



Holy-wood Academy, Kolhapur's

## SANJEEVAN ENGINEERING AND TECHNOLOGY INSTITUTE

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### DEPARTMENT OF ELECTRICAL

Course Outcomes of All Subject

SECOND YEAR S.E. Sem 1

SE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Engg. Maths III	Course Code	63368
Class	SE		
Course Outcomes	1	Understand fundamental concepts of Differential equations	
	2	ability to solve numericals using different techniques	
	3	ability to apply knowledge of mathematics in field of Electrical engineering	
	4	formulate different kinds of problems in all field of engineering	

SE PART- I	Course 2	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Analog Circuits	Course Code	63370
Class	SE		
Course Outcomes	1	Know the Various semiconductor devices, their symbols & basic function etc.	
	2	Understand Various semiconductor devices, feedback amplifiers, Operational amplifiers & IC 555	
	3	Explain & Draw Working, characteristics of Semiconductor devices, feedback amplifiers, Circuits using Operational amplifiers & IC 555.	
	4	Design feedback amplifiers, Operational amplifiers & IC 555.	

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SE PART- I	Course 3	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Electrical Engineering Materials and Energy Conversion	Course Code	63369
Class	SE		
Course Outcomes	1	Acquire knowledge and solve problems related to Conducting materials, Magnetic materials and Dielectric materials	
	2	Summarize of insulating materials and analyze various applications of insulating materials.	
	3	State the principles of electro-mechanical energy conversion and differentiate types of excitation system.	
	4	Analysis of materials for direct Energy conversion devices.	

SE PART- I	Course 4	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Electromagnetic and Electric Circuits	Course Code	63371
Class	SE		
Course Outcomes	1	Understand Basic concepts of field and circuit theory.	
	2	Understand relation between fields and circuits.	
	3	Understand & learn to apply Maxwells Equations	
	4	Apply network Theorems to various electric circuits.	
	5	Develop techniques to analysis circuit in time domain and frequency domain	

SE PART- I	Course 5	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Programming in C	Course Code	63373
Class	SE		
Course Outcomes	1	will learn basics of Programming	
	2	tackle and convert a given problem statement into a flowchart and an algorithm	
	3	develop decision making capability in using appropriate programming construct	
	4	teach a bottom up method of software development using user defined function.	

SE PART- I	Course 6	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Measurements and Instruments	Course Code	63372
Class	SE		
Course Outcomes	1	Learn the basic concepts of measurements and different measuring instruments	
	2	Able to Examine errors in the instruments	
	3	Demonstrate digital and advance instruments	
	4	Evaluate theoretically the performance of CT's and PT's.	
	5	Identify issues in Instrumentation and Measurements	

**SE SEM II**

SE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	DC Machines and Transformer	Course Code	63374
Class	SE		
Course Outcomes	1	Understand electrical principle, laws, and working of DC machines.	
	2	Analyse the construction and characteristics and application of various type of DC Generators.	
	3	Analyses the construction and characteristics and application of various type of DC Motors and testing of motors according to Indian standard	
	4	Understand electrical principle , laws, and working of 1 phase transformer and losses . And also conduct various test on the transformer.	
	5	Understand electrical principle , laws, and working of 3 phase transformer and losses . and also conduct various test on the transformer	
	6	analyse the transformer and convert 3 phase transformer to multi-phase transformer	

SE PART- II	Course 2	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Power Electronics	Course Code	63375
Class	SE		
Course Outcomes	1	Learn the principles of operation of power electronic converters	
	2	Understand how to design dc-dc power converters	
	3	Introduce the concept of switching losses	
	4	Learn to design a feedback loop for a dc-dc converter	
	5	Understand the principles of operation of soft switching converters	

SE PART- II	Course 3	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Power System I	Course Code	63376
Class	SE		
Course Outcomes	1	To get basic knowledge of Generation of Electric Energy and Power System	
	2	To understand & Explain Overhead Transmission Lines and Underground	
	3	. Calculate & Analyze Characteristics and Performance of Transmission Line.	
	4	Evaluate Economic Aspects of Power Generation as well as behavior of power	

