Jordan University of Science and Technology
Faculty of Engineering
Mechanical Engineering Department

ME710 Research Methodology - JNQF Level: 9
Second Semester 2020-2021

Course Catalog

3 Credit Hours. 3 Credit hours (3 h lectures). This course covers the Methods of research in advanced fields of mechanical/energy engineering. Statistical tools. Methods of solution: analytical, numerical, and experimental methods. Measurement systems, instruments and data acquisitions. Report writing: abstract, introduction, analysis, description of the experiment, experimental procedure, results, discussion, conclusions, recommendations and references.

Instructor

Name	**Prof. Ghassan Tashtoush**
Office Location	M5 L2
Office Hours	Sun : 10:00 - 12:00 Mon : 10:00 - 11:30 Tue : 10:00 - 12:00 Wed : 10:00 - 12:00
Email	gtash@just.edu.jo

Class Schedule & Room

Section 1:
  Lecture Time: Mon : 11:30 - 14:30
  Room: U

Tentative List of Topics Covered

Weeks	Topic	References
	Research design, Literature search and review, Scientific writing, Scientific presentation, Critical scientific review, Data types and data collection techniques ? Quantitative and qualitative methods and data analyses, Ethical issues Teaching methods - Lectures - Self-study - Teacher-led group activities (workshops) - Project assessment	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Define research; explain and apply research terms; describe the research process and the principle activities, skills and ethics associated with the research process. [1L9K1]	5%	
Assess and critique a published journal articles that uses one of the primary research methods in the field (literature review). [1L9K2]	10%	
Understand the importance of research ethics and integrate research ethics into the research process. [1L9C2]	5%	
Construct an effective research proposal that will serve as the launching point for the study you conduct next semester. [1L9S1]	30%	
Describe and compare the major quantitative and qualitative statistical analysis methods in engineering research. [1L9K1, 1L9K2, 1L9S2]	20%	
Using parametric hypothesis tests (and interpreting their results). Those include t-tests, F-test, ANOVA and factorial analysis [1L9K2]	30%	

Relationship to Program Student Outcomes (Out of 100%)																	
A	B	C	D	E	F	G	H	I	J	K	SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	SLO7

Relationship to NQF Outcomes (Out of 100%)				
L9K1	L9K2	L9S1	L9S2	L9C2
11.67	46.67	30	6.67	5

Evaluation	
Assessment Tool	**Weight**
HWs (literature review).	10%
MT (Proposal Writing)	40%
Final Exam	50%

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