



# T.J.S ENGINEERING COLLEGE

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.  
TJS Nagar, Peruvoyal, Near Kavaraipettai, Gummidipoondi Taluk, Thiruvallur District -601206



## Department of Electrical and Electronics Engineering

### List of courses offered during 2018-19 (Odd Semester)

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1	3	Theory	MA8353 – Transforms and Partial Differential Equations
2	3	Theory	EE8351 - Digital Logic Circuits
3	3	Theory	EE8391 – Electromagnetic Theory
4	3	Theory	EE8301 – Electrical Machines-1
5	3	Theory	EC8353– Electron Devices and Circuits
6	3	Theory	ME8792 - Power Plant Engineering
7	3	Practical	EC8311- Electronics Laboratory
8	3	Practical	EE8311- Electrical Machines Laboratory – I
9	5	Theory	EE6501 – Power System Analysis
10	5	Theory	EE6551- Microprocessor And Microcontroller
11	5	Theory	EE 6591 – Digital Signal Processing
12	5	Theory	EE6552– Power Electronics
13	5	Theory	CS 6392 – Object Oriented Programming
14	5	Theory	OAN551- Sensors and Transducers
15	5	Practical	EE6511- Control and Instrumentation Laboratory
16	5	Practical	HS6581 - Professional Communication
17	5	Practical	CS6383- Object Oriented Programming Laboratory
18	7	Theory	EE6701 – High voltage engineering
19	7	Theory	EE6702 – Protection and Switchgear
20	7	Theory	EE6703– Special Electrical Machines
21	7	Theory	MG6851- Principles Of Management
22	7	Theory	EI6703 – Fiber Optics & Laser Instruments
23	7	Theory	EE 6007 – Micro Electro Mechanical Systems
24	7	Practical	EE6711 - Power System Simulation Lab
25	7	Practical	EE6712- Comprehension Laboratory Lab



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## Course outcomes- 2018-19 (odd semester) Third Semester.

<b>Course Code: MA8353</b>	
<b>Course Name: Transforms And Partial Differential Equations</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>
CO – 1	Apply the solutions of partial differential equations
CO – 2	Utilize the Fourier series problems in current flow, sound waves
CO – 3	Find one dimensional wave equation and heat equations
CO – 4	Inference of Fourier transforms is in continuous time signals
CO – 5	Apply the Z transforms in discrete time signals
CO – 6	Summarize the physical problems of engineering.

<b>Course Code:EE8351</b>	
<b>Course Name: Digital Logic Circuits</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>
CO – 1	To study various number systems and simplify the logical expressions using Boolean functions
CO – 2	To study combinational circuits
CO – 3	To design various synchronous and asynchronous circuits.
CO – 4	To introduce asynchronous sequential circuits and PLDs
CO – 5	To introduce digital simulation for development of application oriented logic circuits.
CO – 6	

<b>Course Code: EC8353</b>	
<b>Course Name: Electron Devices And Circuits</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>
CO – 1	Explain the structure, characteristics and biasing of various PN junction diodes and its applications.
CO – 2	Explain the structure, characteristics and biasing of various types of transistors, thyristors and IGBT.
CO – 3	Analyze the BJT amplifier circuits using small signal and high frequency model.
CO – 4	Analyze the FET amplifier circuits using small signal and high frequency model.
CO – 5	Explain the differential amplifier and types of power amplifier and derive its efficiency.



