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

Department : *Industrial and Production 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.	EN204THS02	Business Communication and Presentation Skill

Scheme and Syllabus

GURU GHASIDAS VISHWAVIDYALAYA (A CENTRAL UNIVERSITY), BILASPUR, CG
SCHOOL OF STUDIES IN ENGINEERING AND TECHNOLOGY
Department of Industrial & Production Engineering
CBCS–New, Scheme of Teaching & Examination
W.E.F. Session: 2021–22
B. TECH SECOND YEAR, IV SEMESTER

SN	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	INTERNAL ASSESSMENT	ESE	SUB–TOTAL	
1.	MA204TBS06	Statistical Methods	3	1	–	30	70	100	4
2.	IP204TPC04	Marketing Management	3	–	–	30	70	100	3
3.	IP204TPC05	Material Science	3	–	–	30	70	100	3
4.	IP204TPC06	Fluid Mechanics	3	1	–	30	70	100	4
5.	IP204TPC07	Manufacturing Processes–II	3	–	–	30	70	100	3
6.	EN204THS02	Business Communication and Presentation Skill	3	–	–	30	70	100	3
Total			**18**	**2**	**–**	**180**	**420**	**600**	**20**
PRACTICALS									
1.	IP204PPC03	Modelling Software Lab	–	–	2	30	20	50	1
2.	IP204PPC04	Fluid Mechanics Lab	–	–	2	30	20	50	1
Total			**–**	**–**	**4**	**60**	**40**	**100**	**2**

Total Credits: **22**
Total Contact Hour: **24**
Total Marks: **700**
INTERNAL ASSESSMENT: –two class tests of 15 marks each will be conducted.
L–LECTURE, T–TUTORIAL, P–PRACTICAL, ESE –END SEMESTER EXAMINATION

Course Name & Semester	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
			L	T	P	INTERNAL ASSESSMENT		ESE	SUB–TOTAL	
						CT–1	CT–2			
B.Tech IV Sem.	EN204THS02	Business Communication and Presentation Skill	3	–	–	15	15	70	100	3

COURSE LEARNING OBJECTIVES:

The objective of this course is to:

- Understand necessary skills for technical communication and its role in a technical organization.
- Develop outer and inner personality traits to enrich the business capabilities and to meet the challenges associated with different job levels in a market.
- Rule out development in style, personality, presentation, speaking, reading and writing skills
- Estimate the psychological aspects of communication via gaining technical knowledge and to understand the importance of cultural factors in communication.
- Demonstrate body language, use of voice during presentation in relation to the audience during presentation.

COURSE OUTCOMES:

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

- Present himself under the different domain of markets.
- Project a positive image of the associated organization, while speaking, planning and preparing a presentation.
- Develop leadership style, listening & interacting skills to handle conflict situations based on personality and communication.
- Adapt attitudinal changes, cultural speaking and technical communication.
- Utilize decision–making qualities, emotional intelligence, politeness and etiquette in communication.

COURSE CONTENT:

Module – I

Business communication: Role of communication in information age, concept and meaning of communication, skills necessary for technical communication, communications in a technical organization, barriers to the process of communication and sola.

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

Department : *Industrial and Production Engineering*

Programme Name : *M.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.	MSPBTO1	Business Analytics
02.	CHPBTO6	Waste To Energy
03.	ELPBTX1	English For Research Paper Writing
04.	PEPBTX2	Stress Management By Yoga
05.	LAPBTX4	Constitution Of India

