



**List of Courses focuses on Professional Ethics, Gender, Human Values, Environment & Sustainability and other value framework**

**Department : *Electronics & Communication Engineering***

**Programme Name : *B.Tech.***

**Academic Year : 2018-19**

**Courses which focuses on Professional Ethics, Gender, Human Values, Environment & Sustainability and other value framework:**

Sr. No.	Course Code	Name of the Course
01.	ET7100	Research Methodology in Engineering
02.	EC01PMC01	Induction Training Programme
03.	EC02TMC01	Environmental Sciences



## Scheme and Syllabus

### ANNEXURE -II

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING,  
INSTITUTE OF TECHNOLOGY, GURU GHASIDAS VISHWAVIDYALAYA  
BILASPUR (C.G.)

EVALUATION SCHEME OF Pre-Ph.D. COURSE WORK  
EFFECTIVE FROM 2018-19

S. No.	Name of Subjects	Subject Code	Periods/ Week L- T- P	ESE Duration	ESE MARKS		Credit
					Max.	Min.	
1.	Research Methodology in Engineering	ET7100	3- 1- 0	3 Hrs.	100	50	4
2.	Elective -I		3- 1- 0	3 Hrs.	100	50	4
3.	Elective -II		3- 1- 0	3 Hrs.	100	50	4
	<b>Total</b>		9- 3- 0		300		4
	<b>LIST OF ELECTIVES</b>	**		--			12
S. No.	Name of Subjects	Subject Code	Duration of the semester will be 6 months.				
1.	Vacuum Technology	ECE7102	<ul style="list-style-type: none"> <li>• Candidate has to score minimum 55 % of the aggregate marks to qualify in ESE.</li> <li>• Two subjects as Electives (4 credits each) can be taken from the list of Electives.</li> </ul>				
2.	Finite Element Method	ECE7103					
3.	Sensors & Measurement Science and Technology	ECE7104					
4.	Artificial Intelligence	ECE7105					
5.	Optimization Techniques	ECE7106					
6.	Antenna for Modern wireless Communications	ECE7107					
7.	Wireless and Computer Network	ECE7108					

ESE: End Semester Examination,

L: Lecture, T: Theory, P: Practical

Max.: Maximum marks in ESE;

Min.: Minimum Pass Marks in each subject as 50%

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30.4.19

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30/04/19

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30.04.19



SCHEME FOR EXAMINATION												
BTECH (FOUR YEAR) DEGREE COURSE												
FIRST YEAR, ELECTRONICS AND COMMUNICATION ENGINEERING												
SEMESTER I (Course B)												
EFFECTIVE FROM SESSION 2018-19												
S. No	Subject Code	Subjects	Period/Week			Scheme of Evaluation				Grand Total	Credits	
			Theory	L	T	P	Internal Assessment (IA)					ESE
							CT-I	CT-II	Total			
1	EC01TBS01	MATHEMATICS-II	3	1	0	15	15	30	70	100	4	
2	EC01TBS02	CHEMISTRY	3	1	0	15	15	30	70	100	4	
3	EC01TES01	PROGRAMMING FOR PROBLEM SOLVING	3	0	0	15	15	30	70	100	3	
4	EC01TES02	ENGINEERING MECHANICS	3	0	0	15	15	30	70	100	3	
		<b>Practical</b>										
1	EC01PBS01	CHEMISTRY LAB	0	0	3	-	-	30	20	50	1.5	
2	EC01PES01	PROGRAMMING FOR PROBLEM SOLVING LAB	0	0	3	-	-	30	20	50	1.5	
3	EC01PES02	WORKSHOP & MANUFACTURING PRACTICES	1	0	3	-	-	30	20	50	2.5	
4	EC01PES03	ENGINEERING MECHANICS LAB	0	0	2			30	20	50	1	
5	EC01PMC01	INDUCTION TRAINING PROGRAMME*	-	-	2	-	-	-	-	-	-	
										<b>Total Credits</b>	20.5	

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



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			ESE	Grand Total	Credits
			L	T	P	Internal Assessment (IA)					
		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
		<b>Practical</b>									
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
										<b>Total Credits</b>	20

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



## RESEARCH METHODOLOGY IN ENGINEERING

Sub Code	L	T	P	DURATION	ESE	CREDITS
ET7100	03	01	0	3 HOURS	100	4

**Introduction:** Definition and objectives of Research – Types of research, Various Steps in Research process, Mathematical tools for analysis, developing a research question-Choice of a problem.

