

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematical Sciences**  
**SYLLABUS**

Semester I, 2005-2006 (051)  
 (Prepared by Dr. M. Anwar Chaudhry)

- Course#:** Math 232  
**Title:** Introduction to Sets and Structures  
**Co-requisite:** Math 201  
**Textbooks:** (1) The Structure of Proof with Logic and Set Theory by M.L. O’Leary, 10<sup>th</sup> edition, 2002.  
 (2) Contemporary Abstract Algebra by J.A. Gallian, 5<sup>th</sup> edition, 2002.  
**Objectives:** This course is intended to introduce students to fundamental concepts in mathematics and to familiarize them with mathematical proofs and rigor. The aim is to provide students appropriate background for more advanced courses in mathematics. The course is divided into two parts. Elementary logic and set theory are introduced in the first part, while the second part is devoted to introduce students to basic concepts in group theory.

Topics	Number of Hours
<b>Part I: From Textbook#1</b>	
Chapter One: Propositional Logic	5
Chapter Two: Predicates and Proofs	7
Chapter Three: Set Theory	7
Chapter Four: Mathematical Induction	4
Chapter Five: Number Theory	5
Chapter Six: Relations and Functions	7
<b>Part II: From Textbook#2</b>	
Chapter Two: Groups	2
Chapter Three: Finite Groups: Subgroups	2
Chapter Four: Cyclic Groups	2
Chapter Six: Isomorphisms	2
Chapter Seven: Cosets and Lagrange’s Theorem	2

**Homework:** It will be announced and given every week.