

Form (H)
Short course description Math209

Course title: Differential Equations	Code: MATH209.
Previous course requirement: Math111	Language of the course: Arabic
Course level: Fourth level	Effective hours: 4 hours

Course description

وصف المقرر :

<ul style="list-style-type: none"> • Infinite sequences and its properties • Infinite series, find the sum of certain series by using the definition, many convergence tests, representation of functions by power series, Taylor and Maclaurin series. • Fourier series and Fourier integral. • Partial differential derivatives of functions of two variables with some rules. • Differential equations of first order with some applications. 	<ul style="list-style-type: none"> • التقارب و التباعد للمتتاليات و خواصها. • اختبارات التقارب للمتسلسلات وتمثيل بعض الدوال بمتسلسلات القوى و دراسة متسلسلات تايلور و ماكلورين . • متسلسلات فورية و تكامل فورية. • الاشتقاق الجزئي للدوال في متغيرين و بعض الخواص. • المعادلات التفاضلية من الرتبة الأولى ونمذجة بعض المسائل الفيزيائية.
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Course objectives

أهداف المقرر

<ul style="list-style-type: none"> • Understand the definitions, theorems and properties of convergence of infinite sequences. • Understand the definitions, theorems and properties of convergence of infinite series by using many tests. • Know how he can represent some functions as power series. • Know how he can represent some functions as Fourier series and Fourier integral. • Know some applications of many differential equations of first order. 	<ul style="list-style-type: none"> • يتعلم الطالب مفهوم التقارب و التباعد للمتتاليات و خواصها. • يتعلم الطالب مفهوم التقارب و التباعد للمتسلسلات الغير منتهية باستخدام الاختبارات. • دراسة المتسلسلات القوى و تمثيل بعض الدوال بمتسلسلات القوى. • دراسة و تمثيل بعض الدوال بمتسلسلات فورية و تكامل فورية. • حل بعض المسائل التفاضلية من الرتبة الأولى و معرفة تطبيقاتها في المسائل الفيزيائية.
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Learning outcomes (understanding, knowledge, and intellectual and scientific skills)
After studying this course, the student is expected to be able to:

Evaluate the limit of sequences by using some tests.	Represent many functions as Fourier series and find the sum of many series.
Test the convergence of many series by using different tests and represent many functions as Taylor or Maclaurin series.	Solving some differential equations of first order and knowledge some applications of it.

Textbooks adopted and supporting references

Title of the book	Author's name	Publisher's name	Date of publication
Differential and Integral for functions in several variables.	Dr Ghazal, Damlakhi,		
Lecture Notes Math204	Dr Khawaja	KSU	