weeks (10-15)
10	Carburizing
11	Heat-treatment after Carburizing
12	Hardness test
13	Nondestructive testing (Dye penetrant method)
14	Nondestructive testing (Ultrasonic method)
15	Nondestructive testing (Eddy current method)

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz…etc

23 Evaluation Methods:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Assignments 1 or report	15%	Covers Topics (weeks 2-5)	In due course	To lab supervisor Or e-learning and Microsoft teams
Assignments 2 or report	15 %	Covers Topics (weeks 6-8)		
Assignments 3 or report	15 %	Covers Topics (weeks 6-8)		
Assignments 4 or report	15%	Covers Topics (weeks 10-12)		
Final exam	40%	Covers Topics (weeks 13-15)		

24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):

students should have:

1. a computer, internet connection, webcam, account on a specific software/platform
2. access to library (books and periodicals)

25 Course Policies:

All the following points should comply with the university regulations:

A- Attendance policies:

B- Absences from exams and submitting assignments on time:

C- Health and safety procedures:

D- Honesty policy regarding cheating, plagiarism, misbehavior:

E- Grading policy:

F- Available university services that support achievement in the course

26 References:

A- Required book(s), assigned reading and audio-visuals:

1. Professor Dr.Issam S. Jalham, Experimental Laboratory Manual in Materials Science and Engineering (Second Edition), Jordan University Press, 2010

B- Recommended books, materials and media:

1. **William D. Callister, Jr., 3rd edition (or latest), John Wiley & Sons Inc., 1994 or Latest edition**

27 Additional information:

Name of Course Coordinator: **Prof. Issam Jalham** Signature: Issam Date: 8 Oct. 2020

Head of Curriculum Committee/Department: **Prof. Issam Jalham** Signature: Issam

Head of Department: Signature: ----------

Head of Curriculum Committee/Faculty: ---------- Signature: ----------

Dean: Signature: ----------