

QF01/0408-4.0E	Course Plan for Master program - Study Plan Development and Updating Procedures/ Software Engineering Department
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Study plan No.	2021-2022	University Specialization	Software Engineering
Course No.	104718	Course name	Scientific Research Methodology
Credit Hours	3	Prerequisite/ Co-requisite	-----
Course type	<input type="checkbox"/> MANDATORY UNIVERSITY REQUIREMENT <input type="checkbox"/> UNIVERSITY ELECTIVE REQUIREMENTS	<input type="checkbox"/> FACULTY MANDATORY REQUIREMENT <input type="checkbox"/> Support course family requirements	<input checked="" type="checkbox"/> Mandatory requirements <input type="checkbox"/> Elective requirements
Teaching style	<input checked="" type="checkbox"/> Full online learning	<input type="checkbox"/> Blended learning	<input type="checkbox"/> Traditional learning
Teaching model	<input checked="" type="checkbox"/> 1 Synchronous: 1 asynchronous	<input type="checkbox"/> 1 face to face : 1 asynchronous	<input type="checkbox"/> 2 Traditional

Faculty member and study divisions' information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Abdelfatah Tamimi	Professor	319		drtamimi@zuj.edu.jo	
Division number	Time	Place	Number of students	Teaching style	Approved model

Brief description

<p>This course will prepare students for advanced research by examining how to plan, conduct and report on empirical investigations. The course will cover techniques applicable to each of the steps of a research project, including formulating research questions, theory building, data analysis (using both qualitative and quantitative methods), building evidence, assessing validity, and publishing. It will particularly focus on research involving software, developing statistical tools to measure software performance and the ways in which people interact with software tools.</p>
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Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	The course has no textbooks but readings will provided throughout the course and may be accessed through the on-line teaching portal.				
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1 HANDBOOK OF RESEARCH METHODOLOGY, Shanti Bhushan Mishra 2 Fundamentals of research methodology and data collection, <u>Chinelo Igwenagu</u> 3 RESEARCH METHODOLOGY STEP BY STEP GUIDE FOR GRADUATE STUDENTS, Haydar El Hadi Babiki 4 Scientific papers to be presented by student. New papers for each semester				
Supporting websites					
The physical environment for teaching	<input type="checkbox"/> Class room	<input type="checkbox"/> labs	<input checked="" type="checkbox"/> Virtual educational platform	<input type="checkbox"/> Others	
Necessary equipment and software					
Supporting people with	Faculty members				

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special needs	
For technical support	

Course learning outcomes (S= Skills, C= Competences K= Knowledge,)

No.	Course learning outcomes	The associated program learning output code
Knowledge		
K1	Explain principles of research design	MK1
K2	Research ethics and their implications	MK1
K3	Data Types and Data collection	MK1
K4		
Skills		
S1	Research Techniques	MS2
S2	Research Proposal Outlines	MS2
S3	Design and implement research studies that meet a given title	MS2
S4	Proposal prepare and presentation	MS2
Competences		
C1	Principles of research design	MC1
C2	Principles of research design for a variety of projects	MC2
C3	Qualitative methods, quantitative methods	MC1,MC2,MC3
C4	Tested and validated by work based experiences	MC1,MC2,MC3

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm exam	30%	30%	30%	30%
Participation / practical applications	0	0	30%	30%
Asynchronous interactive activities	30%	0%3	0	0
Final exam	40%	40%	40%	40%

Note 1: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

Note 2: According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).

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Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style*	Reference **
1	Research design	Lecture	Multiple references
2	Literature search and review	learning through projects	Multiple references
3	Scientific writing	Lecture	Multiple references
4	Scientific presentation	Lecture, learning through problem solving	Multiple references
5	Research Proposal Outlines	Lecture, participatory learning	Multiple references
6	Proposal presentation	Flipped learning	Multiple references
7	Critical scientific review..	Lecture	Multiple references
8	Mid Exam	-----	Multiple references
9	Data types and data collection techniques	Lecture, participatory learning	Multiple references
10	Data Analysis techniques	Lecture, participatory learning	Multiple references
11	Quantitative and qualitative methods and data analyses	Lecture, participatory learning	Multiple references
12	Ethical issues	Lecture, flipped learning	Multiple references
13	Prepare students research for publishing purposes	Participatory learning, flipped learning	Multiple references
14	Papers Discussion	Flipped learning	Multiple references
15	Papers Discussion	Flipped learning	Multiple references
16	Final Exam	-----	Multiple references

* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.

Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

Week	Task / activity	Reference	Expected results
1	Be able to apply principles of research design for a variety of projects		
2	Understand and be able to explain research ethics and their implications		
3	Apply a range of techniques, including, but not limited to: qualitative methods, quantitative methods, survey methods		
4	Tested and validated by work based experiences		
5	Complete a sample proposal forms		
6	Prepare a research proposal for a selected topic		
7	Prepare a proposal presentation		

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8	Prepare a presentation for a selected thesis		
9	Write a scientific paper ready for publication		