

Year (Semester)	Course Title	Course Code	L-T-P-Credits
3rd Year (5 th Semester)	Fundamentals of SCADA	EET B2 902	3-0-0-3
Evaluation Policy	Mid-Term	Internal Assessment	End-Term
	26 Marks	24 Marks	50 Marks

Pre-requisites: None.

Course Outcomes: At the end of the course, the student will be able to:

CO No.	Course Outcome	Bloom's Taxonomy Level
CO1	Understand and explain the architecture and components of SCADA systems.	3
CO2	Identify various SCADA communication protocols and techniques.	4
CO3	Analyse supervisory control functions and their implementation.	5
CO4	Apply SCADA concepts to real-world industrial applications.	4

Detailed Syllabus:

Module No.	Contents	Hours
Module 1	Introduction to SCADA: Advantages, General Structure, Architecture, Classification of SCADA systems.	07
Module 2	Components of SCADA Systems, Remote Terminal Unit (RTU), Communication Subsystem, Protocols, Logic Subsystem, Termination Subsystem, Test and Power Supply Subsystem, Master Station (MTU), Human Machine Interface, Data Concentrators, Intelligent Electronic Devices.	10
Module 3	Supervisory and Control Functions: Overview of the methods of data acquisition systems, commonly acquired data, status indications, measured values, energy values, monitoring alarm and event application processing, Functions of SCADA	10
Module 4	SCADA Communication and Protocols: SCADA Communication Requirements, SCADA Communication system topologies, Data Communication Techniques: Master Slave, Peer to Peer; Broadcast and Multicast.	09
Module 5	Energy Management System: Introduction to EMS, Architecture and working of EMS, Applications of SCADA to EMS	06

Books Recommended:

1. Stuart A. Boyer, SCADA- Supervisory Control and Data Acquisition, ISA
2. David Bailey and Edwin Wright, Practical SCADA for Industry, Elsevier.
3. Mini S. Thomas and John Douglas McDonald, "Power System SCADA and Smart Grids" CRC Press-2015.