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<b>Course Code: EE8301</b>	
<b>Course Name: Electrical Machines - 1</b>	
<b>CO</b>	<b>Course Outcome(CO) - Statement</b>
<b>CO – 1</b>	To familiarize with Magnetic-circuit analysis and introduce magnetic materials
<b>CO – 2</b>	To understand Constructional details, the principle of operation, prediction of performance, the methods of testing the transformers and three phase transformer connections
<b>CO – 3</b>	To understand the Working principles of electrical machines using the concepts of electromechanical energy conversion principles and derive expressions for generated voltage and torque developed in all Electrical Machines.
<b>CO – 4</b>	To understand the Working principles of DC machines as Generator types, determination of their no-load/load characteristics, starting and methods of speed control of motors.
<b>CO – 5</b>	To study Various losses taking place in D.C. Motor and to study the different testing methods to arrive at their performance

<b>Course Code:EE8391 Course Name: Electromagnetic Theory</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>
<b>CO – 1</b>	Interpret the coordinate systems used in electromagnetic theory
<b>CO – 2</b>	Explain the Electric and Magnetic field intensity for continuous charge distributions
<b>CO – 3</b>	Develop the expression for capacitance and inductance in the continuous charge distributions
<b>CO – 4</b>	Build the boundary conditions for electric and magnetic field intensity
<b>CO – 5</b>	Illustrate the generation of EMF in static and dynamic conditions
<b>CO - 6</b>	Identify the properties of electromagnetic wave propagation from Maxwell's equation.
<b>CO – 6</b>	To develop the ability to model and analyze electrical apparatus and their application to power system



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<b>Course Code: ME8792</b>		<b>Course Name: Power Plant Engineering</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>		
<b>CO – 1</b>	Explain the layout, construction and working of the components inside a thermal power plant		
<b>CO – 2</b>	Explain the layout, construction and working of the components inside a Diesel, Gas and Combined cycle power plants		
<b>CO – 3</b>	Explain the layout, construction and working of the components inside nuclear power plants.		
<b>CO – 4</b>	Explain the layout, construction and working of the components inside Renewable energy power plants		
<b>CO – 5</b>	Explain the applications of power plants while extend their knowledge to power plant economics and environmental hazards and estimate the costs of electrical energy		

## Laboratory

<b>EC8311</b>		<b>Electronics Laboratory</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>		
<b>CO – 1</b>	Explain the characteristics of semiconductor devices		
<b>CO – 2</b>	Analyze astable and monostable multivibrators		
<b>CO – 3</b>	Develop differential amplifiers using FET		
<b>CO – 4</b>	Infer frequency and phase measurements using CRO		
<b>CO – 5</b>	Construct RC, LC phase shift oscillators		
<b>CO – 6</b>	Experiment with passive filters		

<b>Course code : EE8311</b>		<b>Course Name: Electrical Machines Laboratory - I</b>	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>		
<b>CO – 1</b>	Ability to understand and analyze DC Generator		
<b>CO – 2</b>	Ability to understand and analyze DC Motor		
<b>CO – 3</b>	Ability to understand and analyse Transformers.		



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## ifth Semester

<b>Course Code: EE6501</b>	
<b>Course Name: Power System Analysis</b>	
<b>CO</b>	<b>Course Outcome (CO) - Statement</b>
<b>CO – 1</b>	Ability to model the power system under steady state operating condition
<b>CO – 2</b>	Ability to understand and apply iterative techniques for power flow analysis
<b>CO – 3</b>	Ability to model and carry out balanced short circuit studies on power system
<b>CO – 4</b>	Ability to model and carry out unbalanced short circuit studies on power system
<b>CO – 5</b>	Ability to model and analyze stability problems in power system

<b>Course Code: EE6551</b>	
<b>Course Name: Power Electronics</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>
<b>CO – 1</b>	Summarize the fundamental concepts of power switching devices.
<b>CO – 2</b>	Analyze single phase power converter circuits and their application.
<b>CO – 3</b>	Analyze three phase power converter circuits and their application.
<b>CO – 4</b>	Analyze switching regulator circuits and their application.
<b>CO – 5</b>	Analyze various harmonic reduction techniques.
<b>CO - 6</b>	Develop skills to simulate converter circuits using simulation software.