Scheme and Syllabus

With effect from Academic Year 2021-22

M.TECH. CAD-CAM and ROBOTICS

M.Tech. II-Semester

Sl.	Course Type/ Code	Subjects	Periods/Week			Evaluation			Credits
			L	T	P	IA	ESE	Total	
1.	IPPBTT1	Finite Element Analysis	3	0	0	40	60	100	3
2.	IPPBTT2	Robotics and Control	3	0	0	40	60	100	3
3.		Elective – IV	3	0	0	40	60	100	3
	IPPBTP1	1. Green Manufacturing							
	IPPBTP2	2. Advance Operation Research							
	IPPBTP3	3. Total Quality Management							
4.		Elective – V	3	0	0	40	60	100	3
	IPPBTP4	1. Mechanics of Composite Material							
	IPPBTP5	2. Smart Materials and Applications							
	IPPBTP6	3. Mechatronics in Manufacturing Systems							
5.		Open Elective	3	0	0	40	60	100	3
	MSPBTO1	1. Business Analytics							
	IPPBTO2	2. Industrial Safety							
	IPPBTO3	3. Operations Research							
	CEPBTO4	4. Cost Management of Engineering Projects							
	MEPBTO5	5. Composite Materials							
	CHPBTO6	6. Waste to Energy							
	ECPBTO7	7. IoT							
	MCPBTO8	8. MOOCs							
6.		Audit Course/Value Added Course	2	0	0	0	0	0	0
	ELPBTX1	English for Research Paper Writing							
	PEPBTX2	Stress Management by Yoga							
	CEPBTX3	Disaster Management							
	LAPBTX4	Constitution of India							
7.	IPPBPT1	Mini Project/Seminar	0	0	4	30	20	50	2
8.	IPPBLT1	Robotics lab	0	0	4	30	20	50	2
		Total	17	0	08	260	340	600	19

Note: Under MOOCs the students have to opt any subject other than Industrial & Production Engineering from NPTEL/UGC SWAYAM

input and outputdevices, Interfacing D/A converters and A/D converters , Applications - Temperature control,Stepper motor control, Traffic light controller.

Module 4

Programmable logic controllers(plc), Introduction, Basic structure, Input/output processing, Programming, Mnemonics timers,Internal relays and counters, Data handling, Analog input/output, Selection of PLC.

Module 5

Design and Mechatronics, Designing, Possible design solutions, Case studies of Mechatronics systems.

Text & Reference Books:

1. Histand Michael B. and Alciatore David G., "Introduction to Mechatronics and Measurement Systems", McGraw-Hill International Editions, 1999.
2. Bradley, D.A., Dawson, D, Buru, N.C. and Loader, AJ, "Mechatronics ", Chapman and Hall, 1993.
3. Ramesh S. Gaonkar, "Microprocessor Architecture, Programming and Applications" Wiley Eastern, 1998.
4. Lawrence J.Kamm, "Understanding Electro-Mechanical Engineering, An Introduction to Mechatronics", Prentice-Hall, 2000.
5. Ghosh P.K. and Sridhar, P.R., "Introduction to Microprocessors for Engineers and Scientists, (0000 to 8085)", Second Edition, Prentice Hall, 2004.

Course Code	Subjects	Periods/Week			Evaluation			Credits
		L	T	P	IA	ESE	Total	
	Open Elective	**3**	**0**	**0**	**40**	**60**	**100**	**3**
MSPBTO1	**9. Business Analytics**							
IPPBTO2	**10. Industrial Safety**							
IPPBTO3	**11. Operations Research**							
CEPBTO4	**12. Cost Management of Engineering Projects**							
MEPBTO5	**13. Composite Materials**							
CHPBTO6	**14. Waste to Energy**							
ECPBTO7	**15. IoT**							
MCPBTO8	**16. MOOCs**							

MSPBTO1BUSINESS ANALYTICS

Course Objectives:

1. Understand the role of business analytics within an organization.
2. Analyze data using statistical and data mining techniques and understand relationships between the underlying business processes of an organization.
3. To gain an understanding of how managers use business analytics to formulate andsolve business problems and to support managerial decision making.
4. To become familiar with processes needed to develop, report, and analyze business data.
5. Use decision-making tools/Operations research techniques.

6. Mange business process using analytical and management tools.
7. Analyze and solve problems from different industries such as manufacturing, service, retail, software, banking and finance, sports, pharmaceutical, aerospace etc.

Course Outcomes:
On completion of this course, the students will be able to

1. Knowledge of data analytics.
2. Think critically in making decisions based on data and deep analytics.
3. Use technical skills in predicative and prescriptive modeling to support business decision-making.
4. Translate data into clear, actionable insights

COURSE CONTENTS

Module 1
Business analytics: Overview of Business analytics, Scope of Business analytics, Business Analytics Process, Relationship of Business Analytics Process and organization, competitive advantages of Business Analytics. Statistical Tools: Statistical Notation, Descriptive Statistical methods, Review of probability distribution and data modeling, sampling and estimation methods overview.

Module 2
Trendiness and Regression Analysis: Modeling Relationships and Trends in Data, simple Linear Regression. Important Resources, Business Analytics Personnel, Data and models forBusiness analytics, problem solving, Visualizing and Exploring Data, Business Analytics Technology.

