NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE OUTLINE TEMPLATE			
Course Title	**Power System Automation**		
Course Code		**No. of Credits**	**3**
Department	**EEE**	**Faculty**	**Dr.(Mrs.)Mini Shaji Thomas Dr. S. Arul Daniel**
Pre-requisites Course Code			
Other Course Teacher(s)/Tutor(s) E-mail		**Telephone No.**	
Course Type	☐ **Core course**	☐ **Elective course**	

COURSE OVERVIEW

Power System is geographically spread over a large area and hence communication between its units is essential. The course deals with the automation functions needed in a power system and the hardware needed to implement the same. Communications is of utmost importance and the protocols required for it are also dealt in this course.

COURSE OBJECTIVES

To familiarize the students with the basics of Power System Automation, Building blocks, Supervisory Control And Data Acquisition(SCADA) System, Remote Terminal Units(RTU), Master Stations etc.

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
1. Understand the concepts of power system automation.	**1,6**
2. Understand the components of SCADA systems.	**8**
3. Comprehend the RTU, IED and other components of automation systems	**8,10**
4. Understand the transfer of signals from the field to an operator control terminal.	**1,8**
5. Design an interoperable powers automation system.	**4**

COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	**Week**	**Topic**	**Mode of Delivery**
1	1 to 3rd week	Introduction to power system Automation and components of SCADA	PPTs
2.	4rd and 5th week	Data flow in SCADA	PPTs
3.	6th & 7th week	Details about RTUs	PPTs
4.	8th & 9th week	Details about IEDs	
5.	10th & 11th Week	Communication system for SCADA	PPTs
6.	12th & 13th Week	Seminar on project work	PPTs
7.	14th Week	Flipped class room – selected videos on SCADA	

COURSE ASSESSMENT METHODS				
S.No.	**Mode of Assessment**	**Week/Date**	**Duration**	**% Weightage**
1.	Summative	5th Week	1 hour	20%
2.	Group task			20%
3.	Summative	11th Week	1 hour	20%
4.	Seminar on project work			10%
5.	Final Assessment	15th week	2 hours	30%

ESSENTIAL READINGS : Textbooks, reference books Website addresses, journals, etc

1. Mini S. Thomas, John D McDonald, Power Systems SCADA and Smart Grid, CRC Press, Taylor and Francis (2015)
2. Electric Power Substation Engineering John D. Mc Donald CRC Press, Taylor and Francis
3. Control and Automation of Electrical Power Distribution systems, James Northcote-Green, R Wilson, CRC Press, Taylor and Francis.
4. Electric Power Distribution, Automation, Protection and Control, James Momoh, CRC press, Taylor and Francis.

COURSE EXIT SURVEY (mention the ways in which the feedback about the course is assessed and indicate the attainment also)
As prescribed by the Institution
COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)
Copying in assessments will lead to penal action.
ADDITIONAL COURSE INFORMATION
eg.: The Course Coordinator is available for consultation at times that are displayed on the coordinator's office notice board. Queries may also be emailed to the Course Coordinator directly at mini@nitt.edu, daniel@nitt.edu.
Course Faculty 28/7/17 _____ CC-Chairperson 31.07.17 _____ HOD 31/07/2017 _____