4220 – COMPUTER ORGANISATION – I

Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)			
					Theory		Practical Ex.	Total
Lectures	Practical	Credit						
4	-	4	25	-	3Hrs	100	-	125

Pre-requisite	Source
Nil	COM

Semester	Theory	Test	Total	TW	PR	Gr Total
	75	25	100	—	-	100

Rationale: Computer Organisation is concerned with the way the hardware components are connected together to form a computer system. This subject deals with one of the basic functional modules of the computer i.e. the CPU, its internal organisation & operation and how they interact to provide for the processing needs of user.

COURSE CONTENTS	Hrs	Mks
1. BUS SYSTEM	10	15

Block diagram of computer system and system architecture, Concept of stored program control, Busses types and the need for busses, The CPU Bus, System bus, Bus Organisation i.e. Single and Multiple bus system, Bus cycles and bus operations.

2. BASIC CPU ORGANISATION CPU internal architecture, Control Section – Hardware and Micro-programming, Addressing Modes, Instruction Formats, Fetching and execution of instruction, Timing diagrams, Instruction look ahead and pipelining.	20	30
3. REGISTER TRANSFER AND MICRO OPERATIONS Register transfer language, Register transfer, Bus and memory transfers, Arithmetic micro operations, Logic micro operations, Shift micro operations.	12	20
4. COMPUTER ARITHMETIC Fixed point and floating point representation of numbers, Addition and Subtraction for sign magnitude and 2's complement nos, Integer multiplication using shift and add, Booths algorithms, Division algorithms.	14	25
5. INTRODUCTION TO MULTIPROCESSING Need and advantages, Characteristic of multiprocessors, Block structure.	8	10
Total	64	100

REFERENCE BOOKS:

1. Microprocessor System Design Concepts by Nikitas A. Alexandridis
2. Computer System Architecture by M. Morris Mano
3. Digital Computer Design by V. Rajaraman
4. Computer organisation & System Architecture by Stallings.