COURSE	**Course Name**	: IoT Technology
	Course Code	: VI231526
	Credit	: 3 SKS
	Semester	: V

DESCRIPTION OF COURSE
IoT Technology is one of the mandatory compulsory courses in the Instrumentation Engineering Technology Study Program. This course focuses on the study of the application and integration of IoT technology in instrumentation and measurement systems. The IoT Technology course aims to provide an understanding of the concepts, technology and applications of IoT Technology in the context of instrumentation and measurement. Students are expected to be able to understand the basic principles, capabilities and potential of IoT, and be able to design and implement effective IoT systems in the field of Instrumentation Engineering
LEARNING OUTCOMES
▪ Able to manage one's own learning, and develop oneself as a lifelong learner to compete at national and international levels, in order to make a real contribution to solving problems by implementing information and communication technology and paying attention to the principles of sustainability and understanding technology-based entrepreneurship. (CPL-3) ▪ Able to communicate, write reports and make presentations effectively. (CPL-4) ▪ Able to select, use and apply appropriate techniques and resources including the use of the latest hardware and software to provide solutions to problems in the field of Instrumentation engineering. (CPL-9)

- Able to understand and evaluate the sustainability impact of Instrumentation engineering technology work on the environment and society. (CPL-11)
- Demonstrate knowledge and understanding of engineering management principles and apply them to one's own work as both a member and leader of a team to manage projects in a multidisciplinary environment. (CPL-12)

COURSE LEARNING OUTCOME

- Able to understand the principles, architecture and applications of IoT technology
- Able to understand the use of sensor, controller and actuator devices
- Able to understand the basic principles of IoT technology protocols
- Able to understand IoT technology for measurement systems
- Able to understand IoT technology for control systems
- Able to understand and create simple IoT Dashboards

MAIN SUBJECT

- Introduction to Internet of Things technology
- Principles, architecture and applications of IoT technology
- Use of sensors, controllers and actuators
- Introduction of IoT technology protocols
- IoT technology programming
- IoT technology standards
- IoT technology for measurement systems
- IoT technology for control systems
- IoT Dashboard
- Introduction to IoT technology database
- Interface with applications
- Data Analysis on IoT Technology

PREREQUISITES

REFERENCE

Main:

1. "Internet of Things: Principles and Paradigms" by Rajkumar Buyya, Amir Vahid Dastjerdi, dan Samarjit Chakraborty: This book provides a comprehensive overview of the basic concepts, principles and paradigms of the Internet of Things. It covers topics such as IoT architecture, communication between devices, resource management, and IoT applications.
2. "Building the Internet of Things: Implement New Business Models, Disrupt Competitors, and Transform Your Industry" by Maciej Kranz: This book provides a practical understanding of the implementation of the Internet of Things in various industrial fields. It includes business strategy, architectural design, and case studies of the use of IoT in a business context.
3. "Internet of Things for Architects: Architecting IoT solutions by implementing sensors, communication infrastructure, edge computing, analytics, and security" by Perry Lea: This book provides a practical guide for architects and developers to design and implement IoT solutions. It covers topics such as sensors, communications infrastructure, edge computing, analytics, and security in the context of IoT.
4. "IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things" by David Hanes, Gonzalo Salgueiro, and Patrick Grossetete: This book provides an understanding of the network technologies used in IoT, IoT communication protocols, and case studies of IoT use in various industries.

Supplementary:

1. Journals and conference proceedings: Following journals and conference proceedings related to IoT can provide access to the latest research and developments in the field. Some relevant journals include "IEEE Internet of Things Journal", "International Journal of Distributed Sensor Networks", and "Sensors".

2. Online materials and tutorials: Online resources such as websites, blogs and tutorials can provide the latest information and practical guidance on various aspects of IoT Technology. Several online learning platforms such as Coursera, edX, and Udemy also offer courses focused on IoT Technology.