

Course Title	<b>IoT: Connecting Things</b>
Course Code	<b>CSN 213</b>
Course Purpose and Objectives	The aim of this course is to enforce students to explore the three basic insights of the Internet of Things: Why do we want to connect everything? What do we want to connect? And how do we connect everything? A typical IoT solution includes sensors, local analytic abilities, network connections, and the ability to process and analyze the gathered data. Overall it is important to understand how a product or a process or a business can be improved with the instrumentation and the collection of data. It all starts with the connection of a sensor to a gateway and from there to the network and the cloud.
Learning Outcomes	<ol style="list-style-type: none"> <li>1. Create circuits and microcontroller programs with Arduino and a variety of components.</li> <li>2. Create Python programs on the Raspberry Pi to provide IoT functionality.</li> <li>3. Use Packet Tracer to model Python-based IoT systems.</li> <li>4. Analyse a business model using the Business Model Canvas.</li> <li>5. Explain security aspects of IoT solutions.</li> <li>6. Explain how the IoT can be used to provide solutions in healthcare, energy and smart-city and manufacturing.</li> </ol>
Course Content	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Exploring Microcontrollers (Raspberry Pi and Arduino)</li> <li>• Programming Microcontrollers (Python / JavaScript)</li> <li>• Collecting and Processing Data</li> <li>• IoT and its applications in the Industry</li> <li>• Become an inventor – Hackathon Challenge</li> <li>• Laboratory Work</li> </ul>