

Composite Materials Ceramic and Powder Metallurgy E-Syllabus

1	Course title	Composite Materials Ceramic and Powder Metallurgy
2	Course number	0916577
3	Credit hours	3
	Contact hours (theory, practical)	11:00 – 12:15 Sunday through Thursday
4	Prerequisites/corequisites	0946513
5	Program title	Industrial Engineering
6	Program code	0906
7	Awarding institution	The University of Jordan
8	School	School of Engineering
9	Department	Department of Industrial Engineering
10	Level of course	Undergraduate
11	Year of study and semester (s)	2019-2020 / Summer semester
12	Final Qualification	B. Sc. in Industrial Engineering
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 checked="" type="checkbox"/> Zoom <input type="checkbox"/> Others.....
17	Date of production/revision	22/06/2020

18 Course Coordinator:

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19 Other instructors:

Name:
Office number:
Phone number:
Email:

Name:
Office number:
Phone number:
Email:

20 Course Description:

As stated in the approved study plan.

Classification of composite materials, hardening, metallic matrix, polymer matrix, ceramic matrix, powder technology, powder manufacture.

21 Course aims and outcomes:

A- Aims:

ABET outcomes which include:

1. The ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. The 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.

B- Intended Learning Outcomes (ILOs):

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

1. Get exposed to and understand the processing of metals and ceramics that are in the powder form.
2. Understand the differences in the mechanical properties between different ceramics and metallic PM parts.
3. Distinguish the three different types of composite materials, and understand the manufacturing processes of these types

22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	Chapter 12 – Powder Metallurgy	Online / MS Teams (Will be recorded)		Principles of Modern Manufacturing
	1.2	Chapter 12 – Powder Metallurgy	Online / MS Teams (Will be recorded)		Principles of Modern Manufacturing
	1.3	Chapter 12 – Powder Metallurgy	Online / MS Teams (Will be recorded)		Principles of Modern Manufacturing

	1.4	Chapter 12 – Powder Metallurgy	Online / MS Teams (Will be recorded)		Principles of Modern Manufacturing
	1.5	Chapter 12 – Powder Metallurgy	Online / MS Teams (Will be recorded)	Short Quiz (Microsoft Forms)	Principles of Modern Manufacturing
2	2.1	Chapter 12 – Structures and Properties of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	2.2	Chapter 12 – Structures and Properties of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	2.3	Chapter 12 – Structures and Properties of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	2.4	Chapter 12 – Structures and Properties of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	2.5	Chapter 12 – Structures and Properties of Ceramics	Online / MS Teams (Will be recorded)	Short Quiz (Microsoft Forms)	Materials Science and Engineering
3	3.1	Chapter 12 – Structures and Properties of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	3.2	Chapter 12 – Structures and Properties of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	3.3	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	3.4	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	3.5			Midterm Exam (Microsoft Forms)	
4	4.1	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	4.2	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering

	4.3	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	4.4	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	4.5	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
5	5.1	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	5.2	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	5.3	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	5.4	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	5.5	Chapter 13 – Applications and Processing of Ceramics	Online / MS Teams (Will be recorded)	Short Quiz (Microsoft Forms)	Materials Science and Engineering
6	6.1	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	6.2	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	6.3	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	6.4	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	6.5	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
7	7.1	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	7.2	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering

					Engineering
	7.3	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	7.4	Chapter 16 – Composites	Online / MS Teams (Will be recorded)		Materials Science and Engineering
	7.5	Chapter 16 – Composites	Online / MS Teams (Will be recorded)	Short Quiz (Microsoft Forms)	Materials Science and Engineering
8	8.1	Revision	Online / MS Teams (Will be recorded)		Principles of Modern Manufacturing + Materials Science and Engineering
	8.2	Revision	Online / MS Teams (Will be recorded)		Principles of Modern Manufacturing + Materials Science and Engineering
	8.3			Final exam (Microsoft Forms)	

- 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
Short quiz	5	Chapter 12 – Powder Metallurgy / Reference 1	(1)	Microsoft Forms
Short quiz	5	Chapter 12 – Structures and Properties of Ceramics / Reference 2	(2)	Microsoft Forms
Short quiz	5	Chapter 13 – Applications and Processing of Ceramics / Reference 2	(5)	Microsoft Forms
Short quiz	5	Chapter 16 – Composites / Reference 2	(7)	Microsoft Forms
Midterm exam	30	Ch12 (Reference 1) + Ch12 (reference 2)	(3)	Microsoft Forms
Final exam	50	Comprehensive	(8)	Microsoft Forms

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

Students should have a computer, internet connection, Facebook account, and Zoom platform.

25 Course Policies:

A- Attendance policies: JU policy requires the faculty member to assign ZERO grade (F) if a student misses 15% of the classes that are not excused, and 20% of the classes that are excused

B- Absences from exams and submitting assignments on time: No makeup for quizzes, makeup for midterm and final exams can be conducted upon submitting a valid excuse.

C- Health and safety procedures: None

D- Honesty policy regarding cheating, plagiarism, misbehavior:

Don't Cheat; direct copying of others work will NOT be allowed or tolerated and will result in a reduction of grade. If you are found to be cheating in any way, on an exam or assignment, even signing the roll sheet for another student, you will be given an "F" for the course. There will be no exceptions. Misbehavior will not be tolerated and JU misconduct rules will be applied.

E- Grading policy: as stated above

F- Available university services that support achievement in the course: University's E-learning Portal

26 References:

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

1. Principles of Modern Manufacturing (Global Edition), by Mikel Groover, Wiley Publishers
2. Materials Science and Engineering, 9th edition, by William D Callister, Wiley publishers.

B- Recommended books, materials and media:

27 Additional information:

Name of Course Coordinator: Dr. Yazan Al-Zain Signature: Yazan Zain Date: 22/06/2020

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

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

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

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