SE PART- II	Course 4	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Network Analysis and Synthesis	Course Code	63377
Class	SE		
Course Outcomes	1	apply the basic concepts for solving various Electrical networks	
	2	Choose proper method solving the Electrical network in various conditions	
	3	apply mathematics in analyzing and synthesizing the networks in time and frequency domain	
	4	evaluate the performance of a significant network after analysis	

SE PART- II	Course 5	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	S. E. Electrical II	Course Code	63378
Class	Control Systems I	63378	
Course Outcomes	1	will learn modeling of different physical systems	
	2	Study of different transfer function finding techniques	
	3	Analyzing behavior of systems using Root locus, bode plot, Routh-Hurwitz criteria etc	
	4	Apply of concept state space through various forms	

**THIRD YEAR T.E.**

TE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Digital Electronics & Microcontroller	Course Code	66250
Class	TE		
Course Outcomes	1	understanding fundamental concepts and techniques used in digitalization of electronics	
	2	examine nature of different number systems and its application in digital design	
	3	ability to understand, analyze and design various combinational and sequential circuits	
	4	develop skill to debug & troubleshoot digital circuits.	

TE PART- I	Course 2	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Ac Machines	Course Code	66251
Class	TE		
Course Outcomes	1	impart the knowledge on fundamental of AC rotating machine	
	2	impart the knowledge on constructional details, principle of operation, performance, starter, speed control and braking of 3 phase induction motor.	
	3	To impart the knowledge on constructional details, principle of operation of 3 phase alternator and synchronous motor	
	4	To impart the knowledge on constructional details, principle of operation, type of 1phaseinduction motor and special machine.	

TE PART- I	Course 3	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	POWER SYSTEM II	Course Code	66252
Class	TE	To understands and can draw single line diagram of the power system.	
Course Outcomes	1	Identify model of generators, transformers, lines and cables in the positive, negative and zero sequence systems based on physical models.	
	2	Ability to analyse different types of fault in a power system	
	3	Use of different Technique to evaluate Power Flow in the power system	
	4	To use finite element software to analyze engineering problems of Power system with analysis.	
	5	understand stability analysis of power system.	

TE PART- I	Course 5	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Control Systems II	Course Code	66253
Class	TE		
Course Outcomes	1	distinguish basics of different types of controllers	
	2	Able to design control system design by means of varoius plots	
	3	Analyse different and design differnat systems by means of bode plot	
	4	Able to design control system by state space method	
	5	apply knowledge of mathematics for advanced control systems	

TE PART- I	Course 6	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Signals & systems	Course Code	66254
Class	TE		
Course Outcomes	1	To show the ability to understand the concepts, different types & properties of signals and systems	
	2	To demonstrate the ability to design a expression with the electrical circuit.	
	3	To demonstrate the ability to solve numerical on concepts of signals & systems.	
	4	To ability to participate and try to succeed in competitive examination.	
	5	Utilize standard signals such as sine, ramp, exponential to characterize systems.	

TE PART- I	Course 7	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Software tools for electrical engineers	Course Code	66255
Class	TE		
Course Outcomes	1	Ability to programm different non linear solutions	
	2	ability to simulate different converters using matlab	
	3	Measure different parameters using labview	
	4	design different kinds of control panel	

#### TE SEM II

TE PART- Ii	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Advanced Electrical Measurements	Course Code	66845
Class	TE		
Course Outcomes	1	The ability to formulate and then analyze the working of any electrical machine using mathematical model under loaded and unloaded conditions.	
	2	The skill to analyze the response of any electrical machine	
	3	The ability to troubleshoot the operation of an electrical machine.	
	4	The ability to select a suitable measuring instrument for a given application.	
	5	The ability to estimate and correct deviations in measurements due to the influence of the instrument and due to the accuracy of the instrument.	



