



Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

1. course Data:

Course code: Math203	Course title: Applied Mathematics	Academic year/level: 2008-2009 Second year - First term
Specialization: جميع التخصصات لمجموعة العلوم الرياضية والفيزيائية	No. of instructional units: lecture <input type="text" value="4"/> tutorial <input type="text" value="4"/> practical <input type="text" value="-"/>	

2. course Aim

Demonstrate theoretical knowledge and have practical skills and competence that will be required for an applied mathematics position. Explain an ability to initiate and sustain in-depth research relevant to Mechanics. Have an opportunity to put theory into practice via work-based learning.

3. Intended learning outcome

a) Knowledge and understanding

- a1. Describe the nature and operations of vector analysis.
- a2. Discuss the familiarity with theories and concepts used in different branches of applied mathematics.
- a3. Explain the nature and applicability of gauss's and stokes' theorems.



	<p>a4. Summarize the factors which influence the development of the field of mechanics.</p> <p>a5. Show the contribution and impacts of the mechanics in general.</p>
b) Intellectual skills	<p>b1. Apply appropriate theories, principles and concepts relevant to mechanics.</p> <p>b2. Analyze and interpret information from a variety of sources relevant to mechanics.</p> <p>b3. Formulate a reasoned argument to the solution of familiar and unfamiliar problems relevant to mechanics.</p>
c) Professional skills	<p>c1. Plan practical activities using techniques and procedures appropriate to mechanics.</p> <p>c2. Solve problems moral and safety issues which are pertinent to mechanics.</p>
d) General skills	<p>d1. Set tasks and solve problems relevant to Mechanics using ideas and techniques some of which are at the forefront of the discipline.</p> <p>d2. Work effectively as part of a group, involving leadership, group dynamics and interpersonal skills such as listening, negotiation and persuasion relevant to Mechanics.</p>
4. course content	<p>1-Space force</p> <p>2- Resultant of a set of forces</p> <p>3- Central motion</p> <p>4-Grad, div and curl Directional derivatives</p> <p>5- Line Integrals</p> <p>6- Related theorems</p> <p>7-Gauss's – applications</p> <p>8- Stoke's theorems –applications</p>



	9-Central orbits
	10-Small oscillations
	11-Constrained motion on rough curves
	12- More examples on Constrained motion on rough curves
5. Teaching and learning methods	5.1 Lectures. 5.2 Tutorials 5.3 Homework 5.4 Oral discussion
6. teaching and learning methods for students with special needs	Non
7. Student Assessment	
a) Procedures used:	Mid term Final exam
b) Schedule:	Assessment 1 Midterm Exam Week 7 Assessment 2 Final exam Week 15
c) Weighing of Assessment:	Class tests 50 Marks (20%) Final exam 200 Marks (80%)
List of Textbooks and References:	
d) Course Notes	Course notes provided by the staff member of Math department, to be handed at the beginning of the semester.
e) Required Books (Textbooks)	J. Littlewoodm, J. Hobborn, F.Norton, Mechanics 1,Cambridge University press, 1972.
f) Recommended Books	A. Ruina and R. Pratap, Introduction to statics and dynamics, Oxford University Press 1994.



Quality Assurance Project

*Damanhour University
Faculty of Science*



	C. E. Wbatherbuen, Advanced vector analysis, Bell's mathematical series, 1949
g) Periodicals, web sites,...,etc	None

Course Instructor: Prof. Dr. Samy E. Kassem

Dr. El-Sayed I. Saad

Head of Department: Dr. Ragab Omar Abd El-Rahman

Date: / /