ASIAN SCHOOL OF TECHNOLOGY, KHORDHA

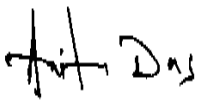
ACADEMIC LESSON PLAN (WINTER-2026)

TH:1- ELECTRIC CIRCUITS & NETWORKS (COURSECODE: ETCPC201)

Discipline: E& TC Engineering	Semester:3RD	No.of periods available: 45	NameofTeachingFaculty**:ANITA DAS**
Subject: ELECTRIC CIRCUITS & NETWORKS	No. of Days/ per week class allotted : 3periods /week		Semester from : 02.07.2026 To05.11.2026 No. of weeks : 15weeks
Week	ClassDay		TheoryTopics
1st	1st	1	**Unit-1:Network Theorems in DC Circuits** 1.1 Node & Mesh Analysis of Electrical Circuits with simple problem
	2nd	1	1.2 The venin's Theorem, Norton's Theorem, Maximum Power transfer Theorem
	3rd	1	Superposition Theorem, Mill man Theorem, Reciprocity Theorem-Statement, Explanation & applications
2nd	4th	1	CONTINUE..,
	5th	1	. 1.3 Simple numerical problems on above.
	6th	1	**Unit-2: A. C. Fundamentals & Sinusoidal Steady State Analysis:** 2.1 Definitions & explanation of Active & Passive elements.
3rd	7th	1	2.2 Concept of complex impedance, Rectangular & polar form. Simple problems.
	8th	1	CONTINUE
	9th	1	2.3 Idea on Apparent, real and active power
4th	10th	1	2.4 Sinusoidal response of a series R-L, R-C, R-L-C circuit
	11th	1	CLASS TEST:I
	12th	1	2.5 Sinusoidal response of a parallel R-L, R-C, R-L-C circuit
5th	13th	1	. CONTINUE.
	14th	1	**Unit-3: Resonance** 3.1 Introduction to resonance circuits & Resonance tuned circuit,

	15th	1	3.2 Series & Parallel resonance
6th	16th	1	3.3 Expression for series resonance, Condition for Resonance, Frequency of Resonance, Impedance
	17th	1	, Current, Voltage, power, Q Factor and Power Factor of Resonance Bandwidth in term of Q. Voltage Magnification, Acceptor Circuit
	18th	1	3.4 Parallel Resonance Condition for Resonance, Frequency of Resonance, Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance
7th	19th	1	Bandwidth of resonant circuit / Tank circuit Current magnification, Rejecter Circuit
	20th	1	3.5 Comparisons of Series & Parallel resonance & applications
	21st	1	3.6 Simple problems on above Circuits
8th	22nd	1	**Unit-4: Passive Filter**: 4.1 Idea of Passive & Active Filter, Their relative advantages and disadvantages
	23rd	1	CONTINUE
	24th	1	4.2 Idea of Fourier Series & frequency spectrum. (concept only)
9th	25th	1	4.3 Construction, Principle of operation, Characteristics of Low pass filter
	26th	1	Construction, Principle of operation, Characteristics of high pass filter
	27th	1	Construction, Principle of operation, Characteristics of Band passfilter& Band stop filter
10th			4.4 Design of Low pass filter & High pass filter.
	28th	1	4.5 Numerical problems on the above 4.6 Composite filter (concept only)
	29th	1	**Unit-5: Laplace transform and its applications** **5.**1 Definition & properties of Laplace Transform (LT)
	30th	1	5.2 LT of unit step, impulse, ramp, exponential, sine, cosine, pulse, impulse, Dirac delta function.
11TH	31st	1	CONTINUE
	32nd	1	5.3 Explanation of Laplace Transform theorems like Differential, integral
	33rd	1	5.4 Time displacement, initial value & final value

12TH	34th	1	5.5 Inverse Laplace Transformation. Simple problem
	35th	1	5.6 Application of Laplace transformation in circuit theory
	36th	1	CLASS TEST :II
13TH	37th	1	**Unit-6:Two Port Network** 6.1 Idea on Linear &Non linear networks:
	38th	1	, Unilateral & Bilateral networks
	39th	1	6.2 Explanation of Z parameter (Open Circuit Impedance Parameter
14TH	40th	1	6.3 Explanation of Y parameter (Short Circuit Admittance Parameter
	41st	1	6.4 Explanation of h -parameter (Hybrid Parameter)
	42nd	1	CONTINUE
15th	43rd	1	6.5 Interrelation of above parameters
	44th	1	6.6 Inter Connection of Two Port Network
	45th	1	6.7 Simple problem on above parameters.



