

**Maulana Abul Kalam Azad University of Technology, West Bengal***(Formerly West Bengal University of Technology)***Syllabus for B. Tech in Electrical Engineering**

(Applicable from the academic session 2018-2019)

<b>Name of the course</b>	<b>ANALOG ELECTRONICS</b>
<b>Course Code: PC-EE 302</b>	<b>Semester: 3rd</b>
<b>Duration: 6 months</b>	<b>Maximum Marks: 100</b>
<b>Teaching Scheme</b>	<b>Examination Scheme</b>
Theory: 3 hrs/week	Mid Semester Exam: 15 Marks
Tutorial: 0 hr/week	Assignment & Quiz: 10 Marks
Practical: 2 hrs/week	Attendance: 05 Marks
Credit Points: 3+1	End Semester Exam: 70 Marks

**Objective:**

1.	To understand the structure and properties of different components of Analog Electronics.
2.	To learn different techniques to analyze Analog electronics circuit.
3.	To learn application of different components of Analog electronics.
4.	To understand principle and operation of different Analog electronic circuits.
5.	To acquire problem solving skills of electronic circuit.

**Pre-Requisite**

Unit	Content	Hrs	Marks
1	<b>Filters &amp; Regulators:</b> Capacitor filters, $\pi$ -section filter, ripple factor, series and shunt voltage regulator, percentage regulation, Concept of SMPS.	4	
2	<b>Transistor biasing &amp; stability:</b> Q point, Self Bias-CE, compensation techniques, h-model of Transistor, Expression of voltage gain, current gain, input & output impedance, Trans-resistance & Trans-conductance, Emitter follower circuits, High frequency model of Transistor.	6	
3	<b>Transistor amplifier:</b> RC coupled amplifier, Function of all components, Equivalent circuit, derivation of voltage gain, Current gain, Input impedance & output impedance, Frequency response characteristics, Lower & upper half frequencies, Bandwidth, Concept of Wide band amplifier.	6	
4	<b>Feed back amplifier &amp; Oscillators:</b> Concept of Feed back, Negative & Positive feedback, Voltage/Current, Series/Shunt feedback, Berkhausen criterion, Colpit, Hartley's, Phase shift, Wien bridge, & Crystal oscillators.	5	
5	<b>Operational amplifier:</b> Ideal OPAMP, Differential amplifier, Constant current source (Current mirror etc), Level shifter, CMRR, Open & closed loop circuits, importance of feedback loop (positive & negative), inverting & non-inverting amplifiers, Voltage follower/Buffer circuits.	6	
6	Application of Operational amplifiers: Adder, Integrator &	5	

	Differentiator, Comparator, Schmitt Trigger, Instrumentation Amplifier, Log & Antilog amplifier, Trans-conductance multiplier, Precision rectifier, Voltage to current & Current to voltage converter.		
7	<b>Power amplifier:</b> Class A, B, AB, C, Conversion efficiency, Tuned amplifier.	4	
8	<b>Multivibrator:</b> Monostable, Bistable multivibrator, Monostable & Astable operation using 555 timer.	2	
9	<b>Special function circuits:</b> VCO & PLL	2	