

<b>Subject</b>	Programmable Logical Controller I	<b>Course Code</b>	CT314	<b>Theoretical</b>	3hrs / wk
<b>Semester</b>	5	<b>Prerequisite</b>	CT212	<b>Practical</b>	3hrs / wk

<b><u>Program Learning Component</u></b>			
<b>Week 1-3</b>	<b>1. Understanding the structure, programming and the application fields of a PLC system</b> <b>2. writing simple ladder logic programs</b>		
	<b>Specific Learning Outcomes</b>	<b>Resources</b>	<b>Practical</b>
	<ul style="list-style-type: none"> <li>• Introduction to PLC</li> <li>• Basics [hardware configuration] for a PLC system.</li> <li>• Identification of input/output and bit addresses</li> <li>• Programming device. (personal computer/software)</li> <li>• PLC operation</li> <li>• Ladder diagram programming</li> </ul>	<ul style="list-style-type: none"> <li>• White board</li> <li>• Data show</li> <li>• Computers</li> <li>• Text book</li> <li>• Work book</li> </ul>	<ul style="list-style-type: none"> <li>• PSIM software</li> </ul>
<b>Week 4-6</b>	<b>3. Understanding the concept of memory in PLC systems</b> <b>4. Design basic input and output wiring.</b>		
	<b>Specific Learning Outcomes</b>	<b>Resources</b>	<b>Practical</b>
	<ul style="list-style-type: none"> <li>• PLC Memory</li> <li>• Input interfaces</li> <li>• Output interfaces</li> <li>• Input/contact instructions</li> <li>• Output/coil instructions</li> <li>• System and I/O power distribution wiring</li> </ul>	<ul style="list-style-type: none"> <li>• White board</li> <li>• Data show</li> <li>• Computers</li> <li>• Text book</li> <li>• Work book</li> </ul>	<ul style="list-style-type: none"> <li>• MicroLogix 1000 PLC</li> <li>• lamp control circuits</li> <li>• Forward/Reverse Motor Circuit</li> </ul>
<b>Week 7-9</b>	<b>5. Using timer operations and the differentiate between timers.</b> <b>6. Understanding and using Latching instructions</b> <b>7. Operating principles of Program control instructions</b>		
	<b>Specific Learning Outcomes</b>	<b>Resources</b>	<b>Practical</b>
	<ul style="list-style-type: none"> <li>• Timing instructions</li> <li>• Latching instructions</li> </ul>	<ul style="list-style-type: none"> <li>• White board</li> <li>• Data show</li> </ul>	<ul style="list-style-type: none"> <li>• Using timer instructions</li> </ul>

		<ul style="list-style-type: none"> <li>• Computers</li> <li>• Text book</li> <li>• Work book</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic light control</li> </ul>
<b>Week 10-12</b>	<b>8. Design and operating principles of counters in PLC</b> <b>9. Understanding the "Force" function</b>		
	<b>Specific Learning Outcomes</b>	<b>Resources</b>	<b>Practical</b>
	<ul style="list-style-type: none"> <li>• Counting instructions</li> <li>• Forces</li> <li>• Program control instructions</li> </ul>	<ul style="list-style-type: none"> <li>• White board</li> <li>• Data show</li> <li>• Computers</li> <li>• Text book</li> <li>• Work book</li> </ul>	<ul style="list-style-type: none"> <li>• Using Counter instructions</li> <li>• Forcing inputs/outputs</li> </ul>
<b>Week 13-14</b>	<b>10. Interpreting the displays of the "Monitor" in LAD Editor and use them for troubleshooting</b>		
	<b>Specific Learning Outcomes</b>	<b>Resources</b>	<b>Practical</b>
	<ul style="list-style-type: none"> <li>• Progame Monitoring</li> <li>• Error diagnostica/ error handling</li> <li>• Documentation</li> </ul>	<ul style="list-style-type: none"> <li>• White board</li> <li>• Data show</li> <li>• Computers</li> <li>• Text book</li> <li>• Work book</li> </ul>	<ul style="list-style-type: none"> <li>• Error diagnostica</li> <li>• Documentation</li> </ul>