



**Jordan University of Science and Technology**  
**Faculty of Science & Arts**  
**Mathematics Department**

MATH498 Topics In Algebra

Second Semester 2020-2021

**Course Catalog**

3 Credit Hours. Introducing graphs: Basic definitions and examples, isomorphism, degree sequence. Eulerian and Hamiltonian graphs, Diagraphs. Matrix representations. Tree structures. Counting trees. Greedy algorithms, Path algorithms. Paths and connectivity. Planarity. Vertex colourings. Decompositions. Edge colourings. Decompositions. Course References: (1) Graphs and Applications: An Introduction Approach By Joan Aldous and Robin Wilson, Publisher: Springer , 2000. (2) Graph Theory and its Applications By J.G. Gross and J. Yellen, Publisher: CRC press, 1998.

**Instructor**

Name	<b>Dr. Malik Bataineh</b>
Office Location	-
Office Hours	Sun : 08:30 - 10:00 Mon : 08:30 - 10:00 Tue : 08:30 - 10:00 Wed : 08:30 - 10:00
Email	msbataineh@just.edu.jo

**Class Schedule & Room**

Section 1:  
 Lecture Time: Sun, Tue : 10:00 - 11:30  
 Room: 150 منصة الكترونية

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Define, illustrate and apply concepts of simple graphs and isomorphic graphs	20%	mid
Study operations on graphs and directed graphs, Examples of graphs	20%	mid
Define, illustrate and apply concepts of paths, Trail, Walk with their lengths, girth of a graph, cut set, edge connectivity, separating set and vertex connectivity	20%	mid, final

Study Eulerian Graphs and Diagraphs , semi-eulerian graphs, Algorithm for constructing an eulerian trail, Hamiltonian Graphs and Diagraphs and Semi-Hamiltonian Graphs.	20%	final
Studying and applying the Shortest Path Problem, Critical Path Problem, Chinese Post Man Problem and The traveling Sales Man Problem. Studying the properties of Trees	20%	final

Relationship to Program Student Outcomes (Out of 100%)					
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6

Evaluation	
Assessment Tool	Weight
mid	50%
final	50%

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