Signature of Teaching Faculty

ASIAN SCHOOL OF TECHNOLOGY, KHORDHA

ACADEMIC LESSON PLAN (WINTER-2026)

TH: 2- ELECTRONICS DEVICES (COURSE CODE: ETCPC 203)

Discipline: E& TC Engineering	Semester:3RD	No.ofperiods available: 45	NameofTeachingFaculty:ARUNA SATAPATHY
Subject: ELECTRONICS DEVICES	No. of Days/ per week class allotted : 3periods /week		Semester from:02.07.2026 To 05.11.2026 No. of weeks:15weeks
Week	ClassDay		TheoryTopics
1st	1st	1	**Unit-1: Introduction to Semiconductor Physics** 1.1 Review of Quantum Mechanics 1.2 Electrons in periodic Lattices
	2nd	1	1.3 Energy bands in intrinsic and extrinsic silicon
	3rd	1	1.4 Carrier transport 1.4.1 Diffusion current 1.4.2 Drift current 1.4.3 Mobility and resistivity
2nd	4th	1	**Unit-2: P-N Junction Diodes** 2.1 Generation and recombination of carriers
	5th	1	2.2 Poisson and continuity equation
	6th	1	2.3 P-N Junction Diodes 2.3.1 Construction of P-N Junction Diode
3rd	7th	1	2.3.2 Operating Principle
	8th	1	2.3.3 P-N junction characteristics 2.3.4 I-V characteristics
	9th	1	2.3.5 Small signal switching models 2.3.6 Avalanche breakdown
4th	10th	1	2.3.7 Zener diode
	11th	1	2.3.8 Schottky diode
	12th	1	2.3.9 LED

5th	13th	1	2.3.10 Photodiode and solar cell
	14th	1	**Unit-3: Bipolar Junction Transistor (BJT)** 3.1 Construction of BJT 3.2 Operating Principle of BJT
	15th	1	3.3 Types of BJT 3.4 Working principle of p-n-p and n-p-n BJT
6th	16th	1	3.5 I-V characteristics 3.6 Ebers Moll Model
	17th	1	3.7 Different types of transistor connection 3.7.1 Common Base (CB) 3.7.2 Common Emitter (CE) 3.7.3 Common Collector (CC)
	18th	1	CONTINU….
7th	19th	1	3.8 Input and output characteristics of transistor in different connections
	20th	1	CLASS TEST: I
	21th	1	3.9 Define ALPHA, BETA and GAMMA of transistors in various modes. 3.10 Establish the Mathematical relationship between ALPHA, BETA and GAMMA
8th	22th	1	311 Basic concept of Biasing 3.12 Types of Biasing
	23rd	1	3.13 h-parameter model of BJT3.14 Load line and determine the Q-point
	24th	1	3.15 Types of Coupling 3.16 Working principle and use of R-C Coupled Amplifier
9th	25th	1	3.17 Frequency Responses of R-C coupled Amplifier
	26th	1	**Unit-4: FIELD EFFECT TRANSISTOR (FET)** 4.1 FET & its classifications 4.2 Differentiate between JFET & BJT
	27th	1	4.3 Construction, working principle & characteristics of JEFT
10th	28th	1	4.4 Parameters of JFET & establish relation among JFET parameters
	29th	1	4,5 JEFT as an amplifier
	30th	1	4.5 Construction and working principle of MOSEFT 4.6 Classification of MOSEFT

