LESSON PLAN:–(2026-27)

DISCIPLINE: ETC	**SEMESTER:3RD**	**NAME OF THE TEACHING FACULTY : SRI SATYA NARAYAN PANIGRAHI**
SUBJECT: ELECTRONICS DEVICES	**NO.OF DAYS/PER WEEK CLASS ALLOTTED:3**	**SEMESTER FROM DATE:1/07/2026 TO DATE: 05/11/2026 NO.OF WEEKS:17**
WEEK	**CLASSDAY**	**THEORY/PRACTICAL TOPICS**
1ST and 2ND	1ST	Quantum Mechanics, Electrons in periodic lattices
	2ND	Energy bands in intrinsic and extrinsic silicon
	3RD	Carrier Transport, Diffusion Current
		Drift Current, Mobility and resistivity.
3RD and 4TH	1ST	P-N Junction Diodes:- Generation and recombination of charge carriers.
	2ND	Poisson and continuity equation, Construction of P-N Junction Diodes, Operating Principle.
	3RD	P-N Junction Characteristics ,V-I Characteristics, Small signal switching models.
		Avalanche Breakdown, Zener Breakdown.
5TH	1ST	Zener Diode , Schottky Diode, LED, Photo Diode & Solar Cell.
	2ND	BJT:- Construction , Operating principle of BJT.
	3RD	Types of BJT, Working Principle of P-N-P & N-P-N BJT.
		V-I characteristics of Transistors
6TH	1ST	Different types of Transistor Connections:- Common Emitter(CE),Common Base(CB),Common Collector(CC).
	2ND	I/O characteristics of transistor in different connections. Definition of ALPHA,BETA,GAMMA and relationship between them.
	3RD	Basic Concepts of Biasing, Types of Biasing.
7TH	1ST	h-parameter model of BJT, Load line and determination of Q-Point.
	2ND	Types of Coupling, Working principle & use of R-C Coupled Amplifier.
	3RD	Frequency Response of R-C coupled Amplifier.
8TH	1ST	FIELD EFFECT TRANSISTOR(FET):-FET and its classification
	2ND	Difference between JFET & BJT, Construction and working principle of JFET.
	3RD	Different parameters of JFET, Relation between JFET Parameters.
9TH	1ST	JFET as an Amplifier, Construction and working principle of MOSFET.
	2ND	Classification of MOSFET.
	3RD	Characteristics (Drain & Transfer) of MOSFET.
10TH	1ST	Operation of CMOS, VMOS, LDMOS.
	2ND	Operation of CMOS, VMOS, LDMOS.
	3RD	Operation of CMOS, VMOS, LDMOS.
11TH	1ST	FEEDBACK AMPLIFIER & OSCILLATOR:- Definition & classification of feedback amplifier.

LESSON PLAN:–(2026-27)

	2ND	Types of Feedback:- Negative & Positive Feedback.
	3RD	Characteristics Voltage Gain, Bandwidth, Input Impedance, Output Impedance, stability, noise, distortion in amplifiers.
12TH	1ST	Oscillator:- Block Diagram of Sine wave Oscillator
	2ND	Types requirement of oscillation
	3RD	Barkhausen Criterion
13TH	1ST	LC Oscillators:- Colpitts Oscillators
	2ND	Hartley Oscillators
	3RD	Wein Bridge Oscillators
14TH	1ST	Integrated Circuit Fabrication Process:-Oxidation
	2ND	Diffusion
	3RD	Ion Implantation
15TH	1ST	Photo lithography
	2ND	Photo lithography
	3RD	Etching
16TH	1ST	Chemical Vapor Deposition
	2ND	Sputtering
	3RD	Twin tube CMOS process.
17TH	1ST	Twin tube CMOS process.
	2ND	Previous Year question discussion
	3RD	Previous Year question discussion

LESSON PLAN – 2026-27(Winter)

