ITEC (2022-2023)

SPECIALIZED TRAINING PROGRAMME IN

INTERNET OF THINGS APPLICATIONS IN AGRICULTURE

1	Name of the Institute	Centre for Development of Advanced Computing, Mohali
2	Name of the Course	Specialized Training Programme in Internet of Things Applications in Agriculture
3	Proposed Dates and Duration of the Course in week	23rd Feb – 22nd March 2023 4 Week(s)
4	Mode of Training	Offline
5	Start date	23rd February , 2023
6	End date	22nd March, 2023
7	Eligibility Criteria for Participants: A. Educational Qualification	Diploma/ Technical Graduates in Electronics, Electrical, and Computer science Engineering.
	B. Work Experience	As per MEA guidelines
	C. Age Limit	As per MEA guidelines
	D. Target group (Level of participants and target ministry/department etc. may be identified)	Government officials, Faculty members from reputed institutes/groups (Electronics, Electrical, and Computer science Engineering)
8	Aims & Objectives of the Course	• To develop in-depth understanding of Automation in agriculture using IOT • To make the participants understand IOT and its programming interface with components used in various applications. • To provide the theoretical as well the practical knowledge on IoT in Agriculture sector using case studies.
9	Details / Content of the Course (please attach detailed Course Profile)	**The course content are :** • **Introduction to IoT** The Internet of Things Today, Time for Convergence, Towards the IoT Universe, Internet of Things Vision, IoT Strategic Research and Innovation Directions, IoT Applications, Future Internet Technologies, Infrastructure, Networks and Communication, Processes, Data Management, Security, Privacy & Trust, Device Level Energy Issues,

		IoT Related Standardization • **Introduction to Programming** Introduction to Arduino Programming, MCU microcontroller, Pin diagram and functionality, Peripheral programming – Displays, ADC, UART, SPI, WiFi, Bluetooth, I^2C etc. • **IOT programming using MCU** Introduction to Embedded programming, Integration of Sensors and Actuators with Arduino. • **Hands-on session** Timer based LED Toggling, Transmitting a string and Controlling LEDs blinking pattern through UART, Echo each character typed on serial terminal, Digital IO configuration, On-chip Temperature measurement through ADC, Interfacing with Raspberry pi/ Arduino board/Ubisense, I^2C protocol, Reading Temperature and Relative Humidity value from the sensor, Reading Light intensity value from light sensor, Reading of atmospheric pressure value from pressure sensor, Proximity detection with IR LED, Generation of alarm through Buzzer, Transmitting the measured physical value over the Air. • **Case Studies (IoT in Agriculture)**
10	Mode of Evaluation of Performance of the ITEC Participant	Viva-voce, PPTs and Practical