# MATH 261

## ANALYTIC GEOMETRY

# COURSE PORTFOLIO

**FACULTY OF SCIENCE**

**MATHEMATICS DEPARTMENT**

| | |
|---|---|
| **COURSE NAME:** | |
| **COURSE NUMBER:** | **M A T H 2 6 1** |
| **SEMESTER/YEAR:** | 1st Semester 2016/2017 |
| **DATE:** | |

## *Instructors Information*

**Name of the coordinator:** **Khadijah Abdullah Mohammed Sharaf**
**Office location:** **Room : C-157 Building: 7**
**Office hours:**

| | | Time | | | | |
|---|---|---|---|---|---|---|
| **Section** | **Sunday** | **Monday** | **Tuesday** | **Tuesday** | **Wednesday** | **Thursday** |
| ***Office Hour*** | ***8:00-9:00*** | ***11:00-12:30*** | ***8:00-9:00*** | | | |
| ***Math 261*** | ***9:00-10:00 Room 77-C*** | ***12:30-1:30 Room 77-C*** | ***9:00-10:00 Room 77-C*** | | | |
| ***Math 202*** | ***10:00-11:00 Room 79-B*** | | ***10:00-11:00 Room 79-B*** | ***1:00-2:00 Room 72-C*** | | |
| ***Math 463*** | ***11:00-1:00 Room 77-C*** | | ***11:00-1:00 Room 77-C*** | | | |
| ***Office Hour*** | ***1:00-2:30*** | ***1:30-2:30*** | | | | |

**Contact number(s):** **012-6952000 Ext 63566**
**E-mail address(s):** **ksharaf@kau.edu.sa**
**Coordinator's profile** *(optional)***:** *(insert your picture here)*

**For multi-instructor courses:**

| Name of the instructor | Section | Office location | | Office hours | | | | | Contact number | E-mail address |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Room | Building | S | S | M | T | W | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

**A welcome letter to the student**

*(optional)***:**

## *Course Information*

**Course name:** **Analytic Geometry**
**Course number:** **261 Section : AAR**
**Course meeting times:**

| | Time | | | | |
|---|---|---|---|---|---|
| **Section** | **S** | **M** | **T** | **W** | **Th** |
| | **9:00-10:00** | **12:30-1:30** | **9:00-10:00** | | |
| | | | | | |

**Place:** **Room: 77C** **Building: 7**
**Course website address:** **www.kaau.edu.sa/faculties/science/math**
**Course prerequisites and requirements:**

| Course name | Course number |
|---|---|
| | |
| **Math** | **202** |
| | |

# Description of the course:

**1-Euclidean Axiom's, Distance formula, Point-of-division formula, Inclination. Slopes, Angle between lines.**.

**2-Line , one point form, two points form, slope form, The Line, intercept form, applications.**

**3-Circles, standard & general forms, Tangents to circles.**

**4-Conics, parabola, ellipse, Hyperbola, tangents to these curves. Transformations.**

**5- Hyperbola, tangents to these curves.**

**6- Directed line segments and vectors, dot product, Vectors in space, cross product, eqns. Of line & plane.**

## *Course Objectives*

**At the end of the course, students should have a strong working knowledge and they will be able to understand and accomplish the following :**

- **The relationship between Algebra and Geometry.**
- **The concepts of inclination, slope, and tangent.**
- **Recognizing the different formula for an equation of a line in a plane and space.**
- **Seeing the difference among the distance between two points, distance from a point to a line, and a distance from a point to a plane.**
- **Illustrating the difference between the standard form and the general form for an equation of a circle.**
- **Studying the conic sections and to understand its translation and rotation.**
- **Understanding the relationship between rectangular and polar coordinates.**
- **Studying the conic sections in polar coordinates.**
- **Studying the parametric equations.**
- **Introducing the solid analytic geometry.**
- **Introducing the concept of mathematical objects in space. Studying planes, lines, spheres and various other surfaces.**

## *Learning Resources*

**Textbook:** **Title: Analytic Geometry 6th edition**
**Author: Douglas R.Riddle (1995)**
**Publisher: Brooks/Cole Pub.Co.**
**Found in: Libraries and book shops**

## *Course Requirements and Grading*

**Methods of Assessments:**

## 1- Coursework

| Assessment Type | Notes | 10% Formal Assessment |
|---|---|---|
| In course Assessment | **Every 2 weeks solve section problems** | |
| Total Percentage | | **10%** |

## 2- Exams

| First Periodic Exam | Second Periodic Exam | Quiz | Quiz | Project | Final Exam |
|---|---|---|---|---|---|
| **Monday 31-10-2016** | **Monday 19-12-2016** | **Monday 31-10-2016** | **Monday 19-12-2016** | | |
| **MCQ & Written** | **MCQ & Written** | **MCQ & Written** | **MCQ & Written 5** | **Project** | **MCQ & Written** |
| **20** | **20** | **2.5** | **2.5** | **15** | **40** |