11TH	31st	1	4.7 Characteristics (Drain & Transfer) of MOSEFT .
	32nd	1	4.8 Explain the operation of CMOS, VMOS & LDMOS
	33rd	1	CONTINUE….
12TH	34th	1	**Unit-5: FEED BACK AMPLIFIER & OSCILLATOR** 5.1 Define & classify Feedback Amplifier
	35th	1	5.2 Types of feedback – negative &positive feedback
	36th	1	5.3 Characteristics voltage gain, bandwidth, input Impedance output impedance in amplifiers
13TH	37th	1	stability, noise and distortion in amplifiers
	38th	1	5.4 Oscillator 5.4.1 Block diagram of sine wave oscillator
	39th	1	5.4.2 Types Requirement of oscillation 5.4.3 Barkhausen criterion
14TH	40th	1	5.5 LC oscillators 5.5.1 Colpitts Oscillators
	41th	1	. 5.5.2 Hartley Oscillators 5.5.3 Wien Bridge Oscillators.
	42nd	1	CLASS TEST :II
15th	43rd	1	**Unit-6: Integrated Circuit Fabrication Process** 6.1 Oxidation 6.2 Diffusion 6.3 Ion implantation
	44th	1	6.4 Photo-lithography 6.5 Etching
	45th	1	6.7 Chemical vapor deposition 6.8 Sputtering 6.9 Twin-tub CMOS process

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ASIAN SCHOOL OF TECHNOLOGY, KHORDHA

ACADEMIC LESSON PLAN (WINTER-2026)

TH: 3- DIGITAL ELECTRONICS (COURSE CODE: ETCPC205)

Discipline: E&TC ENGG	Semester:3rd	No.ofperiods available: 45	Name of Teaching Faculty**:** ARUNA SATAPATHY
Subject: DIGITAL ELECTRONICS	No. of Days/ per week class allotted : 3periods /week		Semesterfrom:02.07.2026To 05.11.2026 No.ofweeks:15weeks
Week	ClassDay		TheoryTopics
1st	1st	1	**Unit-1: Logic Gates** 1.1 Basic logic gates: OR, AND, and NOT 1.1.1 Truth tables 1.1.2 Logic symbols 1.1.3 Logic voltage levels 1.1.4 Logic circuit design examples 1.2 Integrated Circuits
	2nd	1	1.3 NOR, NAND, Exclusive OR, and Exclusive NOR gates
	3rd	1	1.4 NOR and NAND gates used as inverters. 1.5 Fan-in and fan-out 1.6 Termination of unused inputs .
2nd	4th	1	1.7 AND and OR gates constructed from NAND and NOR gates
	5th	1	**Unit-2: Boolean Algebra** 2.1 Boolean operations (OR, AND, NOT) 2.2 Representation of logic circuits by Boolean expressions. 2.3 Laws of Boolean algebra: 2.3.1 Double inversion: A"=A 2.3.2 OR identities: A+0 = A, A+1=1, A+A=A, 2.3.3 AND identities: A.0=0, A.1=A, A.A=A, A.A'=0 A+A'=1
	6th	1	2.3.4 Cumulative laws: A+B=B+A, A.B=B.A 2.3.5 Associative laws:(A+B)+C=A+(B+C), (A.B).C=A.(B.C) 2.3.6 Distributive laws: A+(B.C)=(A+B).(A+C), A.(B+C)=A.B+A.C

			2.3.7 DeMorgan's theorems :(A+B+C+...)'=A'.B'.C'...,(A.B.C...)'=A'+B'+C'...
3rd	7th	1	2.3.8 Applications to logic circuit simplifications and design 2.4 Equivalent logic gates 2.5 NAND and NOR implementations of logic circuits
	8th	1	2.6 Standard forms of Boolean expressions 2.6.1 Sum-of-products (SOP) 2.6.2 Product-of-sums (POS)
	9th	1	2.7 Karnaugh mapping
4th	10th	1	**Unit-3: Combinational Logic Circuits** 3.1 Half adder 3.2 Full adder
	11th	1	3.3 Half Subtractor 3.4 Full Subtractor
	12th	1	3.5 4 bit adder
5th	13th	1	3.6 Multiplexer (4:1) 3.7 De- multiplexer (1:4)
	14th	1	3.8 Decoder 3.9 Encoder
	15th	1	3.10 Digital comparator (3 Bit) 3.11 Seven segment Decoder
6th	16th	1	**Unit-4: Latches & Flip-Flops** 4.1. Basic latches 4.1.1 NOR latch 4.1.2 NAND latch
	17th	1	4.1.3 Example uses of latches 4.2. Gated latches 4.2.1 Gated S-R latch 4.2.2 Gated D-latch :
	18th	1	4.3. Flip-flops 4.3.2 S-R flip-flop 4.3.3 D-type flip-flop
7th	19th	1	4.3.4 J-K flip-flop 4.3.5 T-type flip-flop
	20th	1	4.3.1 Master-slave and edge-triggered principles 4.3.6 Flip-flop timing diagrams
	21th	1	CLASS TEST :I