<b>Course Code: EE6551</b>	
<b>Course Name: Microprocessors and Microcontrollers</b>	
<b>CO</b>	<b>Course outcome(CO) - Statements</b>
<b>CO – 1</b>	Explain the architecture and functionalities of 8085 Microprocessor.
<b>CO – 2</b>	Analyze Assembly level programming in real time applications using 8085.
<b>CO – 3</b>	Explain the architecture and functionalities of 8051 Microcontroller.



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CO – 4	Configure the external peripherals interfacing with the 8085 microprocessor and 8051 microcontroller.
CO – 5	Develop skill in simple applications programming with 8051.
CO - 6	Compare the programming concepts of 8085 and 8051

**Course Code: OAN551**

**Course Name: Sensors & Transducers**

CO – 1	To understand the concepts of measurement technology
CO – 2	Expertise in various calibration techniques and signal types for sensors.
CO – 3	To learn the various sensors used to measure various physical parameters.
CO – 4	To learn the fundamentals of signal conditioning, data acquisition and communication systems used in mechatronics system development.
CO – 5	Study the basic principles of various smart sensors.
CO – 6	Implement the DAQ systems with different sensors for real time applications

**Course Code:EE6591**

**Course Name: Digital Signal Processing**

CO	Course outcome(CO) - Statements
CO – 1	Signals and systems & their mathematical representation
CO – 2	Discrete time systems.
CO – 3	Transformation techniques & their computation
CO – 4	Filters and their design for digital implementation.
CO – 5	Programmability digital signal processor & quantization effects

**Course Code: CS6392**

**Course Name: Object Oriented Programming**

CO	Course outcome(CO) - Statements
CO – 1	Develop Java programs using OOP principles
CO – 2	Develop Java programs using the concepts of inheritance and interfaces
CO – 3	Build Java applications using exceptions and I/O Streams
CO – 4	Develop Java applications with threads and generic classes
CO – 5	Develop interactive Java programs using swings
CO – 6	Develop an application based upon concepts of Java.



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## Laboratory

<b>Course Code:EE6511</b>	
<b>Course Name: Control and Instrumentation Laboratory</b>	
CO	Course outcome(CO) - Statements
CO – 1	Ability to understand control theory and apply them to electrical engineering
CO – 2	Ability to analyze the various types of converters
CO – 3	Ability to design compensators
CO – 4	Ability to understand the basic concepts of bridge networks
CO – 5	Ability to the basics of signal conditioning circuits
CO – 6	Ability to study the simulation packages.

<b>Course Code:HS6581</b>	
<b>Course Name: Professional Communication</b>	
CO	Course outcome(CO) - Statements
CO – 1	Enhance the Employability and Career Skills of students
CO – 2	Orient the students towards grooming as a professional
CO – 3	Make them Employability Graduates
CO – 4	Develop their confidence and help them attend interviews successfully.

<b>Course Code:CS6383</b>	
<b>Course Name: Object Oriented Programming Lab</b>	
CO	Course outcome(CO) - Statements
CO – 1	To build software development skills using java programming for real-world
CO – 2	To understand and apply the concepts of classes, packages, interfaces, array list, exception handling and file processing.
CO 3	To develop applications using generic programming and event handling.

Seventh Semester

<b>Course code : EE6701</b>	
<b>Course Name: High voltage engineering</b>	
CO	Course outcome(CO) - Statements
CO – 1	Describe the causes of power systems over voltages
CO – 2	Summarize the impact of over voltages on dielectrics
CO – 3	Explain the breakdown mechanism of dielectrics
CO – 4	Classify protection devices to prevent Flashovers
CO – 5	Discuss the testing of power system apparatus
CO – 6	Summarize the methods of HV measurements



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**Course code : EE6702**

**Course Name: Protection and Switchgear**

CO	Course outcome(CO) - Statements
CO – 1	Identify the faults in Power system
CO – 2	Interpret the working of relays and their characteristics
CO – 3	Explain the types of Apparatus protection
CO – 4	Analyze the arcing phenomenon and interruption
CO – 5	Explain the different Circuit Breakers
CO – 6	Classify the testing of Circuit Breakers

**Course code : EE6703 Course Name: Special Electrical Machines**

CO	Course outcome(CO) - Statements
CO – 1	Explain the performance characteristics of synchronous reluctance motors.
CO – 2	Classify the excitation modes of stepping motor
CO – 3	Construct the power converter circuits for Switched reluctance motor
CO – 4	Analyze the magnetic characteristics of brushless D.C motor
CO – 5	Compare the control methods of permanent magnet synchronous motor
CO – 6	Analyze the logical sequence operation of special machines by using Software program.

