Subject	Programmable Logical Controller II	**Course Code**	CT315	**Theoretical**	3hrs / wk
Semester	6	**Prerequisite**	CT314	**Practical**	3hrs / wk

Program Learning Component

Week 1-3

1. Introduction to IEC 61131 standards
2. The principle of FBD and STL programming languages

Specific Learning Outcomes	Resources	Practical
• Standards and protocols • IEC61131 • Advanced PLC programming, FBD statement list.	Board Data show Text book PC	• FBD, Statement list Programming • using(S7-PLCSIM)

Week 4-6

3. Understanding the principle of "structured programming"
4. Using analog inputs and outputs in a PLC systems

Specific Learning Outcomes	Resources	Practical
• Structured programming. • Analog input modules • Analog output signals	Board Data show Text book PC	• Structured program • Analog-related program functions

Week 7-9

5. Studying the Diagnostics techniques of PLC
6. Documenting tools used in PLC system (software/ hardware)

Specific Learning Outcomes	Resources	Practical
• Diagnostics • Documenting, Saving, Archiving	Board Data show Text book PC	• Testing • Debugging Monitoring • Displaying the diagnostic buffer of the CPU

Week 10-12

7. An overview of Data communication
8. Introduction to Field bus systems

Specific Learning Outcomes	Resources	Practical
• Data communication.	Board	• Simple networking

	• Networking; hierarchical structures. • Introduction to Field bus systems. • Profibus • Device-net • Introduction to Industrial Ethernet technology.	Data show Text book PC	MPI • Profibus DP
Week 13-14	**9. An introduction to process visualization** **10. Definition, explanation the DCS systems in industrial application** **11. An overview of SCADA system**		
	Specific Learning Outcomes	**Resources**	**Practical**
	• Process visualization, The man (human)–machine interface (HMI) • Distributed Control System (DCS) • SCADA system	Board Data show Text book PC	