

**SUBJECT: UNDERGRADUATE COURSE**  
**CURRICULUM 2023-24**

**PART-A: Introduction**

<b>Program: Diploma Course</b>		<b>Class: B. Sc. Semester-III</b>	<b>Year: 2023</b>	<b>Session: 2023-2024</b>
1	Course Code	<b>CSSC-3T</b>		
2	Course Title	<b>Computer System Architecture</b>		
3	Course Type	<b>Discipline Specific Core (DSC)</b>		
4	Pre-requisite (if, any)	As per Government norms / Institutional scheme		
5	Course Learning Outcomes (CLO)	<i>After completion of this course, the students will be able to:</i> <ul style="list-style-type: none"> <li>➤ Understand configuration and organization of computer system.</li> <li>➤ Understand Number system.</li> <li>➤ Identify various GATES and their function.</li> <li>➤ Understand different combinational and sequential circuit</li> <li>➤ Will help to understand basics of memory management.</li> </ul>		
6	Credit Value	<b>04 (03 Theory &amp; 01 Practical)</b>		
7	Total Marks	<b>Max. Marks: 100</b>		<b>Min Passing Marks: 40</b>

**PART -B: Content of the Course**

**Total No. of Teaching-learning - Hours- 45**

Unit	Topics (Course contents)	No. of Hours
<b>I</b>	<b>Data Representation and Number System:</b> Binary, Octal and Hexadecimal number system, Conversion from one number system to another, Binary arithmetic, BCD codes, ASCII codes, EBCDIC codes, Excess three code, Gray code, Floating point representation, Arithmetic representation of signed binary numbers, complement (n-1's and n's). Addition, Subtraction and Multiplication with different number systems.	<b>11</b>
<b>II</b>	<b>Logic Gates and Boolean Algebra:</b> Fundamental postulates of Boolean algebra, Basic theorems, De-Morgan's theorem and properties, Logic gates: Essential & Universal gates and their properties, truth table. SOP and POS form, K Map method, Don't care combinations. <b>Combinational and Sequential Circuits:</b> Multiplexer, De multiplexers, Decoders, Encoders, Half adder, Full adder, Half subtractor, Full subtractor, n-bit adder, Adder-subtractor, Flip flops, Registers, Counters.	<b>12</b>
<b>III</b>	<b>CPU Organization and Design:</b> General register organization of CPU, Stack organization, Instruction format, Addressing modes, Instruction Codes, Computer registers, Common Bus system, instruction cycle, I/O & interrupt. <b>Programming the basic computer</b> Machine language, Assembly language, Instruction format, Addressing modes, Type of interrupts, RISC versus CISC architectures.	<b>12</b>
<b>IV</b>	<b>Memory Organization:</b> Memory hierarchy, Types of memory, Associative memory, Virtual memory, Main memory, semiconductor memory, Flash memory, Cache Memory: Introduction & cache mapping techniques, DMA, Introduction to I/O organization, Magnetic disk.	<b>10</b>
<b>keywords</b>	<i>Number System, Logic Gates, K-Map, CPU, Memory</i>	

## PART-C (CSSC -3T)

### Learning Resources: Text Books, Reference Books and Others

#### Text Books:

- Computer System Architecture, M.Moris Mano, 3<sup>rd</sup> Edition, PHI / Pearson.
- Computer Organization and Architecture, William Stallings 7<sup>th</sup> Edition, PHI/Pearson.
- Operating Systems: *Concepts & design*, Milan Milenkovic, TMH.

#### Reference Books:

- Computer Architecture and Organization, John P. Hayes, TMH International Editions.
- Computer Organization and Architecture design for Performance, W. Stallings, PHI.
- Computer Engineering - Hardware Design, M. Morris Mano, PHI.
- Computer Architecture and parallel processing, Kai Hwang & Faye Briggs, McGraw hill.

## PART - D: Assessment and Evaluation

### Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Comprehensive Evaluation (CCE): 20 Marks

Semester End Exam (SEE): 80 Marks

Internal Assessment:	Class Test : 02 of 10 Marks each	Average of the marks obtained in both test (out of 10) and marks obtained in assignment (out of 10) shall be considered against 20 Marks of Internal assessment
Continuous Comprehensive Evaluation (CCE)	Assignment : 01 of 10 Marks	

Semester End Exam (SEE):	Paper (Two section – A & B) Section A: Objective and Short answer type questions : 10 + 10 = 20 Marks Section B: Descriptive answer type questions unit wise : 15 x 04 = 60 Marks
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