B.Sc. Forensic Science: Semester-IV FST 406: Computer Science- IV	
Teaching Scheme	**Examination Scheme**
Lectures: 3 hrs/Week	Class Test -12 Marks
Tutorials: 1 hr/Week	Teachers Assessment – 6 Marks
Credits: 4	Attendance – 12 Marks
	End Semester Exam – 70 marks

Course outcomes:

The student will be able to understand

- the basic arithmetic of a Computer System;
- how the data is represented,
- how the various operation are performed on the data, the basic circuits to perform these operations,
- how instructions are formatted and how these instructions are executed to accomplish a particular operation.
- Student can also learn the organization of the peripheral devices, the interface between these devices to the system.
- Student can also understand the architecture of a basic computer, its registers, bus system and the interaction flow among them.

Unit I – Data Representation and basic Computer Arithmetic
• Number systems, complements, fixed and floating point representation, character representation, addition, subtraction, magnitude comparison. • Logic gates and circuits: logic gates, boolean algebra, combinational circuits, circuit simplification, introduction to flip-flops and sequential circuits, decoders, multiplexers, registers, counters.
Unit II – Basic Computer Organization and Design
• Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt. • Central Processing Unit: Register organization, arithmetic and logical micro-operations, stack organization, Hardwired vs. micro programmed control. Pipeline control: Instruction pipelines, pipeline performance, super scalar processing, Pipelining, RISC & CISC
Unit III – Programming the Basic Computer
• Instruction formats, addressing modes, instruction codes, assembly language • Memory Organization: Memory device characteristics, random access memories, serial access memories, Multilevel memories, address translation, memory allocation, Main features, address mapping, structure versus performance.
Unit IV – Input-output Organization
• Peripheral devices, I/O interface, Modes of data transfer: Programmed, Interrupt Driven and Direct Memory Access.
Unit V – Parallel processing
• Processor-level parallelism, multiprocessor architecture

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