Electronics Circuits (3-1-0)

VEER SURNDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA, ODISHA

LESSON PLAN

Semester: 4th Bachelor of Technology, (Electrical Engineering)			Session: 2016-17
Subject: Electronics Circuits, (Theory)			
Branch: Electrical Engineering,			Name of Faculty: Mr. Amit Mallick
Period	Module No.	Topics to be Covered	Signature of Faculty
1	I	*Diode Circuits*: Load-Line Concept, Clipping Circuits,	
2	I	Comparators, Sampling Gate, Rectifiers, Capacitor Filters, Additional Diode Circuits.	
3	I	*Transistor Characteristics*: Junction Transistor, Transistor as an Amplifier,	
4	I	Transistor Construction, CB Configuration, CE Configuration,	
5	I	CE Cutoff & Saturation Region, CE Current Gain,	
6	I	CC Configuration, Analytical Expressions for Transistor Characteristics, Phototransistor.	
7	I	*Transistor at Low Frequencies*: Graphical Analysis of the CE Configuration, Two-port Devices and the Hybrid Model,	
8	I	h- parameters, Analysis of the transistor amplifier using h-parameter.	
9	I	Emitter Follower, Miller's theorem and its dual,	
10	I	Cascading transistor amplifiers, Simplified CE and CC configurations.	
11	II	Junction FET and its V-I characteristics, FET small signal model, MOSFET, Biasing the FET,	
12	II	FET as a Voltage Variable-Resistor, CD amplifier.	
13	II	The Hybrid-pi CE Transistor Mode, Hybrid-pi conductances and capacitances,	
14	II	Validity of hybrid-pi mode, variation of hybrid-pi parameters, CE Short-circuit current gain,	
15	II	Current gain with resistive load, single stage CE Transistor amplifier,	

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16	II	Emitter-follower at high frequencies, Classification of amplifiers,	
17	II	Distortion, frequency response of an amplifier, Bode plot,	
18	II	Step response of an amplifier, Band pass of cascaded stages,	
19	II	RC-Coupled amplifier and its low frequency response,	
20	II	High frequency response of two cascaded CE stages.	
21	III	Classification of amplifier, Feedback concept, transfer gain,	
22	III	Negative feedback, Input-output resistance,	
23	III	Method of analysis of a feedback amplifier, voltage series feedback pair,	
24	III	Current series-shunt feedback, voltage shunt feedback,	
25	III	Effect of feedback on bandwidth, Double &triple pole transfer function with feedback,	
26	III	Voltage series, shunt, current series and shunt frequency response,	
27	III	Stability gain and phase margins,	
28	III	Various types of compensations,	
29	III	Different types of oscillators,	
30	III	Frequency stability.	
31	IV	The basic operational amplifier (OPAMP), differential amplifier and its transfer characteristics,	
32	IV	Emittercoupled differential amplifier, IC OPAMP,	
33	IV	Off-set error voltages and currents, temperature rift of input offset voltage and current,	
34	IV	Measurement of OPAMP parameters and its frequency response,	
35	IV	Different types of compensation of OPAMP and its step response Basic OPAMP Application,	
36	IV	Differential DC amplifier, AC-Coupled amplifier, analog integration and differentiation,	
37	IV	Active filters, resonant band-pass filters, delay equalizers, comparators,	
38	IV	Sample & Hold circuits, AC/DC Converters, Logarithmic amplifiers, Schmitt Trigger,	
39	IV	ECL, PLL and 555-Timers. Class –A large signal amplifier, higher order harmonic generation	

40	IV	Transformer-coupled audio amplifier, pushpull amplifier, Class-B & AB Amplifiers, regulated power supplies, series voltage regulator.	