

<b>Course Name:</b> Machine and Assembly Language	<b>Course Code:</b> ITSE4201
<b>Pre-Requisite:</b> 1) Introduction to Programming 2) Discrete Structures	<b>Credit Hours: 3</b>
<b>Passing Grade:</b> C	<b>Level: Year 4</b>
<b>No. Of Theory &amp; Practical Hours: (1 : 4)</b>	
<b>Goal:</b> To provide concepts of computer organization and to develop skills in assembly language programming.	
<b>Objectives:</b> The course should enable the student to : <ol style="list-style-type: none"> <li>1. Understand computer architecture.</li> <li>2. Simplify Boolean expressions.</li> <li>3. Construct Sequential and Combinational logic circuits.</li> <li>4. Discuss Micro programmed Control.</li> <li>5. Discuss Input / Output and Memory Organization.</li> <li>6. Explain pipelining and Vector Processing.</li> <li>7. Apply instruction set.</li> <li>8. Construct assembly language programs and logic circuits using appropriate tool.</li> </ol>	
<b>Outcomes:</b> At the end of this course, students should be able to:	<b>Method</b>
<ol style="list-style-type: none"> <li>1. Discuss the organization of computers such as Von-Neumann machine and their major functional units</li> <li>2. Use methods to reduce Boolean expressions.</li> <li>3. Construct sequential and combinational logic circuits.</li> <li>4. Discuss architecture of a processor and its components</li> <li>5. Discuss Micro-programmed Controller</li> <li>6. Apply instruction set architecture and Addressing modes</li> <li>7. Apply Data transfer, Arithmetic, Logic instructions</li> <li>8. Apply Machine control and interrupt instructions</li> <li>9. Describe Pipelining and Vector Processing.</li> <li>10. Describe Various interconnection structures</li> <li>11. Discuss different Memory Organizations and operations.</li> <li>12. Describe Input-Output Organization.</li> <li>13. Construct assembly language programs using appropriate tool.</li> <li>14. Construct sequential and combinational logic circuits using appropriate tool.</li> </ol>	Theory  Theory and Practical  Theory and Practical  Theory  Theory  Theory and Practical  Theory and Practical  Theory and Practical  Theory  Theory  Theory  Theory  Practical  Practical

**Software Tools:**

8086 Emulator, Logisim

**Text Book:**

1-Computer Organization and Assembly Language Programming Michael Thorne

**Reference Book:**

1-Principles of Computer Organization and Assembly Language [Patrick Juola] on Amazon.com

2- Computer Organization, Carl Hamacher, Zvonko Vranesic, Safwat Zaki, McGraw Hill

