Program Structure

Program Name	Certificate Course in IoT – Hardware Solution Designer
Proposed Program Duration	250 hours
Overview of program	• Industry Sector – Responsible for designing and implementing Hardware for various Applications alongwith programming and troubleshooting. • Skills acquired includes – Generic: IoT Basics Technical: Embedded Systems, Sensors Interfacing & Troubleshooting, Embedded Systems, Raspberry Pi, Cloud IoT Professional: Development of various IoT Applications.
Program Objectives	• To understand Basic Concepts of IoT. • Understand the Hardware parts of IoT. • Develop programming skills. • Understand the working of IoT Network. • Use of IoT Hardware for implementing various applications.
Target group of learners	• Bachelor's Degree in Engineering / Technology / Statistics / Mathematics / Computer Science • Diploma in Electronics/E&TC/Computer/IT with 3-4 years of Experience. • BSC Electronics/ Technology/ Mathematics/ Statistics/Computer
Job Role	Individuals at this job are responsible for the selection, design, assembly and integration of hardware components and embedded firmware with the IoT solution. They are also responsible for associated documentation related activities so the solution components can be used by other stakeholders developing the IoT solution. The scope of this job role does not include the development, testing and validation of hardware systems, including circuits, chipsets and Printed Circuit Boards.
Brief Job Description	Individuals at this job are responsible for developing applications and platforms in IoT. S/he will be responsible for developing software code to deploy programming as per the needs of the Application and evaluating the technical performance of the same.
Learning Outcomes	At the end of the program students will able to • Describe IoT components and explain the basic concepts of a IoT. • Explain and apply the concept of Interfacing of Sensors. • Explain the concept of Networking used in IoT and various Protocols.

	• Design and program IoT Applications using Raspberry Pi. • Elaborate the various occupations under the Future Skills sub sector and the impact of these on organizations and businesses. • Discuss the evolution of IoT and evaluate the possible impact of IoT on businesses and society • List common security and privacy risks that affect IoT solutions and methods that mitigate them • Comprehend product engineering concepts such as translating requirements into products and ensuring their timely delivery • Use development tools, frameworks, platforms, libraries and packages to test hardware and software systems • Evaluate the concepts and tools required to design hardware for IoT solutions • Evaluate the concepts and tools required to design and develop embedded systems for IoT solutions • Demonstrate how to configure embedded firmware • Create various types of technical documents • Develop knowledge, skills and competence by identifying avenues and creating plans for self-development • Build professional relationships by establishing rapport, listening actively and appreciating colleagues			
A. Curriculum and Pedagogy	**Module**	**Module Name**	**TH**	**PR/ Skills**
	IoT101	Introduction to IoT	5	10
	IoT 102	Hardware for IoT / IoT Platforms	5	10
	IoT 103	Micro-controller programming using Arduino platform	8	20
	IoT 104	Various Sensors used & Interfacing Techniques	6	16
	IoT 105	Networking Protocols for IoT	4	14
	IoT 106	Building IoT Applications using Raspberry Pi	6	16
	IoT 107	IoT Cloud Infrastructure	5	10
	IoT 108	Project	5	30
	IoT 109	Soft Skills (IDSC)	15	35
		Examination	10	20

	Total HOURS	**70**	**180**