# Expectations from Students

- **Students must be responsible of attending exams.**
- **Students should be aware how to use computer programs.**
- **No makeup exams. The mark for the missed exam according to an acceptable excuse will be added to the mark of the final exam.**
- **Any student that exceeds a 20% ( 9 Lectures ) absence with no acceptable excuse will deprived from entering the Final exam.**
- **Cheating in any periodic or quizzes exams will be punished by getting Fail mark.**
- **Cheating in Final exam will held to fail in the exam and expel from university for the next term.**
- **The IC Grade is given only at the following case:**
  **1-Attending all exams and missing the final.**
  **2-Not exceeding 20% absent time.**
  **3-An official illness report.**

**Math 261 Schedule 1st Semester 2016-2017**

| Week # | Date | Topic | Reading Assignment | What is Due? |
|---|---|---|---|---|
| 1 | Sep.18 | Introduction to the course | | Buy Book |
| | Sep.19 | Introduction to the course | | |
| | Sep.20 | Introduction to the course | | |
| 2 | Sep.25 | Section 1.1 | Chapter 1 | |
| | Sep.26 | Section 1.2 | Chapter 1 | |
| | Sep. 27 | Section 1.3 | Chapter 1 | |
| 3 | Oct.2 | Section 1.4 | Chapter 1 | |
| | Oct.3 | Sections 1.4 & 1.5 | Chapter 1 | |
| | Oct. 4 | Section 1.5 | Chapter 1 | Section Problems |
| 4 | Oct.9 | Section 1.6 | Chapter 1 | |
| | Oct.10 | Section1.6 &1.8+ Exercise Solu | Chapter 1 | |
| | Oct.11 | Section 3.1 | Chapter 3 | Section Problems |
| 5 | Oct.16 | Section 3.1 & 3.2 | Chapter 3 | |
| | Oct.17 | Section 3.2 | Chapter 3 | |
| | Oct.18 | Section 3.3 | Chapter 3 | Section Problems |
| 6 | Oct.23 | Sections 3.4 & Exercise Solution | | |
| | Oct.24 | Sections 4.1 | Chapter 3 | |
| | Oct.25 | Section 4.1 | Chapter 4 | Section Problems |
| 7 | Oct.30 | Section 4.2 | Chapter 4 | |
| | Oct.31 | **First Periodic Exam** | Chapter 4 | |
| | Nov.1 | Section 4.2 & Exercise Solution | Chapter 4 | |
| 8 | Nov.6 | Section 5.1& 5.2 | Chapter 5 | |
| | Nov.7 | Section 5.2 & 5.3 | Chapter 5 | |
| | Nov.8 | Section 5.3 | Chapter 5 | Section Problems |
| 9 | Nov.20 | Section 5.4 | Chapter 5 | |
| | Nov.21 | 5.4 & Exercise Solution | Chapter 5 | |
| | Nov.22 | Section 6.1 | Chapter 6 | |

| Week # | Date | Topic | Reading Assignment | What is Due? |
|---|---|---|---|---|
| 10 | Nov.27 | Section 6.1 | Chapter 6 | |
| | Nov.28 | Section 6.1 & Exercise Solution | Chapter 6 | |
| | Nov.29 | Section 2.1 | Chapter 2 | Section Problems |
| 11 | Dec.4 | Section 2.1 & 2.2 | Chapter 2 | |
| | Dec.5 | Section 2.2 & Exercise Solution | Chapter 2 | |
| | Dec.6 | Section 9.1 | Chapter 9 | |
| 12 | Dec.11 | **Second Periodic Exam** | | |
| | Dec.12 | Section 9.1 | Chapter 9 | |
| | Dec.13 | Section 9.1& 9.2 | Chapter 9 | Section Problems |
| 13 | Dec.18 | Section 9.2 & 9.3 | Chapter 9 | |
| | Dec.19 | **Second Periodic Exam** | Chapter 9 | |
| | Dec.20 | Section 9.3 | Chapter 9 | |
| 14 | Dec.25 | Section 9.4 | Chapter 9 | |
| | Dec.26 | Section 9.4 & 9.5 | Chapter 9 | |
| | Dec.27 | Section 9.5 | Chapter 9 | Section Problems |
| 15 | Jan.1 | Section 9.6 | Chapter 9 | |
| | Jan.2 | Section 9.6 | Chapter 9 | |
| | Jan.3 | Section 9.6 & Exercise Solution | Chapter 9 | Section Problems |
| | | **Final Exam** | | |