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 : 2021-22

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

Sr. No.	Course Code	Name of the Course
01.	EC204TMC02	Environmental Sciences
02.	MSPBTO1	Business Analysis
03.	CHPBTO6	Waste to Energy
04.	PEPBTX2	Stress Management by Yoga
05	LAPBTX4	Constitution of India
06.	ELPBTX1	English for Research Paper Writing

Scheme and Syllabus

SCHOOL OF STUDIES OF ENGINEERING & TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A CENTRAL UNIVERSITY)
CBCS-NEW, EVALUATION SCHEME
PROPOSED (W.E.F. SESSION 2021-22)
B. TECH. SECOND YEAR (SEMESTER- IV)
(Electronics and Communication Engineering)

S. No.	COURSE No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	IA	ESE	SUB-TOTAL	
THEORY									
1.	EC204TPC05	Analog Circuits	3	1	-	30	70	100	4
2.	EC204TPC06	Analog Communication	3	1	-	30	70	100	4
3.	EC204TPC07	Control Systems	3	1	-	30	70	100	4
4.	EC204TES05	Data Structure with C++	3	-	-	30	70	100	3
5.	EC204TBS06	Numerical Methods	3	1	-	30	70	100	4
6.	EC204TMC02	Enviromental Sciences	2	-	-	-	-	-	-
		TOTAL	**17**	**4**	**-**	**150**	**350**	**500**	**19**
PRACTICALS									
1.	EC204PPC05	Analog Circuits Lab	-	-	2	30	20	50	1
2.	EC204PES05	Data Structure with C++ Lab	-	-	2	30	20	50	1
		TOTAL	**-**	**-**	**4**	**60**	**40**	**100**	**2**
		GRAND TOTAL	**17**	**4**	**4**	**210**	**390**	**600**	**21**

Total Credits: **21** Total Contact Hours: **25** Total Marks: **600**

L: LECTURE, T: TUTORIAL, P: PRACTICAL, IA: INTERNAL ASSESSMENT, ESE: END SEMESTER EXAMINATION
*INTERNAL ASSESSMENT- Two Class Test of 15 Marks each will be conducted.

(Prof. Shrish Verma)
(online Consent)

(Mr. Vikash Patel)
(online Consent)

M.Tech. II-Semester

Sl.	Course Type/Code	Subjects	Periods/Week			Evaluation			Credits
			L	T	P	IA	ESE	Total	
1.	ECPBTT1	Advanced VLSI Fabrication	3	0	0	40	60	100	3
2.	ECPBTT2	Millimeter Wave Technology	3	0	0	40	60	100	3
3.	ECPBTP1 to ECPBTP4	Elective-III	3	0	0	40	60	100	3
4.	ECPBTP5 to ECPBTP8	Elective-IV	3	0	0	40	60	100	3
5	MSPBTO1, IPPBTO2, IPPBTO3, CEPBTO4, MEPBTO5, CHPBTO6, ECPBTO7, MCPBTO8	Open Elective	3	0	0	40	60	100	3
6.	ELPBTX1, PEPBTX2, CEPBTX3, LAPBTX4	Audit Course/ Value Added Course	2	0	0	40	60	100	2
7.	ECPBLT1	Wireless Communication laboratory	0	0	4	30	20	50	2
8.	ECPBLT2	RF & Microwave Component Design Laboratory	0	0	4	30	20	50	2
Total			17	0	08	300	400	700	21

List of Electives approved for the semester –II

Elective-III	Elective-IV	Open Elective	Audit Course
ECPBTP1: Machine Learning	**ECPBTP5:** Computer Vision	**MSPBTO1:** Business Analysis	**ELPBTX1:** English for Research Paper Writing
ECPBTP2: Optical Communication System	**ECPBTP6:**Digital Communication Receiver	**IPPBTO2:** Industrial Safety	**PEPBTX2:** Stress Management by Yoga
ECPBTP3: Next Generation Communication Technologies	**ECPBTP7:**Optical Instrumentation	**IPPBTO3:** Operations Research	**CEPBTX3:** Disaster Management
ECPBTP4: Advanced Digital Signal Processing	**ECPBTP8:**Satellite Communication	**CEPBTO4:** Cost Management of Engineering Projects	**LAPBTX4:** Constitution of India
		MEPBTO5: Composite Materials	
		CHPBTO6: Waste to Energy	
		ECPBTO7: Internet of Things	
		MCPBTO8: MOOCs	

Note: Under MOOCs, the students have to opt any subject other than ELECTRONICS & COMMUNICATION ENGINEERING from NPTEL/UGC SWAYAM

Sub Code	L	T	P	Duration	IA	ESE	Total	Credits
EC204TMC02	2	0	0	2 hours	-	-	-	-

ENVIROMENTAL SCIENCES

Course Objectives:

1. To learn the importance of Ecosystems, Natural Resources and Energy resources
2. To learn the importance of Biodiversity and Environmental pollution
3. 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. Hunan 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.