DISCIPLINE: E&TC	**SEMESTER : 3rd**	**NAME OF THE TEACHING FACULTY: Yogasakti Yogamaya**
SUBJECT:- Digital Electronics ETCPC205 TH:3	**NO.OF DAYS/PER WEEK** **CLASS ALLOTTED : 3**	**SEMESTER FROM DATE:1/7/2026 TO DATE: 05 /11 /2026** **NO.OF WEEKS:15**

WEEK	**CLASS DAY**	**THEORY TOPICS**
1ST	1st	**Logic Gates:** Basic logic gates: OR, AND, and NOT ;Truth tables ,Logic symbols, Logic voltage levels ,Logic circuit design examples
	2nd	Integrated Circuits
	3rd	NOR, NAND, Exclusive OR, and Exclusive NOR gates; NOR and NAND gates used as inverters.
2ND	1st	Fan-in and fan-out; Termination of unused inputs ; AND and OR gates constructed from NAND and NOR gates
	2nd	Boolean Algebra: Boolean operations (OR, AND, NOT) Representation of logic circuits by Boolean expressions. Laws of Boolean algebra: Double inversion: A"=A OR identities: A+0 = A, A+1=1, A+A=A, A+A'=1 AND identities: A.0=0, A.1=A, A.A=A, A.A'=0 Cumulative laws: A+B=B+A, A.B=B.A Associative laws:(A+B)+C=A+(B+C), (A.B).C=A.(B.C) Distributive laws: A+(B.C)=(A+B).(A+C), A.(B+C)=A.B+A.C DeMorgan's theorems: (A+B+C+...)'=A'.B'.C'...,(A.B.C...)'=A'+B'+C'...
	3rd	Applications to logic circuit simplifications and design, Equivalent logic gates NAND and NOR implementations of logic circuits
3RD	1st	Standard forms of Boolean expressions Sum-of-products (SOP) Product-of-sums (POS)
	2nd	Karnaugh mapping
	3rd	Karnaugh mapping
4TH	1st	Combinational Logic Circuits Half adder Full adder
	2nd	Half Subtractor Full Subtractor
	3rd	4 bit adder
5TH	1st	Multiplexer (4:1) De- multiplexer (1:4)
	2nd	Decoder Encoder
	3rd	Digital comparator (3 Bit) Seven segment Decoder
6TH	1st	Latches & Flip-Flops: Basic latches NOR latch NAND latch Example uses of latches
	2nd	Gated latches Gated S-R latch Gated D-latch
	3rd	Flip-flops: S-R flip-flop D-type flip-flop Flip-flop timing diagrams

LESSON PLAN – 2026-27(Winter)

7TH	1st	J-K flip-flop T-type flip-flop Flip-flop timing diagrams
	2nd	Master-slave and edge-triggered principles
	3rd	Test
8TH	1st	Counters: Circuit diagram and working principle of Binary counters
	2nd	up-down counter (circuits, truth tables, and timing diagrams)
	3rd	Asynchronous counters and ripple counter
9TH	1st	Synchronous counters
	2nd	Decade counter
	3rd	Module–n counter and its combinations Divide-by-n counters obtained from truncated binary sequences
10TH	1st	Synchronous counter design using D-type flip-flops Synchronous counter design using J-K flip-flops
	2nd	Shift Registers: Circuit diagram, truth tables, and timing diagrams of Shift Registers
	3rd	Serial input shift register
11TH	1st	Serial/parallel load shift register
	2nd	Shift register counters Ring counter Self-starting ring counter Johnson counter
	3rd	TEST
12TH	1st	Semiconductor Memories: Define the terms ROM, RAM, PROM, EPROM
	2nd	Draw a typical memory cell
	3rd	Design a small diode matrix ROM to serve as a code converter
13TH	1st	Design and draw the logic diagram of a specified size memory system
	2nd	Operating principle of dynamic memory
	3rd	Advantages and disadvantages of dynamic memory vs. static memory
14TH	1st	Difference between dynamic memory vs. static memory
	2nd	Sequential Circuit Design: Combinational vs. Sequential circuits
	3rd	Adder, Subtractor,
15TH	1st	decoder,
	2nd	multiplexer, de-multiplexer, comparator
	3rd	Finite state machines- Concept only