**Course code: MG6851**

**Course Name: Principles of Management**

CO	Course outcome(CO) - Statements
CO – 1	Define the concept of management
CO – 2	Identify current trends and issues in management
CO – 3	Explain the importance of planning and objective setting
CO – 4	Identify the authority and responsibility among people
CO – 5	Apply leadership and motivation theories
CO – 6	Examine qualitative and quantitative information to control methods

**Course code : EI6703**

**Course Name: Fiber Optics & Laser Instruments**

CO	Course outcome(CO) - Statements
CO – 1	Compare types of Optical fibers
CO – 2	Identify optical sources and Detectors
CO – 3	Relate the industrial applications of optical fibers
CO – 4	Summarize the LASER types
CO – 5	Relate the industrial applications of LASER
CO – 6	Infer holography and medical applications of LASER





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<b>Course code : EE6007</b>	
<b>Course Name: Micro Electro Mechanical Systems</b>	
CO	Course outcome(CO) - Statements
CO – 1	Impart knowledge about operation of micro devices, micro systems and their applications
CO – 2	To Design the micro devices, micro systems using the MEMS fabrication process.
CO – 3	knowledge of semiconductors and solid mechanics to fabricate MEMS devices
CO – 4	To Understand rudiments of Micro fabrication techniques
CO – 5	To Understand different materials used for MEMS
CO – 6	To Impart knowledge applications of MEMS to disciplines beyond Electrical and Mechanical engineering.

<b>Course code : EE6711</b>	
<b>Course Name: Power System Simulation lab</b>	
CO	Course outcome(CO) - Statements
CO – 1	Model the Transmission line of power system
CO – 2	Develop Bus Impedance and Admittance matrices for a network
CO – 3	Analysis of Load flow by numerical methods
CO – 4	Determine the fault current for the N bus system
CO – 5	Examine the stability level of Single and Multi machine system
CO – 6	Analyze the load frequency dynamics of multi area system

<b>Course code : EE6712</b>	
<b>Course Name: Comprehension Laboratory</b>	
CO	Course outcome(CO) - Statements
CO – 1	Explain Engineering fundamentals
CO – 2	Apply mathematics to engineering problem
CO – 3	Apply Engineering fundamentals to complex circuits
CO – 4	Take part in discussion as a leader in diverse teams
CO – 5	Extend knowledge on communication and presentation skills
CO – 6	Develop managerial skills to establish start ups

Department of Electrical and Electronics Engineering

List of courses offered during 2018-19



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## Even Semester

Sl. No.	Semester	Theory/Practical	Course Code / Course Name
1	4	Theory	MA8491 Numerical Methods
2	4	Theory	EE8401 Electrical Machines - II
3	4	Theory	EE8402 Transmission and Distribution
4	4	Theory	EE8403- Measurements and Instrumentation
5	4	Theory	EE8451- Linear Integrated Circuits and Applications
6	4	Theory	IC8451 -control systems
7	4	Practical	EE8411- Electrical Machines Laboratory – II
8	4	Practical	EE8461- Linear Integrated Circuits and Applications lab
9	4	Practical	EE8412-Technical Seminar
10	6	Theory	EC6651 – Communication Engineering
11	6	Theory	EE6601- Solid State Drives
12	6	Theory	EE6602 – Embedded Systems
13	6	Theory	EE6603– Power System operation &Control
14	6	Theory	EE6604 – Design of Electrical Machines
15	6	Practical	EE6002- Power System Transients
16	6	Practical	EE6611- Power Electronics and Drives Lab
17	6	Practical	EE6612 - Microprocessors and Microcontrollers Laboratory
18	6	Practical	EE6613- Presentation Skills and Technical Seminar
19	8	Theory	EE6801– Electric Energy Generation Conservation and Utilization
20	8	Theory	EE6009 – Power Electronics for Renewable Energy Systems
21	8	Theory	GE 6757-Total Quality Management
22	8	Theory	EE6811 – Project work

**Semester: 04**

**Course Name: Numerical methods (MA8491)**

**Year of study: 2019-20 and 2020-21(2017 Regulation)**

**CO – 1**

Find the solutions of algebraic and transcendental equations



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CO – 2	Choose power method for Eigen values
CO – 3	Apply the concept of Numerical differentiation and integration in engineering
CO – 4	Examine Initial value problem for Ordinary differential equation
CO – 5	Apply the boundary value problem in PDE and ODE
CO-6	Solve the Linear system of Equation

<b>Semester: 04</b> <b>Course Name: Transmission &amp; Distribution (EE8402)</b> <b>Year of study: 2019-20&amp; 2020-21 (2017 Regulation)</b>	
CO – 1	To understand the importance and the functioning of transmission line parameters.
CO – 2	To understand the concepts of Lines and Insulators.
CO – 3	To acquire knowledge on the performance of Transmission lines.
CO – 4	To understand the importance of distribution of the electric power in power system.
CO – 5	To acquire knowledge on Underground Cabilities
CO-6	To become familiar with the function of different components used in Transmission and Distribution levels of power system and modeling of these components.

<b>Semester: 04</b> <b>Course Name: Electrical Machines-II (EE8401)</b> <b>Year of study: 2019-20 &amp; 2020-21 (2017 Regulation)</b>	
CO – 1	Ability to understand the construction and working principle of Synchronous Generator
CO – 2	Ability to understand MMF curves and armature windings
CO – 3	Ability to acquire knowledge on Synchronous motor.
CO – 4	Ability to understand the construction and working principle of Three phase Induction Motor
CO – 5	Ability to understand the construction and working principle of Special Machines
CO-6	Ability to predetermine the performance characteristics of Synchronous Machines.



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<b>Semester: 04</b> <b>Course Name: Linear integrated circuits and applications EE8451</b> <b>Year of study: 2019-20&amp; 2020-21 (2017 Regulation)</b>	
<b>CO – 1</b>	Outline the fabrication process of IC
<b>CO – 2</b>	Illustrate the ideal and non ideal characteristics of op-amp
<b>CO – 3</b>	Explain various applications of op-amp.
<b>CO – 4</b>	Design the different types of oscillators and ADC,DAC
<b>CO – 5</b>	Illustrate various application ICs
<b>CO-6</b>	Explain the working of special function ICs.

<b>Semester: 04</b> <b>Course Name: Measurements and Instrumentation EE8403</b> <b>Year of study: 2019-20&amp; 2020-21 (2017 Regulation)</b>	
<b>CO – 1</b>	Outline the fabrication process of IC
<b>CO – 2</b>	Explain the working principle of electrical measuring instruments
<b>CO – 3</b>	Interpret the resistance, capacitance and inductance using bridges
<b>CO – 4</b>	Select the storage devices for measuring electrical quantities
<b>CO – 5</b>	Choose the analog and digital display devices for measuring electrical quantities
<b>CO-6</b>	Identify the type of electrical transducers for physical quantities



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<b>Semester: 04</b>	
<b>Course Name: Control Systems-IC 8451</b>	
<b>Year of study: 2019-20 (2017 Regulation)</b>	
<b>CO – 1</b>	<b>Develop</b> various representations of system based on the knowledge of Mathematics, Science and Engineering fundamentals.
<b>CO – 2</b>	<b>Illustrate</b> the time response of first and second order systems using standard test signals and the use of PID controller in closed loop system.
<b>CO – 3</b>	<b>Examine</b> the frequency-domain response of various models of linear system.
<b>CO – 4</b>	<b>Identify</b> a compensator system for the given specifications.
<b>CO – 5</b>	<b>Interpret</b> characteristics of the system to develop mathematical model in state-variable form (state variable models)
<b>CO-6</b>	<b>Perceive</b> the solution for complex control problem.

<b>Course Code: EE8411</b>	
<b>Course Name: Electrical Machines Laboratory – II</b>	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Ability to understand and analyze EMF and MMF methods
<b>CO – 2</b>	Ability to analyze the characteristics of V and Inverted V curves
<b>CO – 3</b>	Ability to understand the importance of Synchronous machines
<b>CO – 4</b>	Ability to understand the importance of Induction Machines
<b>CO – 5</b>	Ability to acquire knowledge on separation of losses

<b>Course Code: EE8461</b>	
<b>Course Name: Linear and Digital Integrated Circuits Laboratory</b>	
<b>CO</b>	<b>Course outcome(CO) – Statements</b>
<b>CO – 1</b>	Ability to understand and implement Boolean Functions
<b>CO – 2</b>	Ability to understand the importance of code conversion
<b>CO – 3</b>	Ability to Design and implement 4-bit shift registers
<b>CO – 4</b>	Ability to acquire knowledge on Application of Op-Amp
<b>CO – 5</b>	Ability to Design and implement counters using specific counter IC.



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<b>Course Code: EE8412</b>	
<b>Course Name: Technical Seminar</b>	
CO	Course outcome(CO) – Statements
CO – 1	To encourage the students to study advanced engineering developments
CO – 2	To prepare and present technical reports.
CO – 3	To encourage the students to use various teaching aids such as overhead projectors, power point presentation and demonstrative models.

## Sixth Semester

<b>Course Code: EC6651</b>	
<b>Course Name: Communication Engineering</b>	
CO	Course outcome(CO) – Statements
CO-1	Illustrate the fundamental concepts of communication systems
CO-2	Identify the elements of digital communication systems
CO-3	Compare the coding techniques for enhancing transmission rate
CO-4	Utilize communication systems with multiple access techniques
CO-5	Analyze digital technologies in satellite communication
CO-6	List the communication schemes in power line carrier communication

<b>Course Code: EE6601</b>	
<b>Course Name: Solid State Drives</b>	
CO	Course outcome(CO) – Statements
CO-1	Illustrate the characteristics of electric drive
CO-2	Explain the different techniques for DC drive
CO-3	Demonstrate the operation of modern induction motor drive
CO-4	Apply the appropriate methods for the special electric drive
CO-5	Analyze the closed loop controller for DC drive
CO-6	Utilize the closed loop controller for electric drives

<b>Course Code: EE6602</b>	
<b>Course Name: Embedded Systems</b>	
CO	Course outcome(CO) – Statements
CO-1	Explain the basic building blocks of Embedded systems.
CO-2	Extend Embedded development strategies.
CO-3	Distinguish Bus communication protocols.
CO-4	Summarize Embedded product development phases.
CO-5	Infer RTOS and task communication
CO-6	Experiment with Embedded system applications



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**Course Code: EE6603**

**Course Name: Power System operation &Control**

CO	Course outcome(CO) – Statements
CO-1	Illustrate the Load forecasting techniques
CO-2	Analyze the frequency control of Interconnected system
CO-3	Model the excitation System of Generator
CO-4	Explain the voltage control techniques of power system
CO-5	Categorize the economic operation of power system
CO-6	Summarize the computer control operation of power system.

