

Course E-Syllabus

1	Course title	Research methods for engineering
2	Course number	0916302
3	Credit hours	2 hr.
	Contact hours (theory, practical)	2 hrs. per week 10:30-11:30 Mo., and We. (2 Lectures)
4	Prerequisites/corequisites	0916356
5	Program title	B.Sc. Industrial Engineering
6	Program code	
7	Awarding institution	Engineering
8	School	Engineering
9	Department	Industrial Engineering
10	Level of course	3 rd year
11	Year of study and semester (s)	1st 2021/2022
12	Final Qualification	
13	Other department (s) involved in teaching the course	-
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	

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.

The nature and *types of research* and their characteristics. *Survey research*, the definition of the research *problem and its statement*, its theoretical framework and *develop* hypotheses related to the research, design elements, in addition to the classification of different variables. *Methods of sampling, analysis, quantitative and qualitative research data*, achieving results, *writing* research reports, in addition to the submission and the *presentation* of the research.

21 Course aims and outcomes:

A- Aims:

Enhance the students practice in the field of manufacturing and operations management.

B- Intended Learning Outcomes (ILOs):

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

ILO #	After successful completion of this course, the student will be able to	Mapping with The ABET SOs
ILO1	Identify types of research	3
ILO2	State a research problem	3
ILO3	Develop a research methodology	3
ILO4	Analyze and interpret quantitative and qualitative data	6
ILO5	Decide methods of sampling for analysis and experimentation	6
ILO6	Use engineering judgment to draw results and conclusions	6
ILO7	Select a proper survey	3
ILO8	Write research reports	3
ILO9	Present research effectively	3

22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1 10 – 14 Oct.	Mo. 1.1	- Microsoft team setting - Course Orientation	Synchronous Microsoft Teams		
	We. 1.2	Introduction to research	Synchronous Microsoft Teams		Text 1 Chapter 1
2 17 – 21 Oct.	Mo. 2.1	Introduction to research	Synchronous Microsoft Teams		Text 1 Chapter 1
	We. 2.2	The scientific approach and alternative approaches to investigation	Synchronous Microsoft Teams		Text 1 Chapter 2

3 24 – 28 Oct.	Mo. 3.1	Defining and refining the problem	Synchronous Microsoft Teams		Text 1 Chapter 3
	We. 3.2	The critical literature review	Synchronous Microsoft Teams		Text 1 Chapter 4
4 31 Oct. - 4 Nov.	Mo. 4.1	Theoretical framework and hypothesis development	Synchronous Microsoft Teams		Text 1 Chapter 5
	We. 4.2	Elements of research design	Synchronous Microsoft Teams		Text 1 Chapter 6
5 7- 11 Nov.	Mo. 5.1	ENGINEERS AND WRITING	Synchronous Microsoft Teams		Text 2 Chapter 1
	We. 5.2	ELIMINATING SPORADIC NOISE IN ENGINEERING WRITING	Synchronous Microsoft Teams		Text 2 Chapter 2
6 14- 18 Nov.	Mo. 6.1	GUIDELINES FOR WRITING NOISE-FREE ENGINEERING DOCUMENTS	Synchronous Microsoft Teams		Text 2 Chapter 3
	We. 6.2	LETTERS, MEMORANDA, EMAIL, AND OTHER MEDIA FOR ENGINEERS	Synchronous Microsoft Teams		Text 2 Chapter 4
7 21- 25 Nov.	Mo. 7.1	WRITING COMMON ENGINEERING DOCUMENTS	Synchronous Microsoft Teams		Text 2 Chapter 5
	We. 7.2	WRITING RESEARCH AND DESIGN REPORTS	Synchronous Microsoft Teams		Text 2 Chapter 6
8 28 Nov. - 2 Dec.	Mo. 8.1	CONSTRUCTING ENGINEERING TABLES AND GRAPHS	Synchronous Microsoft Teams		Text 2 Chapter 7
	We. 8.2	Review	Synchronous Microsoft Teams		
9 5-9 Dec.	Mo. 9.1	Mid Exam			
	We. 9.2				
10 12-16 Dec.	Mo. 10.1	ACCESSING ENGINEERING INFORMATION	Synchronous Microsoft Teams		Text 2 Chapter 8
	We. 10.2				
11 19-23 Dec.	Mo. 11.1	ENGINEERING YOUR SPEAKING	Synchronous Microsoft Teams		Text 2 Chapter 9
	We. 11.2				
12 26-30	Mo. 12.1	WRITING TO GET AN	Synchronous Microsoft Teams		Text 2 Chapter 10

