List of Revised Courses

Department : *Electronics and Communication Engineering*

Program Name : *B.Tech.*

Academic Year : 2018-19

List of Revised Courses

Sr. No.	Course Code	Name of the Course
01.	EC02TES03	Basic Electrical Engineering

विभागाध्यक्ष (इले. एवं संचार अभियांत्रिकी)
H.O.D. (Elect. & Comm. Engineering)
प्रौद्योगिकी संस्थान
Institute of Technology
गु. घा. वि., बिलासपुर (छ.ग.)
G. G. V. Bilaspur (C.G.)

Minutes of Meetings (MoM) of Board of Studies (BoS)

Academic Year:	**2018-19**
School	: ***School of Studies of Engineering and Technology***
Department	: ***Electronics and Communication Engineering***
Date and Time	: ***September 11, 2018 – 11:00 AM***
Venue	: ***E-Class Room***

The scheduled meeting of member of Board of Studies (BoS) of Department of Electronics and Communication Engineering, School of Studies of Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur was held to design and discuss the B. Tech. First year (I and II semesters) scheme and syllabi.

The following members were present in the meeting:

1. Prof. Shrish Verma (External Expert Member BoS, Dept. of ECE, NIT Raipur)
2. Mr. Avinash Singh Verma (Industrial External Expert Member BoS)
3. Mr. Nipun Kumar Mishra (HOD, Assistant Prof., Dept. of ECE-cum Chairman, BOS)
4. Mrs. Pragati Patharia (Member BoS, Assistant Professor, Dept. of ECE)
5. Dr. P.S. Shrivastav (Invited Member, Assistant Professor, Dept. of ECE)
6. Mrs. Beaulah Nath (Invited Member, Assistant Professor, Dept. of ECE)
7. Mr. Shrawan K. Patel (Invited Member, Assistant Professor, Dept. of ECE)
8. Dr. Soma Das (Invited Member, Assistant Professor, Dept. of ECE)
9. Mrs. Anita Khanna (Invited Member, Assistant Professor, Dept. of ECE)
10. Mr. Sumit Kumar Gupta (Invited Member, Assistant Professor, Dept. of ECE)

Following points were discussed during the meeting

1. CBCS based evaluation scheme of B. Tech. First year (I and II semesters) was discussed and finalized.
2. The committee discussed and approved the scheme and syllabi. Basic Electrical Engineering (EC02TES03) courses were revised in the of B. Tech. First year (I and II semesters)
3. The syllabus of Vishwavidyalaya Research Entrance Test Exam (VRET) 2018-19 was discussed and approved by BoS member.

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Signature & Seal of HoD

Scheme and Syllabus

SCHEME FOR EXAMINATION
BTECH (FOUR YEAR) DEGREE COURSE
FIRST YEAR, ELECTRONICS AND COMMUNICATION ENGINEERING
SEMESTER II (Course A)
EFFECTIVE FROM SESSION 2018-19

S. No	Subject Code	Subjects	Period/Week			Scheme of Evaluation				Grand Total	Credits
						Internal Assessment (IA)			ESE		
		Theory	L	T	P	CT-I	CT-II	Total			
1	EC02TBS03	PHYSICS	3	1	0	15	15	30	70	100	4
2	EC02TES03	BASIC ELECTRICAL ENGINEERING	3	1	0	15	15	30	70	100	4
3	EC02TBS04	MATHEMATICS-I	3	0	0	15	15	30	70	100	4
4	EC02THS01	ENGLISH	3	0	0	15	15	30	70	100	3
5	EC02TMC01	ENVIRONMENTAL SCIENCES	3	0	0	-	-	-	-	-	0
		Practical									
1	EC02PBS02	PHYSICS LAB	0	0	3	-	-	30	20	50	1.5
2	EC02PES04	BASIC ELECTRICAL ENGINEERING LABORATORY	0	0	2	-	-	30	20	50	1
3	EC02PES05	ENGINEERING GRAPHICS & DESIGN	1	0	3	-	-	30	20	50	2.5
										Total Credits	20

L - Lecture Hours, T-Tutorial Hours, P - Practical Hours, CT - Class Test, ESE – End Semester Exam; * Mandatory Course

SYLLABUS	(SEMESTER-II)	Periods/ Week			Internal Assessment (IA)			ESE	Grand Total	Credits
Subject Code:	EC02TES03	L	T	P	CT-1	CT-II	TOTAL	70	100	04
Subject:	BASIC ELECTRICAL ENGINEERING	3	1	0	15	15	30			

Course Learning Objectives:

- To impart a basic knowledge of electrical quantities such as current, voltage, power, energy and frequency to understand the impact of technology in a global and societal context.
- To provide working knowledge for the analysis of basic DC and AC circuits used in electrical and electronic devices.
- To explain the working principle, construction, applications of DC machines, AC machines & measuring instruments.
- To Highlight the importance of transformers in transmission and distribution of electric power.

Course Content:

***Module*-1**: **DC Circuits (8 hours)**
Electrical circuit elements (R, L and C), voltage and current sources, Kirchoff current and voltage laws, analysis of simple circuits with dc excitation. Superposition, Thevenin and Norton Theorems. Time-domain analysis of first-order RL and RC circuits.

***Module*- 2**: **AC Circuits (8 hours)**
Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor. Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), resonance. Three-phase balanced circuits, voltage and current relations in star and delta connections.

***Module*- 3: Transformers (6 hours)**
Magnetic materials, BH characteristics, ideal and practical transformer, equivalent circuit, losses in transformers, regulation and efficiency. Auto-transformer and three-phase transformer connections.

***Module*- 4: Electrical Machines (8 hours)**
Generation of rotating magnetic fields, Construction and working of a three-phase induction motor, Significance of torque-slip characteristic. Loss components and efficiency, starting and speed control of induction motor. Single-phase induction motor. Construction, working, torque-speed characteristic and speed control of separately excited dc motor. Construction and working of synchronous generators.

***Module* - 5: Power Converters (6 hours)**
DC-DC buck and boost converters, duty ratio control. Single-phase and three-phase voltage source inverters; sinusoidal modulation.

***Module* – 6: Electrical Installations (6 hours)**
Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, MCCB, Types of Wires and Cables, Earthing. Types of Batteries, Important Characteristics for Batteries. Elementary calculations for energy consumption, power factor improvement and battery backup.

Suggested Text / Reference Books
(i)D. P. Kothari and I. J. Nagrath, "Basic Electrical Engineering", Tata McGraw Hill, 2010.
(ii)D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009.