

T6. Course Specification (CS)

Institution	Najran University	Date	15-8-1439H
College/Department	Faculty of science and arts / Mathematics Department		

A. Course Identification and General Information:

1. Course title: Solid Analytic Geometry and code : Math262-3			
2. Credit hours: Two hours			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)			
Program of Mathematics			
4. Name of faculty member responsible for the course			
Dr. Abdo Mohammed Ali Qahis			
5. Level/year at which this course is offered			
Level 4/second year			
6. Pre-requisites for this course (if any)			
<ul style="list-style-type: none"> Analytic Geometry, code: 161-Math-3 Calculus (1), code: 101-Math-3 			
7. Co-requisites for this course (if any) :			
None			
8. Location if not on main campus			
<ul style="list-style-type: none"> College of Arts and Sciences-Najran (Boys brunch and Girls brunch) College of Arts and Sciences- Sharurah (Boys brunch and Girls brunch) 			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	75
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	
c. e-learning	<input checked="" type="checkbox"/>	What percentage?	25
d. Correspondence	<input type="checkbox"/>	What percentage ?	
f. Other	<input type="checkbox"/>	What percentage?	
Comments التعليق:			

B. Objectives الأهداف

<p>What is the main purpose for this course ?</p> <ol style="list-style-type: none"> 1. Introducing the coordinate systems in 3D such as: perpendicular cartesian, cylindrical, and spherical coordinates 2. Presenting points in 3D by means of an triple in perpendicular Cartesian, cylindrical, and spherical coordinates system. 3. Finding the equations of plane and line in three dimension space. 4. Studying the relationships between lines and planes 5. Studying the properties of Parallel and perpendicular plane, Parallel and perpendicular lines, Parts of lines (points, segments, rays) and sphere. 6. Introducing the vectors and their properties in the XYZ-Space. 7. Presenting the families of polyhedral, Cones and cylinders. Geometry of spheres (Areas of great circles, volume of spheres), Perspectives and cross sections, Drawing three-dimensional shapes, Surface areas and volumes of solids. 8. Classifying the second degree equations in three variables.
<p>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)</p> <ol style="list-style-type: none"> 1. Increased use of power-point and projector in class. 2. Update the content periodically. 3. Using new references. 4. Changes in content as a result of new research in the field. 5. Increasing use of references and properly activated. 6. Immediate productive use tests a manner that encourages thinking. <p>the appropriate use of modern methods encourage students' work team to get answers to some questions.</p>

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

<p>Course Description :</p> <p>This course will cover the foundations of Solid Analytic geometry. The main focus of this course is on perpendicular Cartesian, cylindrical, and spherical coordinates, plane, Line, sphere, and conical surfaces.</p>
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1. Topics to be Covered :		
List of Topics	No. of Weeks	Contact Hours
Vector in a 3D (Definition of the vector - algebraic operations on vectors – inner product and outer product).	3	6
Plane (concept and equation - the intersection of two planes – distance between point and plane).	3	6
A straight line in 3D (concept and equation - the intersection of straight lines - cases of different cases between straight line and plane).	4	8

Sphere (concept and equations - The characteristics of the sphere – different cases between line and sphere – different cases between plane and sphere - intersection of two sphere).	3	6
Conical surfaces (definitions and equations).	1	2
Classification of second degree equations in three variables.	1	2

1. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or studio	Practical	Other:	Total
Contact Hours	30					30
Credit	2					2

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 المعرفة After studying this course, the student will able to		
1.1	Define the perpendicular Cartesian, cylindrical, and spherical coordinates in 3D space.	<ul style="list-style-type: none"> • Lectures • discussions • solve some examples and exercises • To encourage the positive reviews using the discussion of mathematical ideas through advance preparation to prepare educational material expected to be study. 	Midterm, and final exams
1.2	Define the concept of plane, line and sphere in 3D space.		
1.3	Recall different cases of the relation between two lines, and between line and plane.		
1.4	State different cases of the relation between line and sphere, and between plane and sphere		