TE PART- li	Course 2	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Communication engineering	Course Code	66846
Class	TE		
Course Outcomes	1	Explain basics of Transmission systems	
	2	understand the basic concepts of AM radio transmission and reception.	
	3	Learn and apply basic knowledge of modulation	
	4	show ability to analyze sampling & techniques	

TE PART- II	Course 3	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Electrical Machine Design	Course Code	66847
Class	TE		
Course Outcomes	1	Acquire knowledge and solve problems related to design of machines	
	2	Compare the design activity of Rotating AC Machines and transformer, on cost, efficiency, operating characteristics basis	
	3	Select the design tools, material etc	
	4	Search for, analysis and synthesis of data and information, with the use of the necessary technology	
	5	The applying knowledge and understanding capabilities will allow at the graduate to approach the problem linked to the design of the electrical machines.	

TE PART- II	Course 4	Department	Electrical
Name of Program		Program Code	631529310
Name of Course	Power Systems III	Course Code	66848
Class	TE		
Course Outcomes	1	Acquire knowledge, explain and solve problems related to different types of Power system stability and control.	
	2	Summarize the methods of improving stability.	
	3	Compare different methods of power system control with steady state analysis and dynamic response of an isolated	
	4	Detect optimal power system operation & Demonstrate power system security.	

TE PART- II	Course 5	Department	Electrical
Name of Program	TE	Program Code	631529310
Name of Course	Electrical Drives	Course Code	66849
Class	TE		
Course Outcomes	1	Understand the working principals of DC motors, Induction Motors & Synchronous Motors	
	2	Understand various types of drives, loads & their characteristics.	
	3	Explain Various speed control methods of AC & DC motors.	
	4	Derive & Explain Various converters used in Electrical Drives	

TE PART- II	Course 6	Department	Electrical
Name of Program	Electrical Workshop	Program Code	631529310
Name of Course	Electrical	Course Code	66850
Class	TE		
Course Outcomes	1	Understand the working principals household appliances	
	2	ability to troubleshoot issues in domestic appliances	
	3	able to design & fabricate PCB	
	4	get knowledge on substation components	

**FINAL YEAR B.E.**

BE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Industrial Training	Course Code	67515
Class	BE		
Course Outcomes	1	Ability to determine issues & find out remedies based on it	
	2	ability to work in team & buildup teamspirit in other.	
	3	ability to work in confined time frame with efficiency	
	4	ability for critical decision making	

BE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Economics for Engineers	Course Code	67516
Class	BE		
Course Outcomes	1	The entrepreneur skills of students get improved in some percentage.	
	2	Student should able to debate on policy making.	
	3	Students will have the confidence to apply engineering solutions in global and societal contexts	
	4	Student should capable to self-education in their engineering profession.	
	5	Students will have an understanding of the impact of engineering on society and demonstrate awareness of contemporary issues	

BE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Advanced Switchgear & Protection	Course Code	67517
Class	BE		
Course Outcomes	1	get knowledge on different Protection Equipments or Power Systems	
	2	apply kwnoledge about applications of Protection equipments	
	3	ability to discuss all kinds of Circuit breakrs	
	4	ability to express concept pf Recovery & restriking	
	5	ability to distinguish between all kinds of relay	

BE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Power Quality & harmonics	Course Code	67518
Class	BE		
Course Outcomes	1	Acquire knowledge to distinguish between the various categories of power quality problems.	
	2	Analyze & Understand the root of the power quality problems in industry and their impact on performance and economics	
	3	Interpretation power quality improvement techniques and will show ability to design filters	
	4	Learn to apply appropriate solution techniques for power quality mitigation based on the type of problem..	