8th	22nd	1	**Unit-5: Counters** 5.1 Circuit diagram and working principle of Binary counters
	23rd	1	5.2 up-down counter (circuits, truth tables, and timing diagrams)
	24th	1	5.3 Asynchronous counters and ripple counter 5.4 Synchronous counters
9th	25th	1	5.5 Decade counter 5.6 Module–n counter and its combinations
	26th	1	5.7. Divide-by-n counters obtained from truncated binary sequences
	27th	1	5.8. Synchronous counter design using D-type flip-flops
10th	28th	1	5.9 Synchronous counter design using J-K flip-flops
	29th	1	**Unit-6: Shift Registers** 6.1 Circuit diagram, truth tables, and timing diagrams of Shift Registers 6.2 Serial input shift register
11TH	31st	1	6.3 Serial/parallel load shift register
	32nd	1	6.4 Shift register counters 6.4.1. Ring counter
	33rd	1	6.4.2. Self-starting ring counter 6.4.3. Johnson counter
12TH	34th	1	**Unit-7: Semiconductor Memories** 7.1 Define the terms ROM, RAM, PROM, EPROM.
	35th	1	7.2 Draw a typical memory cell
	36th	1	7.3 Design a small diode matrix ROM to serve as a code converter.
13TH	37th	1	7.4 Design and draw the logic diagram of a specified size memory system
	38th	1	7.5 Operating principle of dynamic memory
	39th	1	7.6 Advantages and disadvantages of dynamic memory vs. static memory

14TH	40th	1	7.7 Difference between dynamic memory vs. static memory
	41st	1	**Unit-8: Sequential Circuit Design** 8.1 Combinational vs. Sequential circuits 8.2 Adder, Subtractor,decoder,
	42nd	1	Continue..
15th	43rd	1	multiplexer, de-multiplexerand comparator
	44th	1	CLASS TEST :II
	45th	1	8.3. Finite state machines- Concept only

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ASIAN SCHOOL OF TECHNOLOGY, KHORDHA

ACADEMIC LESSON PLAN (WINTER-2026)

TH:4- ELECTRONICS MEASUREMENT & INSTRUMENTATION (COURSE CODE: ETCPC207)

Discipline: E&TC ENGG	Semester:5TH	No.ofperiods available: 45	Name of Teaching Faculty:JAYANTA PANDA
Subject: ELECTRONICS MEASUREMENT & INSTRUMENTATION	No. of Days/ per week class allotted : 3periods /week		Semesterfrom:02.07.2026To 05.11.2026 No.ofweeks:15weeks
Week	ClassDay		TheoryTopics
1st	1st	1	**Unit-1: Qualities of Measurement** Unit-1.1 Discuss the Static Characteristics
	2nd	1	1.2 Accuracy, sensitivity, reproducibility and static error of instruments
	3rd	1	1.3 Dynamic characteristics and speed of instruments
2nd	4th	1	1-4 Errors of an instrument
	5th	1	**Unit-2: Indicating Instruments** 2.1 Introduction 2.2 Types of Indicating Instruments 2.3 Basic operating principle of Indicating Instruments
	6th	1	2.4 Working principle of permanent magnetic moving coil Instruments
3rd	7th	1	2.5 Working principle of Moving Iron Instrument
	8th	1	2.6 Basic principle of operation of DC Ammeter and Multi range Ammeter 2.7 Basic principle of operation of AC Ammeter and Multi range Ammeter
	9th	1	2.8 Basic principle of operation of DC Voltmeter and its applications 2.9 Basic principle of operation of AC Voltmeter and its application

