Form (H)
Short course description

Course title: An Introduction to Partial Differential Equations (P.D.Es)	Course number and code: M 425
Previous course requirement: M 316	Language of the course: Arabic
Course level: 7th level / 4th year	Effective hours: 4(3+2+0)

Course description	وصف المقرر :
Introduction to Partial Differential Equations (P.D.Es)	مقدمة في المعادلات التفاضلية الجزئية

Course objectives	أهداف المقرر
Learning the following items: 1. Fundamental concepts: some definitions for P.D.Es and its classification 2. Lagrange's method and Cauchy 's method for solving first linear and quasi linear P.D.Es 3. Classification of linear P.D.Es of second order. 4. Harmonic functions ,Maximum and Minimum principle of harmonic functions 5. Solving the three types: Elliptic, Hyperbolic and Parabolic P.D.Es with some boundary value problems and initial conditions by using different methods.	نمذجة بعض من الظواهر الفيزيائية والهندسية رياضياً بأستخدام المعادلات التفاضلية الجزئية، ثم تطبيقها للإستفادة منها في مجالات علمية وهندسية عديدة وذلك عن طريق تقديم الطرائق المختلفة لحل المعادلات التفاضلية الجزئية.

Learning outcomes (understanding, knowledge, and intellectual and scientific skills)
  After studying this course, the student is expected to be able to:

The student will be able to solve a P. D. E by different Methods and know its applications in physics and other sciences.	معرفة أنواع المعادلات التفاضلية الجزئية وطرائق حلها وتطبيقاتها في الفيزياء والعلوم الأخرى.

Textbooks adopted and supporting references

Title of the book	Author's name	Publisher's name	Date of publication
1) Introduction to Partial Differential Equations and Boundary value Problems	R. Dennemeyer	McGraw-Hill Company	1968
2) Applied Partial Differential Equations	Donald W.Trim	Pws-Kent Publishing Company	2013
3) Partial Differential Equations, Methods and Applications	R. C. Mcowen	Prentice Hall	1995
4) Partial Differential Equations For Scientists and Engineers	G. Stephenson	Longman Inc., London/New York	1986
5) Fundamentals of Differential Equations	R. Kent Nagle, Edward B. Saff, Arthur David Snider	Pearson Education Inc.	2012.