PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY KANURU, VIJAYAWADA

Department of Computer Science and Engineering

II B.Tech – I Semester

20CS3303 **Computer Organization & Architecture**

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| --- | --- | --- | --- | --- |
| **CO** | **Statement** | **Skill** | **Blooms** | **Units** |
| CO1 | Understand the basic functional units of a computer system and its organization. | L2 | Understand | 1, 2,3,4,5 |
| CO2 | Apply appropriate instructions for processing various types of computer operations. | L3 | Apply  Individual Performance, Communication | 1,2,4 |
| CO3 | Apply various types of organizations on registers. | L3 | Apply  Individual Performance, Communication | 3 |
| CO4 | Analyze memory hierarchy, I/O communication and pipelining. | L4 | Analyze,  Individual Performance, Communication | 4,5 |

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| **Computer Organization & Architecture** | | |
| **Unit No.** | **Contents** | **Mapped CO** |
| I | Register Transfer and Micro-Operations: Register Transfer Language, Register Transfer, memory Transfers, Bus construction with Multiplexers, Arithmetic Micro-operations, Logic Micro-operations, Shift Micro-operations, Arithmetic Logic Shift Unit. | CO1,CO2 |
| II | Basic Computer Organization: Instruction codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, MemoryReference Instructions, Input- Output and Interrupt. | CO1,CO2 |
| III | Central Processing Unit: General registers Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control. | CO1,CO3 |
| IV | Computer Arithmetic: Introduction, Addition and Subtraction, Booth Multiplication Algorithm. Memory Organization: Memory Hierarchy, Main Memory, Auxiliary memory, Associative Memory, Cache Memory, Virtual Memory. | CO1,CO2, CO4 |
| V | Input-Output Organization: Peripheral Devices, Input-output Interface, Asynchronous Data Transfer, Priority Interrupt, Direct Memory Access (DMA), Input-Output Processor. Pipeline and Parallel Processing: Parallel processing, Pipelining, Arithmetic pipeline, Instruction pipeline. | CO1,CO4 |

**CO-PO Mapping**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Contribution of Course Outcomes towards achievement of Program Outcomes** | | | | | | | | | | | | | | |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| **CO1** | **√** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **CO2** |  |  |  |  |  |  |  |  | **√** | **√** |  |  | **√** |  |
| **CO3** |  |  |  |  |  |  |  |  | **√** | **√** |  |  | **√** |  |
| **CO4** |  | **√** |  |  |  |  |  |  | **√** | **√** |  |  |  |  |

**Strength of Correlation**

Distribution of marks weightage to PO’s through CO’s.

* The strength of correlation levels is based on percentage of marks distribution towards PO.

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| CIE | **Test** | **Test Number** | **Marks** |
| ObjectiveExam (10) | Objective Exam-1 | 10 |
| Objective Exam-2 | 10 |
| Assignment (5) | Assignment -1 | 5 |
| Assignment - 2 | 5 |
| DescriptiveExam (15) | Descriptive Exam - 1 | 15 |
| Descriptive Exam - 2 | 15 |

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| **CO** | **Skill** | **Blooms** | **Units** | **Assessing Tools can be used to measure CO (CIE)**  **Marks** | **Assessing Tools can be used to measure CO (SEE)**  **Marks** |
| CO1 | Understand | L2 | 1,2,3,4,5 | Objective Exam (10) | 14 |
| CO2 | Apply,  Individual Performance, Communication | L3 | 1,2,4 | Descriptive Exam(7.5)  Assignment (1.5)  (0.5+0.5+0.5) | 21 |
| CO3 | Apply,  Individual Performance, Communication | L4 | 3 | Descriptive Exam(5)  Assignment (1.5)  (0.5+0.5+0.5) | 14 |
| CO4 | Analyze,  Individual Performance, Communication | L4 | 4,5 | Descriptive Exam(2.5)  Assignment (2)  (1+0.5+0.5) | 21 |

**Strength of Correlation**

|  |  |
| --- | --- |
| **% of questions towards PO** | **Level (Weight)** |
| >=20% of total marks | 3 |
| >=10% and <20% of total marks | 2 |
| <10% of total marks | 1 |

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| **CO** | **Skill** | **Bloom's** | **Units** | **Assessing tools can be used to measure CO (CIE) Marks** | **CIE(Total)** | **Assessing tools can be used to measure CO (SEE) Marks** | **Total (CIE+SEE)** | **Percentage (%)** | **Strength of Correlation** | **PO** |
| **CO1** | Understand | L2 | 1,2,3,4,5 | Objective Exam (10) | 10 |  | 10 | 10% | 2 | PO1 |
| **CO2** | Apply,  Individual Performance, Communication | L3 | 1,2,4 | Descriptive Exam(7.5)  Assignment (1.5)  (0.5+0.5+0.5) | 8  0.5  0.5 | 35 | 43  0.5  0.5 | 43%  0.5%  0.5% | 3  1  1 | PSO1  PO9, PO10 |
| **CO3** | Apply,  Individual Performance, Communication | L3 | 3 | Descriptive Exam(5)  Assignment (1.5)  (0.5+0.5+0.5) | 5.5  0.5  0.5 | 14 | 19.5  0.5  0.5 | 19.5%  0.5%  0.5% | 2  1  1 | PSO1  PO9, PO10 |
| **CO4** | Analyze,  Individual Performance,  Communication | L4 | 4,5 | Descriptive Exam(2.5)  Assignment (2)  (1+0.5+0.5) | 3.5  0.5  0.5 | 21 | 24.5  0.5  0.5 | 24.5%  0.5%  0.5% | 3  1  1 | PO2,  PO9, PO10 |

**Course Articulation Matrix:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of Correlations (3:Substantial, 2: Moderate, 1:Slight)** | | | | | | | | | | | | | | |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| **CO1** | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **CO2** |  |  |  |  |  |  |  |  | 1 | 1 |  |  | 3 |  |
| **CO3** |  |  |  |  |  |  |  |  | 1 | 1 |  |  | 2 |  |
| **CO4** |  | 3 |  |  |  |  |  |  | 1 | 1 |  |  |  |  |
| **Average** | 2 | 3 |  |  |  |  |  |  | 1 | 1 |  |  | 2 |  |

Course Coordinators:

1. Ms.T.Sri Lakshmi
2. Ms.D.Swapna

Module Coordinator:

A.Madhuri

Program Coordinator:

Dr. Lakshmi Ramani B.