

T6. Course Specification (CS)

Institution	Najran University	Date	1 / 5 / 1439 H
College/Department	College of Arts and Science / Mathematical Department		

A. Course Identification and General Information

1. Course title and code	Introduction of Ordinary Differential Equations , 222math-3																						
2. Credit hours : 3																							
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	Mathematics																						
4. Name of faculty member responsible for the course	Ahmad I. Abohola																						
5. Level/year at which this course is offered	Level 5 / 3 rd year																						
6. Pre-requisites for this course (if any) :	101 math-3 and 121math-3																						
7. Co-requisites for this course (if any) :	None																						
8. Location if not on main campus :	College of Science and Arts-Najran- Department of Mathematics (Male + Female) College of Science and Arts-Sharoura- Department of Mathematics (Male + Female)																						
9. Mode of Instruction (mark all that apply)	<table border="0"> <tr> <td>a. Traditional classroom</td> <td><input checked="" type="checkbox"/></td> <td>What percentage ?</td> <td><input type="text" value="80"/></td> </tr> <tr> <td>b. Blended (traditional and online)</td> <td><input type="checkbox"/></td> <td>What percentage ?</td> <td><input type="text"/></td> </tr> <tr> <td>c. e-learning</td> <td><input checked="" type="checkbox"/></td> <td>What percentage ?</td> <td><input type="text" value="20"/></td> </tr> <tr> <td>d. Correspondence</td> <td><input type="checkbox"/></td> <td>What percentage ?</td> <td><input type="text"/></td> </tr> <tr> <td>f. Other</td> <td><input type="checkbox"/></td> <td>What percentage?</td> <td><input type="text"/></td> </tr> </table>			a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage ?	<input type="text" value="80"/>	b. Blended (traditional and online)	<input type="checkbox"/>	What percentage ?	<input type="text"/>	c. e-learning	<input checked="" type="checkbox"/>	What percentage ?	<input type="text" value="20"/>	d. Correspondence	<input type="checkbox"/>	What percentage ?	<input type="text"/>	f. Other	<input type="checkbox"/>	What percentage?	<input type="text"/>
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Comments :																							

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B. Objectives

1. What is the main purpose for this course?
<ul style="list-style-type: none"> • Inform the students of certain type of Differential equations. • Illustrate the need of differential equations in our practical life. • Training the students for finding the solutions of Differential equations.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)
<ul style="list-style-type: none"> • Review the plan at the Council of the department of each academic year for the purpose of development and improvement. • Study the learning difficulties faced by students while studying the course. • Review the results of the students and analyzed qualitatively out the most important recommendations about the course. • Encourage students to use the Internet and the site of the Professor of the course. • Comparing the presented syllabus with other local, regional, and global, departments respectively.. • Update learning resources for course regularly using the Internet.

C. Course Description (Note: General description in the form used in the Bulletin or handbook should be attached)

Course Description :

This course is an introduction to the study of ordinary differential equations. In this course, the definition, classification and different methods of solution are presented. Some physical, engineering, chemical, biological and other applications are also studied.

1. Topics to be Covered :		
List of Topics	No. of Weeks	Contact Hours
Classification of Differential Equations (D.E.) - The concept of Solution of Differential Equations	2	6
Creating Differential Equations – Family of Curves – Solution of first order differential equations and first degree (separable equation)	2	6
Solution of homogeneous and nonhomogeneous differential equations	3	9
Solution of exact and not exact D.E	2	6

Linear and nonlinear D.E	2	6
Solution of DE with first order and high degree with constant of coefficients (solvable equation with respect to P- solvable equation with respect to y - solvable equation with respect to x)	2	6
Solution of D.E. from first degree and high orders with constant coefficients- study some applications	2	6

1. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or studio	Practical	Other:	Total
Contact Hours	45	None	None	None	None	45
Credit	3	None	None	None	None	3

3-Additional private study/learning hours expected for students per week	6
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table)

Second, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes.

Third, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain).

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge By the end of the semester, the students will be able to		
1.1	List the solutions of the differential equations of different kinds.	Lecture	Exams, homework, and quizzes.
1.1	Describe how to formulate a differential equation corresponding to some physical and mathematical laws and engineering	Lectures and Tutorials	oral exam
1.2	Use the applications of differential	Method of	oral exam

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	equations in the natural sciences and engineering.	discussion	
2.0	Cognitive Skills By the end of the semester, the students will be able to		
2.1	Construct the differential equations	Class discussions	Training reports
2.2	Find the solutions of the differential equations	Examples and problems	Quizzes
2.3	Use the differential equations in the natural and engineering applications.	Oral presentation	Summary reports , Exams
3.0	Interpersonal Skills & Responsibility By the end of the semester, the students will be able to		
3.1	take responsibility in learning through a variety of tasks and activities assigned to them.	Discussion	Homework assignments
3.2	Develop and improve the student's skill to express his opinion clearly	Cooperative learning method.	Oral presentation
3.3	Acquire necessary social skills		
4.0	Communication, Information Technology, Numerical By the end of the semester, the students will be able to		
4.1	Communicates orally and in writing effectively	Cooperative learning method.	Oral presentation
4.2	Use the communication and information technology.	E-learning , Website	Quizzes- Reports
4.3	Acquire appropriate communication.	Cooperative learning method	Oral presentation
5.0	Psychomotor		
5.1	None	None	None
5.2	None	None	None

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, Quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First exams	6	25%
2	Second exams	12	25%
3	Final exam	16	50%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

3 hours weekly.

E. Learning Resources

1-List TeXtbookKs	Differential Equations (Part I) Hassan Alowyhdi المعادلات التفاضلية الجزء الأول حسن مصطفى العواضي – عبدالوهاب رجب- سناء علي مكتبة الرشد - 2006
2. List Essential References Materials (Journals, Reports, etc.)	<ul style="list-style-type: none"> Erank Ayres , Differential Equations , theories and problem , McGraw-Hill , New York, 1990 Jeffrey R .Chasnov , Introduction to Differential Equatios , The Hong Kong University of Science And Technology , Department of Mathematics , Hong Kong , 2009
3. List Electronic Materials Web Sites, Facebook, Twitter, etc.	http://www.nu.edu.sa/gui/SubDefault.aspx?PageId=696 http://lib.nu.edu.sa/digitalLibrary.aspx?PageId=1494 http://lib.nu.edu.sa/SubLibrary.aspx?PageId=1491 https://twitter.com/math1427?lang=ar http://en.wikipedia.org/wiki/Differential_equation http://mathworld.wolfram.com/OrdinaryDifferentialEquation.html http://mathforum.org/differential/differential.html
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.	MATHEMATICA or MATLAB

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
<ul style="list-style-type: none"> Classrooms number of seats = 20 seat Rooms equipped with modern teaching techniques and different display devices.
2. Computing resources (AV, data show, Smart Board, software, etc.)
Data show and Smart Board
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
None

G. Course Evaluation and Improvement Processes:

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
<ul style="list-style-type: none"> Distribute questionnaires to students at the end of the semester to get a special assessment for the course. Evaluation (Survey) of the students at the end every term. Interview a sample of students enrolled in the course to take their views. Follow-up over the performance of the students interact with the course through attendance and tests. Box-mail suggestions.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the department.
<ul style="list-style-type: none"> Presentation of the results of a sample of students on an external reviewer. Qualitative analysis of the results of the students. Studying Course Report & Improvement Plan Studying Course Portofolio
3. Processes for Improvement of Teaching:
<ul style="list-style-type: none"> Training programs and workshops for faculty members on the most important teaching methods based around the learner. Self-assessment by Professor article. Creating the right atmosphere for students through social programs, entertainment, and so on. Upgrading of the relationship between professor and student to be a human relationship. Follow the new teaching strategies. Ensuring the use of the tools related to the course.

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Check and correct sample of student work by faculty members are independent.
- Exchange periodically to correct or sample tests with a faculty member of the same specialty in other faculties.
- A special committee as determined by management college at the end of each term.
- Studying Course Report & Improvement Plan
- Studying Course Portofolio (Trend Analysis)
- Measuring Related KPIs

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- Hosting a visiting professor for evaluating and developing the course with Professor of the course.
- Periodic meetings with outstanding students to see the positive and negative aspects in the course.
- Comparison with similar courses in the corresponding faculties of other universities.
- Assisted by specialists in the design and planning of programs and courses.
- Update the sources of learning of the course to make sure to keep abreast of developments in the field.
- Statistical results to assess the students' course and to benefit from its results in the improvement and development of the course.
- Course Portofolio Course report (Trend Analysis)

Name of instructor : Ahmad I Abohola

Signature:

Date Report Completed: 1 / 5 / 1439 H

Name of field experience teaching staff : None

Program coordinator : Dr. Hamod AL-hadad

Signature:

Date received : 1/ 5 /1439 H