Module 3
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.

Module 4
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.

Module 5
Decision Analysis: Formulating Decision Problems, Decision Strategies with the without Outcome Probabilities, Decision Trees, The Value of Information, Utility and Decision Making.

Module 6
Recent Trends in Embedded and collaborative business intelligence, Visual data recovery, Data Storytelling and Data journalism.

Reference:
1. Business analytics Principles, Concepts, and Applications by Marc J. Schniederjans, Dara G.

Strength: Laminar Failure Criteria-strength ratio, maximum stress criteria, maximum straincriteria, interacting failure criteria, hygrothermal failure. Laminate first play failure-insight strength;Laminate strength-ply discount truncated maximum strain criterion; strength design using caplet plots;stress concentrations.

TEXT BOOKS:

1. Material Science and Technology – Vol 13 – Composites by R.W.Cahn – VCH, West Germany.
2. Materials Science and Engineering, An introduction. WD Callister, Jr., Adapted by R. Balasubramaniam, John Wiley & Sons, NY, Indian edition, 2007.

References:

1. Hand Book of Composite Materials-ed-Lubin.
2. Composite Materials – K.K.Chawla.
3. Composite Materials Science and Applications – Deborah D.L. Chung.
4. Composite Materials Design and Applications – Danial Gay, Suong V. Hoa, and Stephen W. Tasi.

CHBTO6 WASTE TO ENERGY

Course outcomes

1. At the end of the course, students will be able to
2. Classify the waste for fuel and identify the devices for conversion of waste to energy.
3. Implement the Biomass Pyrolysis.
4. Evaluate the methods of Biomass Gasification and implement their applications.
5. To design, construct and operation the Biomass Combustion devices.
6. Classify biomass; apply the bio energy systems design and construction.

Module 1

Introduction to Energy from Waste: Classification of waste as fuel – Agro based, Forest residue, Industrial waste - MSW – Conversion devices – Incinerators, gasifiers, digestors

Module 2

Biomass Pyrolysis: Pyrolysis – Types, slow fast – Manufacture of charcoal – Methods –Yieldsand application – Manufacture of pyrolytic oils and gases, yields and applications.

Module 3

Biomass Gasification: Gasifiers – Fixed bed system – Downdraft and updraft gasifiers –Fluidized bed gasifiers – Design, construction and operation – Gasifier burner arrangement for thermalheating – Gasifier engine arrangement and electrical power – Equilibrium and kinetic consideration ingasifier operation.

Module 4

Biomass Combustion: Biomass stoves – Improved chullahs, types, some exotic designs, Fixed bed combustors, Types, inclined grate combustors, Fluidized bed combustors, Design, construction andoperation - Operation of all the above biomass combustors.

Module 5

Biogas: Properties of biogas (Calorific value and composition) - Biogas plant technology andstatus - Bio energy system - Design and constructional features - Biomass resources and theirclassification - Biomass conversion processes - Thermo chemical conversion - Direct combustion -biomass gasification - pyrolysis and liquefaction - biochemical conversion - anaerobic digestion –Typesof biogas Plants – Applications - Alcohol production from biomass - Bio diesel production – Urban wasteto 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, TataMcGraw Hill Publishing Co. Ltd., 1983.
3. Food, Feed and Fuel from Biomass, Challal, D. S., IBH Publishing Co. Pvt. Ltd., 1991.
4. Biomass Conversion and Technology, C. Y. WereKo-Brobby and E. B. Hagan, John Wiley &Sons,1996.

- "Internet of Things - A Hands-on Approach", ArshdeepBahga and Vijay Madisetti, Universities Press, 2015, ISBN: 9788173719547
- "Internet of Things",Srinivasa K G, CENGAGE Leaning India, 2017.
- " IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things", David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jerome Henry1stEdition, Pearson Education (Cisco Press Indian Reprint). (ISBN: 978-9386873743)
- "Getting Started with Raspberry Pi", Matt Richardson & Shawn Wallace, O'Reilly (SPD), 2014, ISBN: 9789350239759.
- "From Machine to Machine to Internet of Things", Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stamatis Karnouskos, Stefan Avesand, David Boyle, Elsevier Publications, 2014.

