



Syllabus

2st Semester 1434/1435 Hijri

| Course Code | Course Name | Credit Hours | Lec | Lab | Tut. | Pre-requisite |
|-------------------|--|--------------|-----|-----|------|----------------------------|
| MAT 060 | Mathematics-2 for Applied Sciences | 4 | 3 | 0 | 2 | Mat 050 (Precalculus 1) |
| Course Supervisor | Dr. Emad Selouma | | | | | |
| e-mail | Emadms74@yahoo.com | | | | | |
| office | SR-73 | | | | | |
| Class Meetings | As scheduled | | | | | |

Course's Objectives: This is the second course in of Precalculus Track Applied Science for Preparatory Year Programs In this course students will be using Logic and Fundamental Methods of Proofs and trigonometric identities, the law of sines and cosines, and vectors; solving parametric equations, polar equations, conic sections; using discrete mathematics, including probabilities; and applying these skills in real-world situations.

Text Book: Precalculus 2 Track of Applied Science Dept of Mathematics, PEARSON Education

Website:

Grading:

- Attendance and Participation 4%
- Quizzes (around 4 quizzes, 4% each)..... 16%
- Mid-term-1 Exam 1..... 20%
- Mid-term-1 Exam 2 20%
- Final Exam 40%
- **TOTAL..... 100**

Classroom Participation: It is expected that you participate in the discussion at lectures by asking and answering questions, raising issues, and making observations and constructive comments.

Cheating and Dishonesty: Each student should write and submit his own work either on exams or on exercises and other course material. Any kind of cheating or dishonesty throughout the course is considered a serious offence and will be dealt with strictness and no mercy.

Attention: Don't use or leave open your mobile phone throughout lectures. Violating this may result in lowering your grad or expelling from the classro

Course schedule

| Week | Date | Chapter | Sections and topics | |
|--|--|---|---|--|
| 1-3 | 25-3-1435 H- 9-4-1435 H- | Chapter 1: Elementary Mathematical Logic and Proofs | Elementary Mathematical Logic | Logic Statements |
| | | | | The Negation of a Statement |
| | | | | The Disjunction and Conjunction of Statements |
| | | | Some Methods of Proof | The Implication |
| | | | | More on Implications |
| | | | | The Biconditional |
| Some Methods of Proof | Logical Equivalence | | | |
| | Some Fundamental Properties of Logical Equivalence | | | |
| | Direct Proof and Proof by Contrapositive | | | |
| Some Methods of Proof | Proof by Cases | | | |
| | Proof Evaluations | | | |
| | Counterexamples Proof by Contradiction A Review of Three Proof Techniques | | | |
| 4-6 | 17-4-1435 H- 1-5-1435 H- | Chapter 2: Sequences, Series, and Probability | Sequences and Arithmetic Sequences | |
| | | | Series and Arithmetic Series | |
| | | | Geometric Sequences and Series | |
| | | | Counting and Permutations | |
| | | | Combinations, Labeling, and the Binomial Theorem | |
| | | | Probability | |
| | | | Mathematical Induction | |
| Midterm 1 exam | | | | |
| 7-8 | 8-5-1435 H- 15-5-1435 H | Chapter 3: Trigonometry | Angles and Their Measurements | |
| | | | Right Triangle Trigonometry | |
| | | | The Sine and Cosine Functions | |
| | | | The Law of Sines | |
| | | | The Law of Cosines | |
| | | | The Graphs of the Sine and Cosine Functions | |
| | | | The Other Trigonometric Functions and Their Graphs | |
| | | | The Inverse Trigonometric Functions | |
| | | | Basic Identities | |
| | | | Verifying Identities | |
| | | | Sum and Difference Identities | |
| Double-Angle and Half-Angle Identities | | | | |
| Spring vacation | | | | |
| 9 | 29-5-1435 H | | Product and Sum Identities | |
| | | | Conditional Trigonometric Equations | |
| 10-11 | 6-6-1435 H- 13-6-1435 H | Chapter 4: Complex Numbers | Complex Numbers | |
| | | | Complex Numbers: Quadratic Equations in the Complex Number System | |

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|-------|-----------------------------|--|---------------------------------------|
| | | | Trigonometric Form of Complex Numbers |
| | | | Polar Equations |
| | | | Powers and Roots of Complex Numbers |
| 12-13 | 20-6-1435 H- 27-6-1435 H | Chapter 5: Polar Coordinates; Vectors | Polar Coordinates |
| | | | Polar Equations and Graphs |
| | | | Vectors |
| | | | The Dot Product |
| | | | Vectors in Space |
| | | | The Cross Product |
| | | | |
| 14-15 | 5-7-1435 H- 12-7-1435 H | Chapter 6: Conic Sections | Conics |
| | | | The Parabola |
| | | | The Ellipse |
| | | | The Hyperbola |
| | | | Polar Equations of Conics |
| | | Review Session | |
| 16 | 19-7-1435 H | Final Examinations | |