Applied Instrumentation

Module Information

2022.01, Approved

Summary Information

Module Code	5312CIT
Formal Module Title	Applied Instrumentation
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Changshu Institute of Technology

Learning Methods

Learning Method Type	Hours
Lecture	32
Practical	16

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module is designed to develop the G programming language required to design and implement applications in the engineering.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Demonstrate capability with graphical programming environment, learning graphical programming language and G programming language
MLO2	2	Use LabVIEW to design a simple control system simulation.
MLO3	3	Use LabVIEW to control external hardware.
MLO4	4	Perform data collection, analysis and storage.

Module Content

Outline Syllabus	1 LabVIEW Basics1.1 The LabVIEW Environment1.2 Panel and Diagram Windows 1.3 Palettes -Tools Palette, Controls Palette, Functions Palette1.4 Opening, Loading, and Saving VIs 1.5 LabVIEW Help2 Virtual Instruments 2.1 Numeric Controls and Indicators 2.2 Boolean Controls and Indicators 2.3 Data Flow Programming 2.4 Building a VI 3 Structures3.1 Flat Sequence Structures 3.2 The For Loop3.3 The While Loop 3.4 Shift Registers and Feedback Nodes 3.5 Case Structures3.6 The Formula Node 3.7 Local Variables 4 Arrays and Clusters 4.1 Arrays 4.2 Array Functions 4.3 Clusters4.4 Cluster Functions5 Charts and Graphs5.1 Waveform Charts 5.2 Waveform Graphs 5.3 XY Graphs 5.4 Customizing Charts and Graphs 6 Strings and File I/O 478 6.1 Strings6.2 Strings Functions 6.3 File I/O 6.4 File I/O Functions7 Data Acquisition 7.1 Components of a myDAQ7.2 Analog Input 7.3 Analog Output7.4 Digital Input and Output7.5 Using the DAQ Assistant
Module Overview	
Additional Information	The modules introduces students the syntax of G programming language, the platform of programming, and its application to electronics.Reports are 2500 maximum word count.Examinations are 2 hour duration.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Examination	60	2	MLO1, MLO2
Technology	Programming	40	0	MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Dingli Yu	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings