



## Course Syllabus

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Course Title	Partial Differential Equations	
Academic System	Semester	Academic
Course Objective	This course for the four year students (M437). In this course the solution of partial differential equations is investigated widely. Various types of partial differential equations are defined, while the study concerned on the linear partial differential equations. Different methods are introduced to solve this type of equations.	
Textbooks	❖ ❖ ❖ ❖ ❖	

<b>Reference Books</b>	<ul style="list-style-type: none"> <li>❖ Schaum's Outline of Partial Differential Equations</li> <li>❖ Partial Differential Equations an introduction by Walter A. Strauss</li> <li>❖ طرق في الرياضيات التطبيقية للدكتور ياسل يعقوب يوسف</li> </ul>				
<b>Course Assessment for Semester System (100%)</b>	Theoretical Content Exam	Laboratory Work	Quizzes	Project	End Semester Examination
	36		4		60
<b>Course Assessment for Annual System (100%)</b>	First Term	Midterm Exam	Second Term	Lab Work	Final Examination
<b>Additional Information</b>					

### Weekly Schedule

Week	Theoretical Content	Laboratory Work	Notes
1	Definitions of PDE		
2	Elimination of arbitrary functions and constants		
3	Solution through the characteristic curves		
4	Existence and uniqueness of the solution		
5	Homogeneous linear partial differential equations of high-order		

6	Inhomogeneous Linear partial differential equations of high-order		
7	Reducible inhomogeneous linear partial differential equations of high-order		
8	Second-order partial differential equations (In two independent variables)		
9	Canonical form of second-order partial differential equations (In two independent variables)		
10	Fourier series		
11	Half range Fourier series		
12	Fourier sine series and Fourier cosine series		
13	Fourier Integral		
14	Fourier Transforms		
15	Solve the partial differential equations by the separation of variables		