LESSON PLAN – 2026-27(Winter)

LESSON PLAN – 2026-27

DISCIPLINE: ETC	SEMESTER : 3rd	NAME OF THE TEACHING FACULTY: ANURAG SETHY
SUBJECT:- ELECTRIC CIRCUITS & NETWORKS	NO.OF DAYS/PER WEEK CLASS ALLOTTED : 3	SEMESTER FROM DATE:01/07/2026 TO DATE: 05/11/2026 NO.OF WEEKS:15

Week	Class	Topic
1	1	Intro, node analysis
	2	Mesh analysis & problems
	3	Thevenin theorem
2	1	Norton & max power
	2	Superposition Millman Reciprocity
	3	Numericals Unit I
3	1	Active/passive elements
	2	Complex impedance
	3	Power concepts
4	1	Series RL RC RLC
	2	Parallel RL RC RLC
	3	Problems Unit II
5	1	Resonance intro
	2	Series resonance
	3	Series resonance numericals
6	1	Parallel resonance

	2	Parallel resonance numericals
	3	Comparison applications
7	1	Unit III problems
	2	Passive vs active filters
	3	Fourier concept spectrum
8	1	LPF HPF
	2	BPF BSF
	3	Design LPF HPF
9	1	Filter numericals
	2	Composite filter
	3	Revision test
10	1	Laplace definition properties
	2	LT of signals
	3	LT theorems
11	1	Initial final value
	2	Inverse LT
	3	Applications in circuits
12	1	Linear nonlinear networks
	2	Unilateral bilateral Z params
	3	Y params
13	1	h params
	2	Interrelation
	3	Interconnection
	1	Two port numericals

14	2	Revision
	3	Tutorial
15	1	Model test
	2	Doubt clearing
	3	Course recap

Anurag Sethy
Lect-S-II-Dept ETC

LESSON PLAN (2026-27)

DISCIPLINE: ETC	SEMESTER:3RD	NAME OF THE FACULTY: YOGASAKTI YOGAMAYA
SUBJECT: SIGNAL AND SYSTEM (ETCPC209)	NO. OF CLASSES PER WEEK: 3	SEMESTER FROM DATE:1/7/16 TO DATE :5/11/26 NO. OF WEEKS: 15
WEEK	**CLASS**	**TOPIC**
1st	1st	**Unit-1: Introduction to Signal and System** Signal and system as seen in everyday Life
	2nd	Signal and system in various branches of engineering.
	3rd	Electrical, Mechanical, Hydraulic, Thermal, Biomedical signal and system as example
2nd	1st	Extracting the common essence and requirement signal and system
	2nd	Extracting the common essence and requirements of signal and system.
	3rd	**Unit-2: Formalizing signals** Energy and power signal
3rd	1st	Signal properties: Periodicity Absolute integrability
	2nd	Determinism and stochastic character
	3rd	Some special signals of importance The unit step The unit impulse The sinusoid The complex exponential
4th	1st	some special time-limited signals Continuous and discrete time signals Continuous and discrete amplitude signals.
	2nd	Formalizing systems- system properties Linearity Additivity and homogeneity Shift-invariance
	3rd	Causality Stability Reliability
5th	1st	**Unit -3 Continuous time and discrete time Systems** Linear shift-invariant (LSI) systems in detail
	2nd	The impulse response and step response
	3rd	Convolution
6th	1st	Input-output behavior with aperiodic convergent inputs
	2nd	Cascade interconnections
	3rd	Characterization of causality and stability of linear shift-invariant systems
7th	1st	System representation through differential equations and difference equations
	2nd	**Unit-4: Periodic and semi-periodic inputs to an LSI system** The notion of a frequency response and its relation to the impulse response
	3rd	Fourier series representation
8th	1st	The Fourier Transform