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.5	Recognize some methods of classifying the quadratic equations with 3 variables.	<ul style="list-style-type: none">• Give students the opportunity to solve exercises individually or in small groups.• emphasis on the student to bring the main reference during lectures to help solve the exercises and classroom discussions.	
2.0	Cognitive Skills		
2.1	Determine the different forms of the conical surface.	<ul style="list-style-type: none">• lectures.• discussions.• Some research works in some vocabulary of the course.	
2.2	Analyze some of the problems encountered in the study of vector and 3-Dimension surfaces.		
2.3	Compare between the equations of line and plane in 3D space.		
3.0	Interpersonal Skills & Responsibility By the end of the semester, the students will be able to		
3.1	Work as part of a team and Independently	Group problems solving during tutorial	
4.0	Communication, Information Technology, After studying this course, the student will able to		
4.1	Present the main concepts of solid analytic geometry to others, both in oral and written form clearly	<ul style="list-style-type: none">-Homework-Discussions in the classes• Work in small groups• Presentations.• Informed and self-learning.	
4.2	Use computer programs to draw conic section and other equations.		
5.0	Psychomotor)		
5.1	Not applicable	Not applicable	Not applicable

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 midterm exam	7	20 marks

2	Second midterm exam	12	20 marks
3	Homework + Exercises in the class	2-16	10 marks
4	Final exam	After 16	50 marks

D. Student Academic Counseling and Support الإرشاد الأكاديمي والدعم الطلابي

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)

The office hours for this course are 2 hours/ week.

E. Learning Resources

1. List Required Textbooks :

Abdulshafi Fahmi, Hasan Mostafa and Mohammed Tala'at, Analytic geometry in 2D and 3D. Dar al-Fekr Al-Arabi, 2005.

Arwa Al-Shibani and Sarah Al-Arefi, Helpful in analytic geometry, Almotanabi bookshop, Damam, KSA, 2004

2. List Essential References Materials (Journals, Reports, etc.)

Loney, S.L., The Elements of Coordinate Geometry, Macmillan and Co. London, 1953.

Kindle, J.H., Theory and Problems of Plane and Solid Analytic Geometry, Schaum P. Co., New York, 1950.

3. List Electronic Materials Web Sites, Facebook, Twitter, etc.

http://en.wikipedia.org/wiki/Geometric_analysis

<http://www.arab-math.com/forum/forumdisplay.php?f=7>

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Math type

Mathematica

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.)

Classroom with suitable seats

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

2. Computing resources (AV, data show, Smart Board, software, etc.

Classroom with Smart Board and Data Show

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G. Course Evaluation and Improvement Processes:

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching Verification of students achieving the objectives of the course by the instructor notes and the opinion of colleagues in the in the same course.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the department. <ul style="list-style-type: none"> • Periodic review of a course by a committee of study plans and schedules in the department . • Review the records of students ' grades and their levels depending on the results of their evaluation. <p>Ensure that the students ' use the internet to obtain additional information on the topics of course.</p>
3. Processes for Improvement of Teaching: Diversify the teaching methods of information and course skills . <ul style="list-style-type: none"> • The using of modern technologies in teaching. • Ensure that the using of application and individual assignments . • Professor must be attend training courses to develop their abilities and skills in teaching.
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) <ul style="list-style-type: none"> • ask questions and open dialogues with students. • discuss the students in the scientific assignments that they have set up and correct any errors.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement : <ul style="list-style-type: none"> • Study and compare the results of students • The discovery of topics that students suffer some difficulties to understand and add some of the activities on them. • constant quest to develop methods of teaching and student participation. • Consult colleagues who are studying the same course. <p>Study of the proposals submitted by professors have experience in teaching the course.</p>

Name of instructor: Dr. Abdo Mohammed Ali Qahis

Signature : _____ Date Report Completed: _____ 14/07/1439H

Name of field experience teaching staff: none

Program coordinator: Dr. Hamoud Al-Haddad _____

Signature: _____ Date received: 14/07/1439H _____