

## نموذج مواصفات المقرر

كلية : التربية

جامعة : الفيوم

**Relevant Program:** B.Sc. (Science & Education), Mathematics ,Basic Education

**Major or minor element of programmes :** Major

**Department offering the program:** Educational Depts. + Math Department  
Faculty of Science

**Department offering the course:** Mathematics

**Academic year / Level :** First Year ( Second Term )

**Date of specification approval :** 20 / 10 / 2008 :

### A- Basic Information

**Title :** Analytical Geometry in The Plane **Code:** ١٧١٢٣ Mat

**Credit Hours:----**

**Lecture: 3**

**Tutorial: 2**

**Practicals:**

**Total: 70**

### B- Professional Information

## 1- Overall Aims of Course

On completion of this course, students will be able to:

- 1- Be familiar with the fundamental concepts of analytic geometry and presents these concepts to others.
- 2- Self independent by asking them to study various interesting subjects related to the above concepts.
- 3- Show logical thinking and to be self independent in problem solving.
- 4- Work in team.
- 5- Write rigorous proofs.
- 6- Make decisions and solve problems.

## 2- Intended Learning Outcomes of Course (ILOs)

A- Knowledge and understanding:

- ١-١. أ Understand and distinguish between geometric properties and facts.
- ١-٢. أ Know transformations of coordinates provide algebra and geometric solutions and use geometric methods in many applications .

B- Intellectual Skills:

- ١-١. ب Describe conic section in standard forms.
- ١-٢. ب Apply geometric methods in calculus analysis.

### C- professional and Practical Skills:

- ١- Write rigorous proofs.
- ١-٢ Make decisions and solve problems .

### D- General and Transferable Skills:

- ١-٢ Work in team.
- ١-٣ Self independent.
- ١-٥ Study various interesting subjects related to the above concepts

## 3- Contents :

| Topic                                                                                                                                                                                                                                                                                   | No. of Hours | Lecture | Tutorial / Practical |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|----------------------|
| 1- <u>Plane polar coordinates</u> : relationship between polar and rectangular coordinates the polar equation of straight line, the spiral Archimedes.                                                                                                                                  | 12           | 4       | 8                    |
| 2- <u>Transformation of coordinates</u> : transformation of the origin rotation of the axes.                                                                                                                                                                                            | 12           | 4       | 8                    |
| 3- <u>Pair of straight lines</u> : general equation of the 2 <sup>nd</sup> order equation - Angle between a pair of <u>straight</u> . lines the necessary and sufficient condition for a pair of lines the lines joining the origin and the points of intersection of line and a curve. | 6            | 2       | 4                    |
| 4- <u>The circle</u> : the general equation finding the center and radius of a circle tangent tangency chord the common chord for two circles, condition of intersection, polar form of a circle, radial axis of orthogonality of two circles.                                          | 6            | 2       | 4                    |
| 5- <u>Classification of general</u> : second order equation in the plane ( condition for this equation to be ) . pare of lines, probable, Ellipse, circle, Hyperbole.                                                                                                                   | 6            | 2       | 4                    |

## 4- Teaching and Learning Methods:

- 4-1: Lectures.
- 4-2: Discussion sessions.
- 4-3: Research assignment .

## 5- Student Assessment Methods:

- 5-1: Written exam(mid-term)to assess the level of knowledge and understanding.
- 5-2: Class work (quizzes) to assess the level of Intellectual skills to discuss and solve some problems .
- 5-3: Written exam(at the end of term)to assess the ability to pass the exam .

## Assessment Schedule :

Assessment 1 : Written exam(mid-term) week 7

Assessment 2 : Class work (quizzes)week 4 - 8 - 12

Assessment 3 : Written exam(at the end of term)week at the end term .

## Weighting of Assessments:

|                                            |      |   |
|--------------------------------------------|------|---|
| Mid-Term Examination                       | 30   | % |
| Final-Term Examination                     | 70   | % |
| Oral Examination                           |      | % |
| Practical Examination                      |      | % |
| Semester Work                              |      | % |
| Other Types of Assessment                  |      | % |
| Total :                                    | 100% |   |
| Any formative only assessments: homeworks. |      |   |

## 6- List of References :

6-1: Course Notes:

Course note prepared by staff members of Math. Dept.

6-2: Essential Books (Text Books):

6-3: Recommended Books:

- 1- Analytic Geometry, Schaum's outline series, McGraw-Hill book Co., New York.
- 2- Thomas, G. Finney R (1998), Calculus and analytic geometry, 5<sup>th</sup> Edition, Addison-Wesley, USA. John W. Rutter.

6-4: Periodicals, Web Sites, ..... etc:

[http:// www.mathworld.wolform.com](http://www.mathworld.wolform.com)

## 7- Facilities Required for Teaching and Learning

Library contains new edition books with enough copies.

Data show

Internet networks

Course Coordinator: Dr.Mostafi Drdary

Head of Department Prof. Kamal Ahmed El Dab

Date: //