



Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

1. course Data:

Course code: Math204	Course title: Applied Mathematics	Academic year/level: 2008-2009 Second year - Second 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. Recognize theories and concepts used in different branches of applied mathematics.
- a3. Explain the nature and applicability of gauss's and stokes' theorems.
- a4. Mention the factors which influence the development of the field of mechanics.
- a5. Discuss an understanding of the contribution and impacts of the mechanics in general.



<p>b) Intellectual skills</p>	<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>
<p>c) Professional skills</p>	<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>
<p>d) General skills</p>	<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>
<p>4. course content</p>	<p>1. Vectors, Gauss's Theorem, Green's Theorems, Stoker's Theorem.</p> <p>2. Orthogonal Curvilinear Coordinates</p> <p>3. Attraction for a rod, a circular ring , a circular disc, a spherical shell, a sphere and a right circular cone</p> <p>4. Potential for a rod, a circular ring, a circular disc, a spherical shell, a sphere and a right circular cone</p> <p>5 Bending. moments for slightly elastic beams</p> <p>6. Claperon's Theorem, theorem of three moments</p> <p>7. Hydrostatics.</p> <p>8. Moments and products of Inertia.</p> <p>9. Theorem of parallel axes, theorem of inclined</p>



	lines
	10. Momental Ellipsoid, Principal axes of Inertia
	11. Plane motion of a rigid body, Compound pendulum,
	12. Sliding and Rolling
	13. Initial motion and Small Oscillations
	14. Impulsive Motion .
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:	Test1 50 Marks Final exam 200 Marks
8. List of Textbooks and References:	
a. Course Notes	Course notes provided by the staff member of Math department, to be handed at the beginning



	of the semester.
b. Required Books (Textbooks)	J. Littlewoodm, J. Hobborn, F.Norton, Mechanics 2,Cambridge University press, 1972.
c. Recommended Books	None
d. Periodicals, web sites,...,etc	None

Course Instructor: Prof. Dr. Mohamed Zakria
Dr. El-Sayed I. Saad

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

Date: / /