



GOVERNMENT OF TAMILNADU

DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI-25

STATE PROJECT COORDINATION UNIT

(Established under Canada India Institutional Cooperation Project)

CURRICULUM

Course Name	LABVIEW PROGRAMMING
Course Code	EC/2020/013
Course Duration	60 Hours
Minimum Eligibility Criteria	10 th /+2 /ITI/Diploma/Graduate
Pre-requisites (if any)	-
Course Objectives	Training module has been designed for the participants to • Understand the structure of LabViewprogram. • Understand the available tools and blocks in LabView Environment. • Practice on creating applications in LabView.
Course Outcomes	At the end of training, the trainees will be able to • Explain the structure of LabView. • Create program in LabView using Loops. • Troubleshoot and debugging in VIs.
Expected Job Roles	Lab View Programmer

TEACHING AND SCHEME OF EXAMINATION						
Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
EC/2020/013	LABVIEW PROGRAMMING	Theory	24	10	20	3 Hours
		Practical	36	40	80	
		Total	60	50	100	

EC/2020/013- LABVIEW PROGRAMMING

DETAILED SYLLABUS

Unit No	Modules	No.of.Hours	
		Theory	Practical
I	Basics of LabVIEW	15 Hours	
1.1	Introducing LabVIEW and VI	09	06
1.2	Comparison with Text based Programming		
1.3	Parts of VI - Front Panel - Block Diagram - Icon And Connector Panel - Controls Pallete - Functions Pallete - Documentation of VIs		
1.4	Pop-up menus – Color Coding – Code dubugging		
II	Troubleshooting and Debugging VIs	15 Hours	
2.1	Indicators – Controls- wiring the controls and indicators- building Vis- run modesdata	05	10
2.2	Types in LabVIEW - development of GUIs- LabVIEW help		
2.3	Searching controls, VIs and functions- implementing a VI- basic arithmetic in LabVIEW		
2.4	Understanding the dataflow programming model of LabVIEW		
2.5	Tools for developing, cleaning and organizing your Vis - Using Express VIs to build a basic VI		
2.6	Correcting broken Vis - Implementing error checking and error handling - Using common debugging techniques		
III	Implementing a VI	15 Hours	
3.1	Data type- Case structures-Arithmetic functions- Expression node- Formula node-Compound arithmetic-Comparison pallete	05	10
3.2	Boolean pallet Property node- loops in LabView– FOR loop- WHILE loop-feedback loop shift register		
3.3	Arrays -Various functions of arrays-strings- various functions of strings- clusters -various functions of clusters		

IV	Modularity and Accessing Files in LabView	15 Hours	
4.1	Basics of modular programming	05	10
4.2	Techniques for creating subVIs in LabView		
4.3	Connecting icon and connector pane- using subVIs in other programs		
4.4	Sequence structures – flat sequence structures- stacked sequence structures - Using a VI as a subVI - Creating subVIs from an existing VI		
4.5	High-level and low level file I/O functions available in LabVIEW		
4.6	Understanding Measurement Concepts		
Total theory / Practical Hours		24	36
Total hours		60	

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1	PC/Laptop

SOFTWARE REQUIREMENT

S.NO	LIST OF SOFTWARE
1	LabVIEW

REFERENCE BOOKS

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1	Virtual Instrumentation Using LabVIEW	Gupta	Tata McGraw-Hill Education,
2	LabVIEW for Everyone	Jeffrey Travis Jim Kring	Pearson Education India
3	Analog Electronics with LabVIEW	Kenneth L. Ashley	Prentice Hall Professional
4	NI LabVIEW Manual	National Instruments	National Instruments

ASSESSMENT AND CERTIFICATION

S.No	Criteria for assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the CIICP Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the CIICP Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The passing criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training, certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnics.

END EXAMINATION

ALLOCATION OF MARKS

S.NO	Description	Max. Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Objective and Circuit Diagram	20
	b)Procedure and Connections / Execution	20
	c)Result and Viva	20
	d)Record	20
Total Marks		100

THEORY MODEL QUESTION PAPER
EC/2020/013 – LABVIEW PROGRAMMING

(Maximum Marks: 20)

(N.B: Answer any Twenty questions)

20x1= 20 Marks

1. What are the parts of VI?
2. Expand the term LABVIEW.
3. What are the types of Sub Palettes in LabVIEW?
4. Compare text based programming with graphical programming.
5. Draw the symbol for breakpoint and probe icon for code debugging.
6. What are the different types of control and indicator in LabVIEW?
7. Expand the term GUI.
8. What are the types of error handling in LabVIEW?
9. Draw the symbol of Boolean control and indicator in LabVIEW.
10. What is CORRECTING BROKEN Vis?
11. What are the various types of array in LabVIEW?
12. Define string.
13. What are the various types of clusters in LabVIEW?
14. Define index array.
15. What is the function of shift register in LabVIEW?
16. Define modular programming.
17. What is the use of sequence structure in LabVIEW?
18. Expand the term DMM.
19. Draw a flowchart of WHILE loop in LabVIEW.
20. Draw a flowchart of FOR loop in LabVIEW.
21. Draw a block diagram of shift register in LabVIEW.
22. What is concatenate string?
23. Write the syntax for case structure in LabVIEW.
24. What are the built in function used in expression mode?
25. Draw the symbols of Boolean palette in LabVIEW.