BUSINESS ANALYSIS

Sub Code	L	T	P	Duration	IA	ESE	Total	Credits
MSPBTO1	3	0	0	3 hours	40	60	100	3

Course Outcomes: At the end of the course, students will be able to

1. Students will demonstrate knowledge of data analytics
2. Students will demonstrate the ability of think critically in making decisions based on data and deep analytics.
3. Students will demonstrate the ability to use technical skills in predicative and prescriptive modeling to support business decision-making.
4. Students will demonstrate the ability to translate data into clear, actionable insights.

Syllabus Contents:

- Unit1: Business analytics: Overview of Business analytics, Scope of Business analytics, Business Analytics Process, Relationship of Business Analytics Process and organisation, competitive advantages of Business Analytics. Statistical Tools: Statistical Notation, Descriptive Statistical methods, Review of probability distribution and data modelling, sampling and estimation methods overview.
- Unit 2: Trendiness and Regression Analysis: Modelling Relationships and Trends in Data, simple Linear Regression. Important Resources, Business Analytics Personnel, Data and models for Business analytics, problem solving, Visualizing and Exploring Data, Business Analytics Technology.
- Organization Structures of Business analytics, Team management, Management Issues, Designing Information Policy, Outsourcing, Ensuring Data Quality, Measuring contribution of Business analytics, Managing Changes. Descriptive Analytics, predictive analytics, predicative Modelling, Predictive analytics analysis, Data Mining, Data Mining Methodologies, Prescriptive analytics and its step in the business analytics Process, Prescriptive Modelling, nonlinear Optimization.
- Forecasting Techniques: Qualitative and Judgmental Forecasting, Statistical Forecasting Models, Forecasting Models for Stationary Time Series, Forecasting Models for Time Series with a Linear Trend, Forecasting Time Series with Seasonality, Regression Forecasting with Casual Variables, Selecting Appropriate Forecasting Models. Monte Carlo Simulation and Risk Analysis: Monte Carle Simulation Using Analytic Solver Platform, New-Product Development Model, Newsvendor Model, Overbooking Model, Cash Budget Model.
- Unit 5:Decision Analysis: Formulating Decision Problems, Decision Strategies with the

WASTE TO ENERGY

Sub Code	L	T	P	Duration	IA	ESE	Total	Credits
CHPBTO6	3	0	0	3 hours	40	60	100	3

Course Outcomes:

At the end of the course, students will be able to

1 Classify the waste for fuel and identify the devices for conversion of waste to energy.

2 Implement the Biomass Pyrolysis

3 Evaluate the methods of Biomass Gasification and implement their applications.

4 To design, construct and operation the Biomass Combustion devices.

5 Classify biomass, apply the bio energy systems design and construction.

Syllabus Contents:

- Introduction to Energy from Waste: Classification of waste as fuel – Agro based, Forest residue, Industrial waste - MSW – Conversion devices – Incinerators, gasifiers, digestors
- Biomass Pyrolysis: Pyrolysis – Types, slow, fast – Manufacture of charcoal – Methods - Yields and application – Manufacture of pyrolytic oils and gases, yields and applications.
- Biomass Gasification: Gasifiers – Fixed bed system – Downdraft and updraft gasifiers – Fluidized bed gasifiers – Design, construction and operation – Gasifier burner arrangement for thermal heating – Gasifier engine arrangement and electrical power – Equilibrium and kinetic consideration in gasifier operation.
- Biomass Combustion: Biomass stoves – Improved chullahs, types, some exotic designs, fixed bed combustors, Types, inclined grate combustors, Fluidized bed combustors, Design, construction and operation - Operation of all the above biomass combustors.
- Biogas: Properties of biogas (Calorific value and composition) - Biogas plant technology and status - Bio energy system - Design and constructional features - Biomass resources and their classification - Biomass conversion processes - Thermo chemical conversion - Direct combustion - biomass gasification - pyrolysis and liquefaction - biochemical conversion - anaerobic digestion - Types of biogas Plants – Applications - Alcohol production from biomass - Bio diesel production - Urban waste to energy conversion - Biomass energy programme in India.

