هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

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هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

T3
202

Course Title:	**Analytic Geometry.**
Course Code:	**231Math-3**.
Program:	**B.Sc. of Mathematics**
Department:	**Mathematics**
College:	**Arts and Sciences**
Institution:	**Najran University**
Version:	**1**
Last Revision Date:	**07 -05-2023**

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	3				
2. Course type					
a.	University ☐	College ☐	Department☒	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered:	3/2				
4. Course general Description A course in plane and solid analytic geometry covering such topics as plane coordinate systems, equations and their loci, straight lines, conic sections, higher place curves, transformation of coordinates, coordinates in space, space loci, planes quadratic surfaces, etc.					
5. Pre-requirements for this course (if any): None					
6. Co- requirements for this course (if any): None					
7. Course Main Objective(s) This course aims to provide students with basic ideas about plane and solid analytic geometry and provide them with the characteristics of the relations between the different geometric shapes.					

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	3	%100
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define the circle, ellipse, hyperbola, and parabola and other shapes in space.	K1	• Lecture • Cooperative learning • Problem solving	• Assignments • Quizzes • Midterm Exam • Final Exam
1.2	Recognize the different cases of relation between any two shapes.			
1.2	State the different forms of the quadratic equation with two and three variables.			
2.0	Skills			
2.1	Calculate the coordinate of the intersection points between two lines, two circles, between line and circle and other two shapes.	S2	• Lecture • Cooperative learning • Problem solving	• Assignments • Quizzes • Midterm • Final Exam
2.2	Distinguish between the different forms of the conical and surfaces sections.	S3		
3.0	Values, autonomy, and responsibility			
3.1				

C. Course Content

No	List of Topics	Contact Hours
1.	Coordinate systems (Cartesian, polar, cylindrical, and spherical coordinate, distance between two points, distance between points, med point).	3
2.	Line equation in the plane. Different forms of line equations. Distance between point and line. Intersection of pair of lines.	6
3.	Circle: definition, equation and special cases, different forms of the equation of the circle, relation between line and circle. Family of circles.	6
4.	Conic section (Parabola, Ellipse, and Hyperbolic, some geometric	6

	properties of the conic sections, the equation of the tangent and the normal, the general form of the conic section, translate and rotate Axis).	
5.	Plane (equation - distance between point and plane – the intersection of two planes).	6
6.	A straight line in 3D (concept and equation - the intersection of straight lines, different cases between straight line and plane).	6
7.	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).	6
8.	Conical surfaces (definitions and equations).	3
9.	Classification of second-degree equations in three variables.	3
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	First Midterm exam	From 6 - 8 week	20%
2.	Second midterm exam	From 11- 13 week	20 %
3.	Assignments - Quizzes - Oral test	During classes	10%
4.	Final Exam	From 18- 20 week	50

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	حسن مصطفى العويضي، عبد الشافي فهمي عبادة، محمد طلعت عبد الناصر، و الهندسة التحليلية المستوية والفراغية، دار الفكر العربي، 2013م.
Supportive References	J.M. Aarts, Plane and Solid Geometry (Universi text) 2008th Edition, Springer; 2008.
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• Classroom with 30 seats..
Technology equipment (projector, smart board, software)	• Data show • Smart Board • Wi Fi
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student	Student Questionnaire (Indirect)
Effectiveness of students assessment	Peer Reviewer	Rubrics (Indirect)
Quality of learning resources		
The extent to which CLOs have been achieved	Faculty	Direct
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Council of Mathematics Department
REFERENCE NO.	14441017-0208-00014
DATE	17-10-1444H