4th	10th	1	2.10 Basic principle of Ohm Meter (Series & Shunt type)
	11th	1	2.11 Basic principle of Analog Multimeter and its types & applications
	12th	1	2.12 Operation of Q meter and its essentials
5th	13th	1	**Unit-3: Digital Instruments** 3.1 Principle of operation of Ramp type Digital Voltmeter & applications
	14th	1	3.2 Operation of display of Digital Multimeter& Resolution and Sensitivity
	15th	1	3.3 Basic Operating principle of Digital Millimeter, its types & applications
6th	16th	1	3.4 Basic Operating principle of Digital Frequency Meter
	17th	1	3.5 Digital Measurement of Time 3.6 Measurement of Frequency
	18th	1	3.7 Operating principle of Digital Tachometer
7th	19th	1	3.8 LCR meter &its working principle
	20th	1	**Unit-4: Oscilloscope** 4.1 Basic Operating principle of Oscilloscope & its Block Diagram
	21st	1	4.2 Basic Operating principle of Dual Trace Oscilloscope & its specification
8th	22nd	1	4.3 CRO Measurements
	23rd	1	4.4 Lissajous figures
	24th	1	4.5 Applications of Oscilloscope in measurement of Voltage and frequency

9th	25th	1	4.6 Basic Operating principle of Digital Storage Oscilloscope
	26th	1	4.7 Basic Operating principle of High frequency Oscilloscope
	27th	1	**Unit-5: Bridges** 5.1 Types of Bridges (DC & AC Bridges) 5.2 DC Bridges (Measurement of Resistance by Wheatstone's Bridge)
10th	28th	1	5.3 AC bridges (Measurement of inductance by Maxwell's Bridge & Hay's Bridge)
	29th	1	5.3 Measurement of capacitance by Schering's Bridge &DeSauty Bridge
	30th	1	5.5 Working principle of Q meter its circuit diagram& measurement of Low impedance 5.6 Measurement of frequency
11TH	31st	1	CLASS TEST :I
	32nd	1	5.7 LCR Meter & its measurements
	33rd	1	**Unit-6: Transducers & Sensors** 6.1 Define Transducer and Sensor 6.2 Type of Transducer 6.3 Parameters and advantages of Transducer
12TH	34th	1	6.5 Define Strain Gauge (No mathematical Derivation) 6.4 Working principle of Strain Gauges, 6.6 Working principle of LVDT
	35th	1	6.7 Working principle of capacitive transducers (pressure) 6.8 Working principle of Load Cell (Pressure Cell)
	36th	1	6.9 Working principle of Temperature Transducer (RTD, Optical Pyrometer,
13TH	37th	1	Working principle of Thermocouple, and Thermistor)
	38th	1	6.10 Working principle of Current transducer 6.11 Working principle of Proximity & Light sensors.
	39th	1	Continue

14TH	40th	1	**Unit-7: Signal Generator, Wave Analyzer& DAS** 7.1 General aspect & classification of Signal generators
	41st	1	7.2 Working principle of AF Sine and Square wave generator
	42nd	1	Class test :II
15th	43rd	1	7.3 Working principle of the Function Generator
	44th	1	7.4 Function of basic Wave Analyser and Spectrum Analyser
	45th	1	7.5 Basic concept of Data Acquisition System (DAS)

Jayanta Pandey

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ASIAN SCHOOL OF TECHNOLOGY, KHORDHA

ACADEMIC LESSON PLAN (WINTER-2026)

T H : 5 - S I G N A L & S Y S T E M S (COURSE CODE: ETCPC209)

