

Department of Electronics and Communication Engineering

JUIT Waknaghat

A meeting of the Board of Studies of the Department of Electronics and Communication Engineering was held on 29.09.2016 at 11:05 AM in the Board Room.

The following members were present

- | | | | |
|----|----------------------------|-----------------|---------------------|
| 1. | Prof. Sunil Vidya Bhooshan | Chairman | |
| 2. | Prof. D.T. Shahani | External Member | (comments received) |
| 3. | Prof. R.C. Jain | External Member | (comments received) |
| 4. | Dr. Ghanshyam Singh | Member | |
| 5. | Dr. Rajiv Kumar | Member | |
| 6. | Dr. Shruti Jain | Member | |
| 7. | Dr. Neeru Sharma | Member | |
| 8. | Dr. Meenakshi Sood | Member | |

The board approved the following suggestions:

1. The minutes of the last Board of Studies of the Department of Electronics and Communication Engineering which was held on 27.02.2016 at 10:30 AM in the Board Room was approved.
2. The minor changes in the course curriculum for B-Tech 2016-2020 batch was approved (change in 4th and 5th semester).

Fourth semester (B4)

Sr.No.	New Scheme	Contact Hours	Credits	Existing
1	Financial Management	3	3	
2	Probability Theory and Random Processes	4	4	
3	Electromagnetic Engineering	4	4	Semiconductor Devices
4	Digital Electronics	4	4	
5	Analogue/ Digital Communications	4	4	Analogue Communication

6	Devices and Circuit simulation Lab	2	1	
7	Digital Electronics Lab	2	1	
8	Analogue/Digital Communications Lab	2	1	Analogue Communications Lab
9	UNIX Programming Lab	2	1	
10	Environmental Studies	3	3	
		30	26	

Fifth semester (B5)

Sr.No.	New Scheme	Contact Hours	Credits	Existing
1	Social and Legal Issues	3	3	
2	Linear Integrated Circuits	4	4	Digital Communications
3	Digital Signal Processing	4	4	
4	Microprocessors and Controllers	4	4	
5	Microwave & Antenna Design	4	4	Electromagnetic Engineering
6	Theory of Control Systems	4	4	
7	Digital Signal Processing Lab	2	1	
8	Linear Integrated Circuits Lab	2	1	Digital Communications Lab
9	Microprocessors and Controllers Lab	2	1	
10	Microwave & Antenna Design Lab	2	1	Electromagnetic Lab
11	Theory of Control Systems lab	2	1	
		33	28	

3. New electives introduced during the academic session 2015-16 and Odd Semester 2016-17 were approved, there was a suggestion to change the name of RF and Microwave **to** RF and Microwave Engineering and Antenna and Wave Propagation **to** Antennas and Wave Propagation.

4. The syllabus of Electrical Machines and Instruments and Telecommunication Networks was revised and the latest syllabus is as follows :

Telecommunication Networks (10B11EC611)

Unit	Topics	References	Lectures
1.	DATA COMMUNICATION:- Introduction: Networks – Protocols and standards – Standards organizations – Line configurations – Topology – Transmission mode – Categories of networks – Inter networks. OSI model: Functions of the layers. Encoding and modulating: Transmission media: Guided media – Unguided media – Transmission impairment – Performance.	T1: Ch1, 2, 6 T2: Ch1, 2,6,7	6
2.	ERROR CONTROL:- Error detection and correction: Types of errors – Detection – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cyclic Redundancy Check (CRC) – Check sum – Error correction.	T1: Ch 5 T2: Ch10	8
3.	DATA LINK PROTOCOLS: Data link control: Line discipline – Flow control – Error control. Data link protocols: Asynchronous protocols – Synchronous protocols – Character oriented protocols – BIT oriented protocols – Link access procedures, HDLC, PPP.	T1: Ch 9 T2: Ch11	6
4.	DATA LINK LAYER: ARQ protocols – Stop and Wait ARQ, Go back N ARQ, Selective Repeat ARQ, Transmission efficiency of ARQ protocols HDLC Data Link control. Random access – <u>ALOHA</u> , slotted <u>ALOHA</u> , CSMA, CSMA-CD and CSMA –CA.	T1: Ch 8 T2: Ch11,12	6
5.	NETWORKS AND SWITCHING: - LLC and MAC layers, LAN: Project 802 – Ethernet – Token bus – Token ring – FDDI. MAN: IEEE 802.6 (DQDB) – SMDS. Switching: Circuit switching – Packet switching – Message switching	T1: Ch 10,11 T2: Ch13	10
6.	a) NETWORKING DEVICES:- Networking and internetworking devices: Repeaters – Bridges – Gateways – Other devices – b) Network layer: <i>Need, Addressing, Routing Protocols, Subnetting, Supernetting.</i>	T1: Ch 14,15 T2: Ch15	10
Total number of lectures			46