**Course Code: EE6604**

**Course Name: Design of Electrical Machines**

CO	Course outcome(CO) – Statements
CO-1	Explain the process of heat dissipation in rotating machines
CO-2	Apply magnetic circuit calculations of machines and transformers
CO-3	Calculate parameters associated with the design of a DC machine
CO-4	Calculate parameters associated with the design of a transformer
CO-5	Calculate parameters associated with the design of an induction machine
CO-6	Calculate parameters associated with the design of an synchronous machine

**Course Code: EE6002**

**Course Name: Power System Transients**

CO	Course outcome(CO) – Statements
CO-1	Identify the causes of power system transients
CO-2	Explain the effects of transients on power system
CO-3	Analyze normal and abnormal switching transients
CO-4	Illustrate the impact of lightning on power system
CO-5	Outline the path of travelling waves on transmission lines
CO-6	Apply electromagnetic transient program for simulating transient conditions

**Course Code: EE6611**

**Course Name: Power Electronics and Drives Lab**

CO	Course outcome(CO) – Statements
CO-1	Demonstration of firing circuits
CO-2	Analyze static and dynamic characteristics of switching devices
CO-3	Experiment with converters.
CO-4	Experiment with switch mode power supplies.



# T.J.S ENGINEERING COLLEGE

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CO-5	Experiment with switching regulators.
CO-6	Analyze the converter circuits using simulation software

**Course Code: EE6612**

**Course Name: Microprocessors and Microcontrollers Laboratory**

CO	Course outcome(CO) – Statements
CO-1	Develop the simple arithmetic operations using 8085 processors
CO-2	Explain the interfacing techniques using 8051 microcontrollers
CO-3	Analyze two 8051 kits using serial communication.
CO-4	Develop simple programs using 8051 controllers
CO-5	Demonstrate basic instructions using 8051 microcontroller
CO-6	Design and implementation of embedded system based projects

**Course Code: EE6613**

**Course Name: Presentation Skills and Technical Seminar**

CO	Course outcome(CO) – Statements
CO-1	Compare the review process in Presentation
CO-2	Identify the technological developments
CO-3	Build Skill in document preparation
CO-4	Organize technical and non technical reports
CO-5	Utilize various teaching aids and working models
CO-6	Defend the placement interview

Semester VIII

**Semester: 08**

**Course Name:** Electric Energy Generation, Utilization and Conservation(EE6801)

**Year of study: 2019-20**

CO1	Explain the various concepts of renewable energy resources
CO2	Interpret energy conservation and energy auditing.
CO3	Develop the illumination systems based on various lightning system
CO4	Demonstrate the different methods of electric heating and welding
CO5	Illustrate the traction system and their performance
CO6	Organize the engineering aspects of electrical energy generation and utilization.





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<b>Semester: 08</b>	
<b>Course Name:</b> EE6009 Power Electronics for Renewable Energy Systems Year of study: <b>2019-20</b>	
CO1	Interpret knowledge about the stand alone and grid connected renewable energy systems
CO2	Derive the criteria for designing the power converters for renewable energy applications
CO3	Analyze the various operating modes of wind electrical generators and solar energy systems
CO4	Design different power converters for renewable energy systems
CO5	Develop maximum power point tracking algorithms
CO6	Analyze power system operation, stability, control and protection

<b>Semester: 08</b>	
<b>Course Name:</b> GE6757 Total Quality Management Year of study:	
<b>2019-20</b>	
CO1	Facilitate the Quality Management principles and its process
CO2	Explain the customer care management systems
CO3	Apply the leadership qualities in management
CO4	Explain the Benchmark in manufacturing system
CO5	Explain the ISO Auditing system
CO6	Design the techniques for quality management in the field of manufacturing and services processes.

<b>Semester: 08</b>	
<b>Course Name:</b> Project Work (EE6811) Year of study:	
<b>2019-20</b>	
CO1	Explain the engineering concepts
CO2	Solve problems to new situations with knowledge, facts, techniques and rules in a different way
CO3	Discover new computational platform in electrical & electronics fields
CO4	Determine the performance of complex power network
CO5	Formulate real world problem with global outlook
CO6	Improve the managerial skills to meet the industry