Literature review, Surveying, synthesizing, critical analysis, reading materials, reviewing, rethinking, critical evaluation, interpretation, Research Purposes, Ethics in research – APA Ethics code.

Quantitative Methods for problem solving: Statistical Modeling and Analysis, Time Series Analysis, Probability Distributions, Fundamentals of Statistical Analysis and Inference, Multivariate methods.


Concepts of Correlation and Regression, Fundamentals of Time Series Analysis and Spectral Analysis, Error Analysis, Applications of Spectral Analysis.

Tabular and graphical description of data: Tables and graphs of frequency data of one variable, Tables and graphs that show the relationship between two variables . Relation between frequency distributions and other graphs, preparing data for analysis.


Use of statistical software, SPSS in research, Structure and Components of Research Report, Types of Report, Layout of Research Report, Mechanism of writing a research report, referencing in academic writing.

### Reference Books

1. C.R. Kothari, Research Methodology Methods and Techniques, 2/e, Vishwa Prakashan, 2006
2. Donald H. McBurney, Research Methods, 5th Edition, Thomson Learning, ISBN:81-315-0947-4, 2006
3. Donald R. Cooper, Pamela S. Schindler, Business Research Methods, 8/e, Tata McGraw-Hill Co. Ltd., 2006.

  
30.4.19

  
30.04.19

  
30/04/19



DEPARTMENT OF ECE ENGINEERING B.TECH. FIRST YEAR SYLLABUS W.E.F 2018-19

SYLLABUS	(SEMESTER-II)	Periods/Week			Internal Assessment ( IA)			ESE	Grand Total	Credits
		L	T	P	CT-I	CT-II	TOTAL			
Subject Code:	EC02TMC01							--	--	00
Subject:	ENVIRONMENTAL SCIENCES	3	0	0	--	--	--	--	--	00

**Course Learning Objectives:**

- To learn the importance of Ecosystems, Natural Resources and Energy resources
- To learn the importance of Biodiversity and Environmental pollution
- To understand the Environmental ethics

**Course Content:**

Introduction to environmental studies Multidisciplinary nature of environmental studies: scope and importance: Concept of sustainability and sustainable development. Ecosystems: structure and function of ecosystem: Energy flow in an ecosystem: food chains. Food webs and ecological succession a) Forces: ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, Streams lakes, rivers, Oceans, estuaries). Natural Resources Renewable and Non-renewable Resources: Land resources and land use change: Land degradation, soil erosion and desertification. Deforestations: Causes and impacts due to mining, dam building on environment, forests biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts. Conflicts over water (international & inter-state) Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies Biodiversity and Conservation: Levels of biological diversity: genetic species and ecosystem diversity. Bio geographic zones of India.

Biodiversity patterns and global biodiversity hot spots India as a mega-biodiversity nation. Endangered and endemic species of India. Threats to biodiversity: Habitat loss poaching of wildlife man wildlife conflicts, biological invasions: Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value. Environmental pollution: Environmental pollution types, causes, effects and controls: Air, Water, soil and noise pollution. Nuclear hazards and human health risks. Solid waste management: Control measures of urban and industrial waste. Pollution case studies. Environmental potencies & practices, Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environment laws Environment protection Act: air (prevention & Control of pollution) Act: water (prevention and control of pollution) Act: wildlife protection Act: Forest Conservation Act; International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD), Nature reserves. tribal populations and rights, human wildlife conflicts in Indian context. Human Communities and the Environment. Human population growth: Impacts on environment. Human health and welfare. Resettlement and rehabilitation of project affected persons: case studies. Disaster management: floods, earthquake, cyclones and landslides. Environmental movements Chipko, silent valley Bishnois of Rajasthan. Environmental ethics: role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case studies (e. g.CNG vehicles in Delhi). Field work: visit to an area to document environmental assets. River/ forest/flora/fauna, etc. Visit to a local polluted site-urban/rural/Industrial/Agricultural. Study of common plants birds and basic principles of identification Study of simple ecosystems-pond river-etc.

Suggested Readings: