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

MATH307 Real Analysis (1) - JNQF Level: 7
Second Semester 2023-2024

Course Catalog
3 Credit Hours. Functions: Limits, continuity, uniform continuity, extreme value theorem, Bolzano-Weierstrass theorem and Heine-Borel theorem. Differentiability: Theorems on differentiability, mean value theorems, application, L?Hospitals rule and Taylor?s theorem. Riemann integration: integrability, algebra of integrable functions, mean value theorems for integration.
Teaching Method: On Campus

Text Book	
Title	Introduction to Real Analysis
Author(s)	R. Bartle and D. Sherbert
Edition	3rd Edition
Short Name	TextBook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref 1	Introduction to Real Analysis	Robert L. Brahenec	1st Edition	
Ref 2	Introduction to Analysis	Edward D. Gaughan,	1st Edition	
Ref 3	An Introduction to Mathematical Analysis	Jonathan Lewin and Myrtle Lewin,	1st Edition	

Instructor	
Name	**Prof. Mohammad Al Dolat**
Office Location	PH2 LEVEL 0

Office Hours	Sun : 08:00 - 10:00
	Mon : 10:30 - 12:30
	Tue : 10:00 - 11:00
	Wed : 13:00 - 14:00
Email	mmaldolat@just.edu.jo

Class Schedule & Room

Section 1:
 Lecture Time: Sun, Tue, Thu : 11:30 - 12:30
 Room: NG55

Prerequisites

Line Number	Course Name	Prerequisite Type
903011	MATH301 Advanced Calculus	Prerequisite / Pass

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	Chapter 4: Limits of functions, algebra of limits	From **TextBook**
Week 3	Chapter 4 : Theorems on limits, limits of monotone functions.	From **TextBook**
Week 4	Chapter 5: Continuous functions, sequential continuity	From **TextBook**
Week 5	Chapter 5: Combinations of continuous functions.	From **TextBook**
Week 5	Chapter 5: Continuous functions on intervals	From **TextBook**
Week 6	Chapter 5: Uniform continuity, approximation of functions by polynomials	From **TextBook**
Week 7	Chapter 6: The derivative of a function, algebra and properties of differentiable functions	From **TextBook**
Week 8	Chapter 6: Rolle?s theorem, mean value theorem	From **TextBook**
Week 9	Chapter 6: Applications of the derivative	From **TextBook**
Week 10	Chapter 6: L?Hospital?s rule	From **TextBook**
Week 11	Chapter 6: The inverse function theorem. Taylor?s theorem	From **TextBook**
Week 12	Chapter 7: Riemann integrability	From **TextBook**
Week 13	Chapter 7: Combinations of Riemann integrable functions	From **TextBook**
Week 14	Chapter 7: Fundamental theorem of calculus, mean theorem for integration	From **TextBook**
Week 15	Chapter 7: Taylor?s theorem, the integral as a limit.	From **TextBook**
Week 16	Final Exam Week	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
An ability to prove basic results on limits of functions and be able to apply them. [1SLO1(K1S1)] [1L7K1, 1L7S1]	20%	
An ability to prove basic results on continuity of functions and understand their applications. [1SLO1(K1S1)] [1L7K1, 1L7S1]	20%	
An ability to prove basic results on differentiability of functions and apply them to various problems. [1SLO1(K1S1)] [1L7K1, 1L7S1]	30%	
An ability to prove basic results on Riemann integration and their applications to approximation and numerical integration. [1SLO1(K1S1)] [1L7K1, 1L7S1]	30%	

Relationship to Program Student Outcomes (Out of 100%)					
SLO1(K1S1)	SLO2(S23C1)	SLO3(C24)	SLO4(C3)	SLO5(C4)	SLO6(S2C3)
100					

Relationship to NQF Outcomes (Out of 100%)	
L7K1	L7S1
50	50

Evaluation	
Assessment Tool	Weight
First Exam	30%
Second Exam	30%
Final Exam	40%

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