Birla Institute of Technology & Science, Pilani
Hyderabad Campus

INSTRUCTION DIVISION
FIRST/ SECOND SEMESTER 2016-2017
Course Handout Part II

Date: 01.08.2016

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : **MATH F215**
Course Title : **Algebra I**
Instructor-in-Charge : **Dr JAGANMOHAN JONNALAGADDA**

Scope and Objective of the Course: The objective of this course is to teach the importance of fundamental algebraic structures in modern mathematics and to relate the general results so obtained to concrete applications.

Text Book: I. N. Herstein, Topics in Algebra, 2nd Edition, John Wiley, 1975.

Reference Books:

1. Joseph A. Gallian, Contemporary Abstract Algebra, Seventh Edition, Brooks / Cole, Cengage Learning.
2. John B. Fraleigh, A First Course in Abstract Algebra, 3rd Edition, Narosa.
3. Dummit & Foote, Abstract Algebra, Third Edition, Wiley.
4. Jacobson H., Basic Algebra I, Feemass HPC, 1982.

Course Plan:

Lecture No.	Learning objectives	Topics to be covered	Chapter in the Text Book
1 - 4	To understand the structural properties of different groups	Definition & Examples of Groups, Preliminary Lemmas	2.1 - 2.3
5 - 7		Subgroups, A Counting Principle	2.4, 2.5
8 - 10		Normal Subgroups & Quotient Groups	2.6
11 - 14		Homomorphisms, Automorphisms, Cayley's Theorem	2.7 - 2.9
15 - 18		Permutation Groups, Another Counting Principle	2.10, 2.11
19 - 22	To determine the existence of a simple group of a given order	Sylow's Theorems	2.12

23 - 24	To understand the structural properties of different rings	Definition & Examples of Rings, Ring of Real Quaternions	3.1, 3.2
25 - 26		Homomorphism & Examples	3.3
27 - 29		Ideals & Quotient Rings	3.4, 3.5
30 - 32		Field of Quotients of ID	3.6
33 - 35		Polynomial Rings, Polynomials over the Rational Field	3.9, 3.10
36 - 38		Unique Factorization Domain	3.11
39 - 40		Euclidean Rings	3.7
41 - 42		A Particular Euclidean Ring	3.8

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Test I	1 Hr.	30	8/9, 11.30-12.30 PM	Closed Book
Test II	1 Hr.	30	25/10, 11.30-12.30 PM	Open Book
Comprehensive Exam.	3 Hrs.	40	07/12 AN	Closed Book

Chamber Consultation Hour: To be announced by the respective Instructor.

Notices: The notices concerning this course will be displayed in CMS only.

Make-up Policy: Make-up for tests will be given only for very genuine cases and prior permission has to be obtained from Instructor In-charge.

INSTRUCTOR-IN-CHARGE
MATH F215