	2nd	Convolution/multiplication and their effect in the frequency domain, magnitude and phase response, Fourier domain duality.
	3rd	The Discrete-Time Fourier Transform (DTFT)
9th	1st	The Discrete Fourier Transform (DFT)
	2nd	Parseval's Theorem The idea of signal space and Orthogonal bases of signals
	3rd	**Unit-5: Laplace Transform for continuous time signals and systems-** The notion of Eigen functions of LSI systems A basis of Eigen functions
10th	1st	Region of convergence
	2nd	System functions
	3rd	Poles and zeros of system functions and signals
11th	1st	Laplace domain analysis
	2nd	Solution to differential equations and system behavior
	3rd	Generalization of Parseval's Theorem
12th	1st	**System realization** System realization through block-diagram representation and system interconnection
	2nd	State-space analysis and multi-input, multi-output Representation.
	3rd	The state-transition matrix and its role
13th	1st	The Sampling Theorem and its implications Spectra of sampled signals.
	2nd	Reconstruction: Ideal interpolator Zero-order hold First-order hold
	3rd	Aliasing and its effects.
14th	1st	Relation between continuous and discrete time systems.
	2nd	**Unit-7: Applications of signal and system theory** Modulation for communication and filtering
	3rd	Time-frequency representation and the uncertainty principle
15th	1st	Time-frequency representation and the uncertainty principle
	2nd	Short-time Fourier Transforms
	3rd	wavelet transforms

DISCIPLINE: ETC	**SEMESTER:3rd**	**NAMEOF THE TEACHING FACULTY : SRI PRAKASH CHANDRA SETHI, Sr Lecturer**
SUBJECT: ELECTRONICS MEASUREMENT & INSTRUMENTATION ENGINEERING	**NO.OF DAYS/PER WEEK CLASS ALLOTTED:3**	**SEMESTER FROM DATE:1/07/26 TO DATE: 05/11/2026 NO.OF WEEKS:15**

Week	CLASSDAY	THEORY/PRACTICAL TOPICS
Week 1	**1**	Static and dynamic characteristics
	2	Accuracy, sensitivity, reproducibility, static error
	3	Instrument errors
Week 2	**1**	Classification and PMMC
	2	Moving Iron instruments
	3	DC & AC Ammeters
Week 3	**1**	DC & AC Voltmeters
	2	Ohmmeters (Series & Shunt)
	3	Analog Multimeter
Week 4	**1**	Multi-range meters
	2	Q-meter operation
	3	Applications summary and MCQs
Week 5	**1**	Ramp-type DVM
	2	Digital display, resolution, sensitivity
	3	Digital Multimeter (DMM)
Week 6	**1**	Digital frequency meter
	2	Digital time measurement
	3	Digital tachometer
Week 7	**1**	LCR meter
	2	CRO block diagram and working
	3	Dual trace CRO
Week 8	**1**	CRO measurements
	2	Lissajous figures
	3	DSO (Digital Storage Oscilloscope)
Week 9	**1**	High-frequency Oscilloscope
	2	DC bridges: Wheatstone
	3	AC bridges: Maxwell, Hay
Week 10	**1**	Schering & De Sauty bridges
	2	Q-meter operation
	3	Frequency measurement
Week 11	**1**	LCR meter & its measurements.
	2	Definition, classification, parameters
	3	Strain gauge & LVDT
Week 12	**1**	Working principle of capacitive transducers (pressure)
	2	Working principle of Load Cell (Pressure Cell)
	3	Working principle of Temperature Transducer (RTD, Optical Pyrometer, Thermocouple, and Thermister)
Week 13	**1**	Thermocouple & Thermistor
	2	Working principle of Current transducer
	3	Working principle of Proximity, and Light sensors
Week 14	**1**	Working principle of AF Sine and Square wave generator
	2	Working principle of the Function Generator
	3	Wave & Spectrum Analyser

Week 15	**1**	Data Acquisition System (DAS)
	2	MCQs, short answer reviews & Doubt clearing
	3	Full Syllabus Practice / Model Test / Assignment Discussion/Real-life applications