References:

1. Non-Conventional Energy, Desai, Ashok V., Wiley Eastern Ltd., 1990.
2. Biogas Technology - A Practical Hand Book - Khandelwal, K. C. and Mahdi, S. S., Vol. I & II, Tata McGraw Hill Publishing Co. Ltd., 1983.

STRESS MANAGEMENT BY YOGA

Sub Code	L	T	P	Duration	IA	ESE	Total	Credits
PEPBTX2	2	0	0	2 hours	40	60	100	2

Course Outcomes:

At the end of the course, students will be able to

1. Develop healthy mind in a healthy body thus improving social health also.
2. Improve efficiency

Syllabus Contents:

- Definitions of Eight parts of yog. (Ashtanga).
- Yam and Niyam, Do's and Don't's in life, i) Ahinsa, satya, astheya, bramhacharya and aparigraha, ii) Shaucha, santosh, tapa, swadhyay, ishwarpranidhan.
- Asan and Pranayam, i) Various yog poses and their benefits for mind &body, ii) Regularization of breathing techniques and its effects-Types of pranayam.

References:

1. 'Yogic Asanas for Group Tarining-Part-I" :Janardan Swami Yogabhyasi Mandal, Nagpur
2. "Rajayoga or conquering the Internal Nature" by Swami Vivekananda, AdvaitaAshrama (Publication Department), Kolkata.

CONSTITUTION OF INDIA

Sub Code	L	T	P	Duration	IA	ESE	Total	Credits
LAPBTX4	2	0	0	2 hours	40	60	100	2

Course Outcomes:

At the end of the course, students will be able to

1 Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.

2 Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.

3 Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.

4 Discuss the passage of the Hindu Code Bill of 1956.

Syllabus Contents:

- History of Making of the Indian Constitution: History Drafting Committee, (Composition & Working).
- Philosophy of the Indian Constitution: Preamble, Salient Features
- Contours of Constitutional Rights & Duties: Fundamental Rights, Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right to Constitutional Remedies, Directive Principles of State Policy, Fundamental Duties.
- Organs of Governance: Parliament, Composition, Qualifications and Disqualifications, Powers and Functions, Executive, President, Governor, Council of Ministers, Judiciary, appointment and Transfer of Judges, Qualifications, Powers and Functions.
- Local Administration: District's Administration head: Role and Importance, Municipalities: Introduction, Mayor and role of Elected Representative, CEO of Municipal Corporation. Pachayati raj: Introduction, PRI: ZilaPachayat. Elected officials and their roles, CEO ZilaPachayat: Position and role. Block level: Organizational Hierarchy (Different departments), Village level: Role of Elected and Appointed officials, Importance of grass root democracy.
- Election Commission: Election Commission: Role and Functioning, Chief Election Commissioner and Election Commissioners, State Election Commission: Role and Functioning, Institute and Bodies for the welfare of SC/ST/OBC and women.

ENGLISH FOR RESEARCH PAPER WRITING

Sub Code	L	T	P	Duration	IA	ESE	Total	Credits
ELPBTX1	2	0	0	2 hours	40	60	100	2

Course Outcomes:

At the end of the course, students will be able to

1. Understand that how to improve your writing skills and level of readability.
2. Learn about what to write in each section
3. Understand the skills needed when writing a Title
4. Ensure the good quality of paper at very first-time submission

Syllabus Contents:

- Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness
- Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticizing, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts. Introduction
- Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check
- Key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a useful phrases, how to ensure paper is as good as it could possibly be the first- time submission review of the Literature.
- skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions
- useful phrases, how to ensure paper is as good as it could possibly be the first- time submission

References:

1. Goldbort R (2006) Writing for Science, Yale University Press (available on Google Books)
2. Day R (2006) How to Write and Publish a Scientific Paper, Cambridge University Press
3. Highman N (1998), Handbook of Writing for the Mathematical Sciences, SIAM. Highman'sbook .
4. Adrian Wallwork , English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011