Text Books

1. Data Communication And Computer networks PHI : Prakash C Gupta
2. Data communications and Networking Pearson Education: Behrouz A. Forouzan

Reference Books

1. Data and Computer Communications, 9th edition, Pearson: William Stallings
2. Computer Networks, Pearson Education, 4th edition: A. Tanenbaum

Electrical Machines and Instruments (10B11EC311)

Unit	Topics	References (chapter number, page no. etc)	Lectures
1.	<p style="text-align: center;">Magnetic Circuits</p> <p>Magnetomotive Force (MMF); Magnetic Field Strength; Permeability, Reluctance, Permeance; Analogy between Electric and Magnetic Circuits.</p>		2
2.	<p style="text-align: center;">Transformers</p> <ul style="list-style-type: none"> • Principle of Operation, EMF Equation; Ideal Transformer, Conditions for Ideal Transformer, Transformation Ratio, Volt-Amperes, Impedance Transformation. • Practical Transformer at No Load, Effect of Magnetization, Effect of Core Losses: (i) Hysteresis Loss, (ii) Eddy-Current Loss; Construction of Transformer, Core of Transformer: (i) Core Type Transformer; (ii) Shell Type Transformer. • Ideal Transformer on Load; Practical Transformer on Load : Effect of Winding Resistance, Effect of Flux Leakage; Equivalent Circuit of a Transformer, Phasor Diagram, Simplified Equivalent Circuit, Approximate Equivalent Circuit • Voltage Regulation of a Transformer, Approximate Voltage Drop, Exact Voltage Drop; Condition for Zero Regulation, Condition for Maximum Regulation. • Efficiency of a Transformer; Condition for Maximum Efficiency; All-day Efficiency. 		12
3	<p style="text-align: center;">Electro-mechanical Energy Conversion</p> <ul style="list-style-type: none"> • DC machines- construction, working principle and characteristics and applications • Synchronous machines- construction, working principle and characteristics and applications • Induction machines and their characteristics, speed control, applications • Introduction to fractional horse power motors • Stepper motors and their applications 		12
4	<p style="text-align: center;">Sensors and Transducers</p> <ul style="list-style-type: none"> • Introduction to sensors and transducers and their classification • Strain gauge, LVDT, piezoelectric, inductive and capacitive transducers, Hall Effect transducer, light and temperature sensors, proximity sensors • Introduction to smart sensors and their applications 		8
5	<p style="text-align: center;">Electrical Instruments</p> <ul style="list-style-type: none"> • Essentials of an Instrument : (1) Deflecting Torque; (2) Controlling Torque : (i) <i>Spring Control</i>, (ii) <i>Gravity</i> 		

	<p><i>Control</i>); (3) Damping Torque, Methods of Obtaining Damping Torques (1) <i>Air Friction Damping</i>, (2) <i>Fluid Friction Damping</i>, (3) <i>Eddy-Current Damping</i>.</p> <ul style="list-style-type: none"> • Permanent Magnet Moving Coil (PMMC) Instruments; Ammeters; (<i>Multi-Range Ammeter</i>); Universal Shunt for Extending Current Ranges; Voltmeters; (<i>Multi-Range Voltmeter, AC Voltage Measurement</i>). • The Series-Type Ohmmeter; Meter Sensitivity(Ohms-Per-Volt rating); Loading Effect; Multimeter; Dynamometer Wattmeter; Single-Phase Induction Type Energy Meter. 		8
6	<p style="text-align: center;">Electronic Instruments</p> <ul style="list-style-type: none"> • Cathode Ray Oscilloscope: Construction, Working and Applications. • Digital meters; Function Generators. 		2
Total Number of Lectures			44

The meeting concluded with a vote of thanks by **Prof. Sunil Vidya Bhooshan**, Chairman, BOS, ECED.