BE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Computer Methods in Power Systems	Course Code	67519
Class	BE		
Course Outcomes	1	Ability to derive different kinds of numerical techniques	
	2	ability to analyze power systems using latest tools of simulation & computational Techniques	
	3	able to draw algorithm for different numerical techniques	
	4	able to use different simulation tools for assesing indices of power systems	

BE PART- I	Course 2	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Elective I- FACTS	Course Code	67520
Class	BE		
Course Outcomes	1	Understand Basic Concepts in FACTS controllers	
	2	Know role of Facts devices in Reactive power compensation	
	3	Analyze and control system parameters using FACTS devices	
	4	Distinguish different applications of UPFC & STATCOM	

BE PART- I	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Seminar	Course Code	67524
Class	BE		
Course Outcomes	1	Understand basic international standards & codes through seminar	
	2	Compare different techniques through literature survey	
	3	able to write effectively through paper publication, dissertation etc	
	4	ability to represent ideas & views through proper ducumenation & Presentations	

BE PART- I	Course 1	Department	Electrical
Name of Program	Project Phase I	Program Code	631529310
Name of Course		Course Code	67525
Class	BE		
Course Outcomes	1	Understand basic international standards & codes through seminar	
	2	Compare different techniques through literature survey	
	3	able to write effectively through paper publication, dissertation etc	
	4	ability to represent ideas & views through proper ducumenation & Presentations	
	5	Ability to work in team & build team spirit thriugh project.	

### BE SEM II

BE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Law for Engineers	Course Code	
Class	BE		
Course Outcomes	1	Create an awareness of legal principles and issuses that impact professional engineers	
	2	Create an awareness of legal principles and issuses that impact professional engineers	
	3	Understand law relating to intellectual property which covers copyright, trademark & Patent	
	4	Knowledge about corporate law, Industrial employment act and National human rights commission.	

BE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	HVDC Systems	Course Code	68527
Class	BE		
Course Outcomes	1	Understand & Identify different HVDC configurations	
	2	Analyze different kinds of HVDC Faults & suggest remedies on it	
	3	Discuss different Converter Configurations through its operations	
	4	Apply solution on harmonics using different kinds of filter	
	5	Express different MTDC systems	

BE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Cours	Extra High Voltage AC	Course Code	68528
Class	BE		
Course Outcomes	1	Describe the Engineering aspect and growth of EHVAC Transmission line and explain various power system characteristics	
	2	Calculations of line and ground power system parameters and their properties	
	3	Discriminate voltage gradients of conductor for EHVAC	
	4	Estimate theory of the travelling waves and standing wave	
	5	Estimate theory of the travelling waves and standing wave	
	6	Describe power frequency voltage control and over voltage	
	7	Identify over voltage in EHVAC system.	
	8	Describe power frequency voltage control and over voltage	

BE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Electrical Generation & utilization	Course Code	68529
Class	BE		
Course Outcomes	1	Understand use of Electrical Energy for Industrial Applications	
	2	able to distinguish Different kinds of Power Plants & Its working	
	3	Apply knowledge of Heating for various applications	
	4	Express Basics of Electrical traction system	
	5	Able to solve problems based of traction	
	6	Understand Basics of Speed control used in traction system	

BE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Elective II High Voltage Engineering	Course Code	68531
Class	BE		
Course Outcomes	1	Graduate will define & explain the concepts of High voltage engineering	
	2	To compare breakdown in materials using breakdown mechanisms	
	3	To compare breakdown in materials using breakdown mechanisms	
	4	differentiate between various high voltage measurement techniques & analyse , interpret the experiments	
	5	Communicate & write effectively related to subject concepts	



BE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Elective II Electrical Maintenance And Energy Audit	Course Code	68533
Class	BE		
Course Outcomes	1	Introduce what is maintenance and types of maintenance	
	2	Introduce maintenance of transformer and maintenance of grid substation.	
	3	Identify general aspects of energy management and energy	
	4	Introduce energy audit methodology & recent	
	5	Identify energy efficiency in electrical utilities.	

BE PART- II	Course 1	Department	Electrical
Name of Program	Electrical	Program Code	631529310
Name of Course	Project Phase II	Course Code	68534
Class	BE		
Course Outcomes	1	Understand basic international standards & codes through seminar	
	2	Compare different techniques through literature survey	
	3	able to write effectively through paper publication, dissertation etc	
	4	ability to represent ideas & views through proper documentation & Presentations	
	5	Ability to work in team & build team spirit through project.	