

Course E-Syllabus

1	Course title	Metallurgical Processes
2	Course number	0946513
3	Credit hours	3
	Contact hours (theory, practical)	3 theory + 0 practical (<i>1 hr-3 times per week-16 weeks</i>)
4	Prerequisites/corequisites	0906411
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	Fifth 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	<input type="checkbox"/> Blended <input checked="" type="checkbox"/> Online
16	Electronic platform(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
17	Date of production/revision	8 October 2020

18 Course Coordinator:

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19 Other instructors:

Name:
Office number:
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Name:
Office number:
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Email:

20 Course Description:

This course demonstrates the basic principles of metallurgical processes. As an introduction, there will be a definition of metallurgy terms, classification of metals and alloys, and an overview of the iron-iron carbon diagram and the influence of alloying elements on it. On the other hand, a general idea of the heat treatment of steels will be introduced. Moreover, the heat treatment of ferrous and non-ferrous alloys, cast iron, and welding will be demonstrated. Case studies will be given to support the knowledge.

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 metallurgical processes. The student will be shown how to select the proper method of heat treatment for the intended product, to select the machines and tools, determine the right operations and to calculate time and other parameters of each operation.

B- Intended Learning Outcomes (ILOs):

Upon successful completion of this course, students will be able to:

1. Understand the significance of Designing and Planning of metallurgical processes, the terms related to this subject, and to understand how to calculate the parameters of each operation
2. Work within teams and be prospective managers by a course project, which is accomplished by teams
3. Communicate effectively with a range of audiences

22. Topic Outline and Schedule:

Week	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	Introduction	Microsoft Team	Quizzes Assignments Project	All
2	Notes on specifications(BS, ASTM, AISI, SAE, DIN, GOST, and UNS)	Microsoft Team	Quizzes Assignments Project	All
3-4	Conventional Heat treatment methods of steels Heat treatment methods of steels using I-T Diagrams (1)	Microsoft Team	Quizzes Assignments Project	All
5-8	Heat treatment methods of steels using I-T Diagrams (2)	Microsoft Team	Quizzes Assignments Project	All
9-10	Heat treatment methods of non-iron base alloys	Microsoft Team	Quizzes Assignments Project	All
11-13	Heat treatment methods of castings	Microsoft Team	Quizzes Assignments Project	All
14-15	Heat treatment methods of welding	Microsoft Team	Quizzes Assignments Project	All
16	Course Projects and case studies	Microsoft Team	Final Exam	All

- 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
midterm exam or Assignment	30%	Covers all topics	In due course	e-learning and Microsoft teams
Course project	20%			e-learning and Microsoft teams
Final exam	50%			e-learning and Microsoft teams

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. **Raymond A. Higgins, Engineering Metallurgy, Part 1 : Applied Physical Metallurgy, Latest edition.**

B- Recommended books, materials and media:

1. **Herman W. Pollack, Materials science and Metallurgy, prentice Hall Corp., 1981 or Latest edition**
2. **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: -----