Discipline: E&TC ENGG	Semester:5TH	No.ofperiods available: 45	Name of Teaching Faculty: **SUVAM DAS**
Subject: SIGNAL & SYSTEMS	No. of Days/ per week class allotted : 3periods /week		Semesterfrom:02.07.2026To 05.11.2026 No.ofweeks:15weeks
Week	ClassDay		TheoryTopics
1st	1st	1	**Unit-1:**Introduction to Signals and Systems 1.1 Signals and systems as seen in everyday life
	2nd	1	1.2 Signals and systems in various branches of engineering
	3rd	1	1.3 Electrical, mechanical, hydraulic, thermal, biomedical signals and systems as examples
2nd	4th	1	Continue…
	5th	1	1.4 Extracting the common essence and requirements of signal and system
	6th	1	**Unit-2: Formalizing signals** 2.1 Energy and power signals 2.2 Signal properties 2.2.1 Periodicity 2.2.2 Absolute inerrability 2.2.3 Determinism and stochastic character
3rd	7th	1	Continue…
	8th	1	2.3 Some special signals of importance 2.3.1 The unit step 2.3.2 The unit impulse 2.3.3 The sinusoid 2.3.4 The complex exponential
	9th	1	2.4 some special time-limited signals 2.4.1 Continuous and discrete time signals 2.4.2 Continuous and discrete amplitude signals

4th	10th	1	Continue…
	11th	1	2.5 Formalizing systems- system properties 2.5.1 Linearity 2.5.2 Additively and homogeneity
	12th	1	.5.3 Shift-invariance 2.5.4 Causality 2.5.5 Stability 2.5.6 Reliability
5th	13th	1	**Unit-3: Continuous time and discrete time Systems** 3.1 Linear shift-invariant (LSI) systems in detail
	14th	1	3.2 The impulse response and step response
	15th	1	3.3 Convolution
6th	16th	1	3.4 Input-output behavior with aperiodic convergent inputs
	17th	1	3.5 Cascade interconnections
	18th	1	3.6 Characterization of causality and stability of linear shift-invariant systems
7th	19th	1	3.7 System representation through differential equations and difference equations
	20th	1	**Unit-4: Periodic and semi-periodic inputs to an LSI system** 4.1 The notion of a frequency response and its relation to the impulse response
	21th	1	4.2 Fourier series representation 4.3 The Fourier Transform
8th	22nd	1	4.4 Convolution/multiplication and their effect in the frequency domain magnitude and phase response, Fourier domain duality
	23rd	1	Class test :I
	24th	1	4.5 The Discrete-Time Fourier Transform (DTFT)

9th	25th	1	4.6 The Discrete Fourier Transform (DFT)
	26th	1	4.7 Perceval's Theorem 4.8 The idea of signal space and Orthogonal bases of signals.
	27th	1	**Unit-5: Laplace Transform for continuous time signals and systems-** 5.1 The notion of Eigen functions of LSI systems 5.2 A basis of Eigen functions
10th	28th	1	5.3 Region of convergence
	29th	1	5.4 System functions 5.5 Poles and zeros of system functions and signals
	30th	1	5.6 Laplace domain analysis
11TH	31st	1	5.7 Solution to differential equations and system behavior
	32nd	1	Continue…
	33rd	1	5.8 Generalization of Perceval's Theorem
12TH	34th	1	**Unit-6: System realization** 6.1 System realization through block-diagram representation and system interconnection
	35th	1	6.2 State-space analysis and multi-input, multi-output representation
	36th	1	. 6.3 The state-transition matrix and its role
13TH	37th	1	6.4 The Sampling Theorem and its implications 6.4.1 Spectra of sampled signals.
	38th	1	6.5 Reconstruction: 6.5.1 Ideal interpolator 6.5.2 Zero-order hold 6.5.3 First-order hold
	39th	1	6.6 Aliasing and its effects
14TH	40th	1	6.7 Relation between continuous and discrete time systems.
	41st	1	**Unit-7: Applications of signal and system theory** 7.1 Modulation for communication and filtering
	42nd	1	7.2 Time-frequency representation and the uncertainty principle

15th	43rd	1	CLASS TEST :II
	44th	1	7.3 Short-time Fourier Transforms and wavelet transforms
	45th	1	Continue…

Suram Das

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