Dec.	We. 12.2	ENGINEERING JOB			
13 2-6 Jan.	Mo. 13.1	ETHICS AND DOCUMENTATI ON IN	Synchronous Microsoft Teams		Text 2 Chapter 11
	We. 13.2	ENGINEERING WRITING			
14 9-13 Jan.	Mo. 14.1	ENGINEERING	Synchronous Microsoft Teams		Text 2 Chapter 12
	We. 14.2	YOUR ONLINE REPUTATION			
15		Review			
16		Final Examinations			

- Teaching methods include Synchronous lecturing/meeting; Asynchronous lecturing/meeting.
- Evaluation methods include general activities, exercises, projects, short exams, and assignments ...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
General activities, exercises, projects, short exams, quizzes, and assignments	20	Variant	variant	E- Learning
Mid Exam	30	All Topics	9	E- Learning
Final Exam	50	All Topics	16	E- Learning

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

University E-mail account
Internet connection
Computers/ Lab top/ or any other suitable device
Webcam

25 Course Policies:

A- Attendance policies:

According to JU- Rules, students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class.

B- Absences from exams and submitting assignments on time:

There will be no make-up quizzes Exams or HomeWorks.

Make-up of final exam is subjected to the Dean permission and his approval.

C- Health and safety procedures:

Students are obliged to stick with JU rules and COVID protocol.

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.

E- Grading policy:

20% general exercises, project, and short exams, 30% Mid exam. and 50% final exam

F- Available university services that support achievement in the course:

University internet and electronic systems

26 References:

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

Video lectures

Instructor's notes

Handout materials

B- Recommended books, materials, and media:

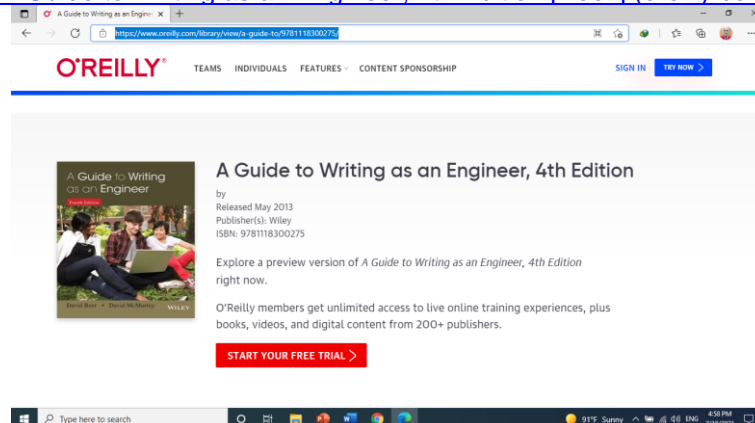
Text 1:

- Uma Sekaran, Roger Bougie, Research Methods for Business: A Skill-Building Approach, 8th, 7th, or 6th Edition, Wiley.

Text 2:

- David F. Beer, David A. MacMurray, A Guide to Writing as an Engineer, 3rd, 4th, or 5th ed., Wiley, 2013.

[A Guide to Writing as an Engineer, 4th Edition \[Book\] \(oreilly.com\)](https://www.oreilly.com/library/view/a-guide-to/9781118300275)



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27 Additional information:

The B.Sc. in industrial Engineering program enables students to achieve, by the time of graduation the following program learning outcome (SOs)			
1	<i>An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</i>	5	<i>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</i>
2	<i>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</i>	6	<i>An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions</i> القدرة على تطوير وإجراء التجارب المناسبة وتحليل وتفسير البيانات واستخدام الحكم الهندسي لاستخلاص النتائج
3	<i>An ability to communicate effectively with a range of audience</i> القدرة على التواصل بفعالية مع مجموعة من الجماهير	7	<i>An ability to acquire and apply new knowledge as needed, using appropriate learning strategies</i>
4	<i>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</i>		

Name of Course Coordinator: **Mohammad D. AL-Tahat**

Signature: -----Date: 13 Oct., 2021

Head of Curriculum Committee/Department:

Signature: -----

Head of Department: **Mohammad D. AL-Tahat**

Signature: -----

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

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