(069-CSE-04-03) CSE (IOT & AUTOMATION)

Significance of the Program:

The world is undergoing significant transformation due to the rapid expansion of the "Internet of Things" (IoT). The decreasing costs of standard IoT components are empowering individuals to create innovative designs and products within their homes. This initial course in the specialization will impart knowledge about the societal significance of IoT and Automation, recognizing that both these technological domains play integral roles in reshaping industries and daily life. The curriculum will delve into IoT design considerations, limitations, and the interface between the physical world and devices, emphasizing the interconnected nature of IoT and the automation systems that drive its functionality.

Career Options:

Pursuing a professional course in IoT and animation, students can explore the following opportunities:

- IoT Developer: Design, develop, and implement software and applications for IoT devices. Work on creating connectivity solutions and protocols for IoT ecosystems.
- Embedded Systems Engineer: Develop and maintain embedded systems for IoT devices. Design hardware and firmware components to enable device functionality.
- Automation Engineer: Implement and optimize automated systems in manufacturing and industrial settings. Work on the design and deployment of robotic systems.
- Data Scientist/Analyst for IoT: Analyze large volumes of data generated by IoT devices to derive insights. Develop algorithms and models for predictive analysis and decision-making.
- IoT Security Specialist: Focus on securing IoT devices and networks against cyber threats. Develop and implement security protocols for connected devices.
- Network Engineer for IoT: Design and manage networks that connect IoT devices to the internet. Ensure efficient and secure communication between devices.

Program Objectives:

1. Develop students' proficiency in designing robust IoT systems.
2. Equip students with the skills necessary to integrate and optimize automation systems.
3. Instill an understanding of the critical importance of security and ethical considerations in IoT applications.

Outcomes of the Program:

- Enables them to understand the architecture of IoT systems, encompassing the integration of sensors, communication protocols, and actuators.
- Enables them to be proficient in implementing automation systems, including the use of Programmable Logic Controllers (PLCs), industrial robotics, and control systems.
- Enables them to possess expertise in implementing security measures for IoT devices and networks.
- Enables them to demonstrate an understanding of ethical considerations associated with IoT and Automation.

Major Course Outlines:

1. IoT and Automation

2. IoT System Design and Implementation

3. Automation Technologies and Applications

4. Security and Ethical Considerations in IoT