



Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

1. course Data:

Course code: Math205	Course title: Mathematics (1) (Pure & Applied Math)	Academic year/level:2008/2009 Second year - First semester
Specialization: جميع التخصصات لمجموعة العلوم الكيميائية والفيزيائية	No. of instructional units: lecture <input type="text" value="3"/> tutorial <input type="text" value="3"/> practical <input type="text" value="---"/>	

2. course Aim

Demonstrate theoretical knowledge and have practical skills that will be required for mathematical applications in different areas of science.

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 advanced analysis and mechanics.

a2. Mention theories and concepts used in advanced analysis and mechanics.

a3. Identify the steps required to solve some real problems utilizing advanced analysis and Mechanics techniques.

b) Intellectual skills

b1. Apply appropriate theories, principles and concepts relevant to advanced analysis and mechanics.



	<p>b2. Demonstrate a reasoned argument to the solution of familiar and unfamiliar problems relevant to advanced analysis and mechanics.</p>
c) Professional skills	c1. Plan practical activities using techniques and procedures appropriate learned during the course
d) General skills	<p>d1. Use appropriate effective written and oral communication skills relevant to mathematic.</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 mathematics.</p> <p>d3. Set tasks and solve problems relevant to mathematics using ideas and techniques some of which are at the forefront of the discipline.</p>
4. course content	<p>(Pure math)</p> <p>1- Definitions, types, limits;of functions of several variable</p> <p>2- Continuity, maximum and minimum of functions of several variable</p> <p>3- Differentiation. of functions of several variable</p> <p>4- Double and triple integrations</p> <p>5- Integrations by change of variables, applications</p> <p>6- Line integration</p> <p>7- applications of line and surface integrals</p> <p>8- Series and power series</p> <p>9- Improper integrals</p> <p>10-fourier series</p> <p>11-Ordinary differential equations of first order</p>



	12- Ordinary differential equations of second order with constant coefficients (Applied math) Vectors: 1-Gradient, Divergence, Curl, 2-Applications of vectors 3-attraction of a thin rod, plate circular 4-spherical shell and solid sphere 5-Applications 6- Revision of attraction and potential 7- moments of inertia 8-product of inertia 9-applications of Moments and Products of inertia, principal axes 10- motion on a smooth curve 11- motion on a rough curve
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 Final exam 250 Marks



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)	1- James Stewart, Calculus, Amazon, 1999. 2-J. Littlewoodm, J. Hobborn, F.Norton, Mechanics 1,Cambridge University press, 1972.
f) Recommended Books	None
g) Periodicals, web sites,...,etc	None

Course Instructor: Prof. Dr. Mohamed Abdla Darwish

Prof. Dr. Esmail Mohamed Esmail

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

Date: / /