Course Code	Subjects	Periods/Week			Evaluation			Credits
		L	T	P	IA	ESE	Total	
ELPBTX1 PEPBTX2 CEPBTX3 LAPBTX4	Audit Course/Value Added Course . English for Research Paper Writing Stress Management by Yoga Disaster Management Constitution of India	3	0	0	40	60	100	3

ELPBTX1 ENGLISH FOR RESEARCH PAPER WRITING

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

COURSE CONTENTS

Module 1

Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness

Module 2

Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticising, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts, Introduction.

Module 3

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 Review of the Literature.

Module 4

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.

Module 5

Useful phrases, how to ensure paper is as good as it could possibly be the first- time submission.

Suggested Studies:

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

PEPBTX2STRESS MANAGEMENT BY YOGA

Course Outcomes

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

1. To achieve overall health of body and mind
2. To overcome stress
3. Develop healthy mind in a healthy body thus improving social health also
4. Improve efficiency

Module 1

Definitions of Eight parts of yog. (Ashtanga)

Module 2

Yam and Niyam.
Do`s and Don't's in life.
i) Ahinsa, satya, astheya, bramhacharya and aparigraha
ii) Shaucha, santosh, tapa, swadhyay, ishwarpranidhan

Module 3

Asan and Pranayam
i) Various yog poses and their benefits for mind & body
ii)Regularization of breathing techniques and its effects-Types of pranayam

Suggested reading

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

CEPBTX3 DISASTER MANAGEMENT

Course Outcomes:

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

1. Learn to demonstrate a critical understanding of key concepts in disaster risk reductionand humanitarian response.
2. Critically evaluate disaster risk reduction and humanitarian response policy and practicefrom multiple perspectives.
3. Develop an understanding of standards of humanitarian response and practical relevancein specific types of disasters and conflict situations.
4. Critically understand the strengths and weaknesses of disaster management approaches,planning and programming in different countries, particularly their home country or the countries they work in.

With effect from Academic Year 2021-22

COURSE CONTENTS

Module 1

Introduction Disaster: Definition, Factors And Significance; Difference Between Hazardand Disaster; Natural And Manmade Disasters: Difference, Nature, Types And Magnitude.

Module 2

Repercussions Of Disasters And Hazards: Economic Damage, Loss Of Human And Animal Life, Destruction Of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.

Module 3

Disaster Prone Areas In India Study Of Seismic Zones; Areas Prone To Floods And Droughts, Landslides And Avalanches; Areas Prone To Cyclonic And Coastal Hazards WithSpecial Reference To Tsunami; Post-Disaster Diseases And Epidemics.

Module 4

Disaster Preparedness And Management Preparedness: Monitoring Of Phenomena Triggering A Disaster Or Hazard;Evaluation Of Risk: Application Of Remote Sensing, Data FromMeteorological And Other Agencies, Media Reports: Governmental andCommunity Preparedness.

Module 5

Risk Assessment Disaster Risk: Concept And Elements, Disaster Risk Reduction, Global AndNational Disaster Risk Situation. Techniques Of Risk Assessment, Global Co-Operation In Risk Assessment And Warning, People's Participation In Risk Assessment. Strategies for Survival.

Module 6

Disaster Mitigation Meaning, Concept And Strategies Of Disaster Mitigation, Emerging Trends In Mitigation. Structural Mitigation And Non-Structural Mitigation, Programs Of Disaster Mitigation In India.

SUGGESTED READINGS:

1. R. Nishith, Singh AK, "Disaster Management in India: Perspectives, issues and strategies "'New Royal book Company.
2. Sahni, PardeepEt.Al. (Eds.)," Disaster Mitigation Experiences And Reflections", Prentice Hall Of India, New Delhi.
3. Goel S. L., Disaster Administration And Management Text And Case Studies",Deep&Deep Publication Pvt. Ltd., New Delhi.

LAPBTX4 CONSTITUTION OF INDIA

Course Objectives:

Students will be able to:

1. Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
2. To address the growth of Indian opinion regarding modern Indian intellectuals'constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
3. To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

Course Outcomes

With effect from Academic Year 2021-22

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.

COURSE 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.

References:

- The Constitution of India, 1950 (Bare Act), Government Publication.
- Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
- M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
- D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

Course Code	Subjects	Periods/Week			Evaluation			Credits
		L	T	P	IA	ESE	Total	
IPPBPT1	Mini Project	3	0	0	40	60	100	3