

| Computer Organization and Assembly Language - Lab                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                         |              |           |                |          |
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| Credit Hours:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1                                                                                                       | Course Code: | COSC-3214 | Prerequisites: | None     |
| Course Learning Outcomes (CLOs):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                         |              |           |                |          |
| At the end of the course the students will be able to:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                         |              |           | Domain         | BT Level |
| 1. Acquire the basic knowledge of computer organization computer architecture and assembly language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                         |              |           | C2(Understand) | 2        |
| 2. Understand the concepts of basic computer organization, architecture, and assembly language techniques                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                         |              |           | C2(Understand) | 2        |
| 3. Solve the problems related to computer organization and assembly language                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                         |              |           | C3 (Apply)     | 3        |
| * BT= Bloom’s Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                         |              |           |                |          |
| OG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Relevant CLOs                                                                                           |              |           |                |          |
| OG 4: Quality Education                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CLO 1: Acquire the basic knowledge of computer organization computer architecture and assembly language |              |           |                |          |
| OG 9: Industry, Innovation and Infrastructure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CLO 3: Solve the problems related to computer organization and assembly language                        |              |           |                |          |
| Course Contents:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                         |              |           |                |          |
| Explore debugger using different commands, practice of basic functionality of assembly language, implementation of new line using carriage return, line feed and macro, applying the concept of displaying string in assembly language, to implement the concepts of loop in assembly language, to implement the concept of stack in assembly language, applying the hardware interrupts using mouse processing, practice the basic operations of mouse programing, practice to access data using mouse triggers (hide and show mouse), understand and apply the different operations of mouse button (left-right-center button), program to display digits in decimal, from 0-7 into 7-segment, to initialize and get location of mouse and display the message, exploring the ardino uno board and write program in ROM, programming using ardino and display a message at 3x3 LCD and protious, programming 8051 i/o ports as input ports and output ports ardino. |                                                                                                         |              |           |                |          |
| Teaching Methodology:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                         |              |           |                |          |
| Lectures, Written Assignments, Practical labs, Semester Project, Presentations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                         |              |           |                |          |
| Course Assessment:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                         |              |           |                |          |
| Sessional Exam, Home Assignments, Quizzes, Project, Presentations, Final Exam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                         |              |           |                |          |
| Reference Material:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                         |              |           |                |          |
| 1. Assembly Language Programming for Intel- Computer, Latest Edition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                         |              |           |                |          |
| 2. Computer System Architecture, M. Morris Mano, Latest Edition,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                         |              |           |                |          |
| 3. Robert Britton, MIPS Assembly Language Programming, Latest Edition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                         |              |           |                |          |