

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education		وزارة التعليم العالي
Syrian Virtual University		الجامعة الافتراضية السورية

Course Description: **Mathematical Analysis2**

1- Basic Information:

Course Name	Mathematical Analysis2
Course ID	Ma2
Contact Hours (Registered Sessions)	12
Contact Hours (Synchronized Sessions)	12
Mid Term Exam	-
Exam	75 min
Registered Sessions Work Load	12
Synchronized Session Work Load	12
Credit Hours	3

2- Pre-Requisites:

Course	ID
Mathematical Analysis 1	MA1

3- Course General Objectives:

The course aims to introduce the student to some mathematical techniques used in the scope of his work that he needs to follow up his collection in some important courses such as signal processing and others. The student can find and calculate the Improper Integral of the first kind. It is also able to study the convergence of Functional Sequences and Functional Series and the identification of trigonometric series and how to Expand some function to Fourier series, to the possibility of creating Fourier transform of the given function and the solution of the Inverse of Fourier Transform. In addition, the student can find a Laplace Transform for a given function and find the Inverse of Laplace Transform and its applications.

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4- Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	The ability to study the convergence and regular convergence of Functional Sequences
ILO2	Ability to study the convergence and regular convergence of Functional Series.
ILO3	The student will be able to calculate the Improper Integral and study the convergence.
ILO4	The student must be able to Expand some function to Fourier Series.
ILO5	The student must be able to Expand given function to the series of sins and the series of cosins.
ILO6	The student will be able to find a Fourier transform for the given function and find the Inverse Fourier transform.
ILO7	The student should be able to find Laplace Transform and study its properties.
ILO8	The student should be able to find the Inverse of Laplace Transform and study its properties.

5- Course Syllabus (18 hours of total synchronized sessions; 18 hours of total Recorded Sessions)

- **RS:** Recorded Sessions; **SS:** Synchronized Sessions;
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ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1	Functional Sequences	1:30	1:30	✓ Exercises & Assignments	
ILO2	Functional Series	1:30	1:30	✓ Exercises &	

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				Assignments	
ILO3	Improper Integrals of the first kind	3	3	✓ Exercises & Assignments	
ILO4	Expand to Fourier Series	1:30	1:30	✓ Exercises & Assignments	
ILO5	Fourier Series Properties	1:30	1:30	✓ Exercises & Assignments	
ILO6	Fourier Transform	3	3	✓ Exercises & Assignments	
ILO7	Laplas Transform	3	3	✓ Exercises & Assignments	
ILO8	Invers Laplas Transform	3	3	✓ Exercises & Assignments	

6- Assessment Criteria (Related to ILOs)

ISC	Interactive Synchronized Collaboration	Ex	Exams	Rpt	Reports
PF2F	Presentations and Face-to-Face Assessments	PW	Practice Work		

ILO Code	ILO	Intended Results	Assessment Type				
			ISC	PW	Ex	PF2F	Rpt
ILO1	Functional Sequences			✓	✓		
ILO2	Functional Series			✓	✓		
ILO3	Improper Integrals of the first kind			✓	✓		
ILO4	Expand to Fourier Series			✓	✓		
ILO5	Fourier Series Properties			✓	✓		

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ILO6	Fourier Transform			✓	✓		
ILO7	Laplas Transform			✓	✓		
ILO8	Invers Laplas Transform			✓	✓		

7-Practice Tools:

8-Main References

- 1- Svu Course Notebook of MA2
- 2- SVU SYNCHRONIZED LECTURES Files (Dr. Imad Fattash)
- 3- Textbook/Mathematical Analysis/, Imad Fattash and Others , Damascus Uni.,FMEE.
- 4- Textbook/Mathematics (5) /, Rajaa Sabouni , Damascus Uni. , FMEE.

- 1- المحتوى من الجامعة الافتراضية .
- 2-ملفات المحاضرات المتزامنة للمقرر .
- 3- كتاب التحليل الرياضي ، د . عماد فئاتش واخرون. منشورات جامعة دمشق كلية الهمةك.
- 4- كتاب الرياضيات 5 ، د. رجاء الصابوني. منشورات جامعة دمشق كلية الهمةك.

9-Additional References

Advanced Engineering Mathematics, 9th Edition, Erwin Kreyszig, John Wiley