NPR
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai | Accredited by NAAC with 'A' GRADE
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NPR Nagar, Natham - 624 401, Dindigul Dist, Tamil Nadu. Ph: 04544 - 246500, 501, 502.

CRITERION 1 – CURRICULAR ASPECTS

KEY INDICATOR:1.3: CURRICULUM ENRICHMENT

Metric No 1.3.1 List of courses with topics of Gender, Human Values, Environment and Sustainability and Professional Ethics.

S.No	Course	Regulation	Offered sem	Course Code	Course Name
1.	B.E- Electronics and Communication Engineering	R-2023	II	23GE901	Environmental Sciences and Sustainability
			III	23GE902	Human Values and Ethics
2.	B.E-Computer Science and Engineering	R-2023	II	23GE901	Environmental Sciences and Sustainability
			VII	23GE902	Human Values and Ethics
3.	B.E-Electrical and Electronics Engineering	R-2023	IV	23GE901	Environmental Sciences and Sustainability
			VII	23GE902	Human Values and Ethics
4.	B.E-Civil Engineering	R-2023	IV	23GE901	Environmental Sciences and Sustainability
			IV	23CE404	Water and Waste Water Engineering
			IV	23CE412	Water and Waste Water Engineering Lab
			VII	23CE701	Water Resources and Irrigation Engineering
5.	B.E-Mechanical Engineering	R-2023	III	23GE902	Human Values and Ethics
			IV	23GE901	Environmental Sciences and Sustainability
			VII	23GE706	Industrial Management
6.	B.Tech-Artificial Intelligence & Data Science	R-2023	IV	23GE901	Environmental Sciences and Sustainability
			VII	23GE709	Human Values and Ethics for AI
7.	B.Tech-Information Technology	R-2023	II	23GE901	Environmental Sciences and Sustainability
			VII	23GE902	Human Values and Ethics
8.	MBA-Master of Business Administration	R-2023	II	23MB203	Human Resource management

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I - Course Name: 23GE901 ENVIRONMENTAL SCIENCES AND SUSTAINABILITY

Program Name	B.E. /B.TECH. COMMON FOR CSE, ECE, AND IT	Sem	Category	L	T	P	C
Perquisites	NIL	II	BSC	2	0	0	0

II - Course Objectives

1.	To introduce the basic concepts of environment, ecosystems and biodiversity and emphasize on the biodiversity of India and its conservation.
2.	To impart knowledge on the causes, effects and control or prevention measures of environmental pollution.
3.	To study the dynamic processes and understand the features of the earth's interior and surface.
4.	To facilitate the understanding of global and Indian scenario of renewable and nonrenewable resources, causes of their degradation and measures to preserve them.
5.	To inculcate and embrace sustainability practices and develop a broader understanding on green materials, energy cycles and analyze the role of sustainable urbanization.

III - Course Content

Preamble:
The objective of this course is intended to make the students to understand the basic concepts of environment, ecology and pollution of the current environmental issues and to participate in various activities on conserving and protecting the environment.

Unit – I	ENVIRONMENT AND BIODIVERSITY	6 Hours

Definition, scope and importance of environment – need for public awareness. Eco-system and energy flow – ecological succession. Types of biodiversity: genetic, species and ecosystem diversity– values of biodiversity, India as a mega-diversity nation – hot-spots of biodiversity – threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – endangered and endemic species of India – conservation of biodiversity: in-situ and ex-situ.

Unit – II	ENVIRONMENTAL POLLUTION	6 Hours

Causes, effects and preventive measures of water, soil, air and noise pollutions. Solid, hazardous and e-waste management. case studies on occupational health and safety management system (OHASMS). Environmental protection - environmental protection acts.

Unit – III	SOCIAL ISSUES AND THE ENVIRONMENT	6 Hours

Water conservation, rain water harvesting, watershed management – Issues and possible solutions – climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.

Unit – IV	RENEWABLE SOURCES OF ENERGY	6 Hours

Energy management and conservation, new energy sources: need of new sources. Different types new energy sources. Applications of - hydrogen energy, ocean energy resources, tidal energy conversion. Concept, origin and power plants of geothermal energy.

Unit – V	SUSTAINABILITY PRACTICES	6 Hours

Zero waste and R concept, circular economy, ISO 14000 series, material life cycle assessment, environmental impact assessment. Sustainable habitat: green buildings, green materials, energy efficiency, Sustainable

transports. Sustainable energy: non-conventional sources, energy cycles carbon cycle, emission and sequestration, green engineering: sustainable urbanization - socio economical and technological change.

Text Books:	1. Anubha Kaushik and C. P. Kaushik's 'Perspectives in Environmental Studies', 6th Edition, New Age International Publishers, 2018. 2. Benny Joseph, 'Environmental Science and Engineering', Tata McGraw-Hill, New Delhi, 2017. 3. Gilbert M.Masters, 'Introduction to Environmental Engineering and Science', 2nd edition, Pearson Education, 2004. 4. Allen, D. T. and Shonnard, D. R., 'Sustainability Engineering: Concepts, Design and Case Studies', Prentice Hall. 5. Bradley. A.S; Adebayo, A.O., Maria, P. 'Engineering applications in sustainable design and development', Cengage learning. 6. Environment Impact Assessment Guidelines, Notification of Government of India, 2006.
Reference Books:	1. R.K. Trivedi, 'Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards', Vol. I and II, Enviro Media, 2010. 2. Rajagopalan, R, 'Environmental Studies-From Crisis to Cure', Oxford University Press, Third Edition, 2015. 3. Erach Bharucha'Textbook of Environmental Studies for Under graduate Courses' Orient Blackswan Pvt. Ltd. 2021.
MOOC/Web Platforms:	https://onlinecourses.nptel.ac.in/

IV - Course Outcome

On completion of the course, the students will be able to		**Bloom's Level Mapped**
CO1	To recognize and understand the functions of environment, ecosystems and biodiversity and their conservation	Remember (BL 1)
CO2	To identify the causes, effects of environmental pollution and natural disasters and contribute to the preventive measures in the society.	Understand (BL 2)
CO3	identify the causes, effects of natural disasters and contribute to the preventive measures in the society.	Apply (BL 3)
CO4	To identify and apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.	Understand (BL 2)
CO5	To demonstrate the knowledge of sustainability practices and identify green materials, energy cycles and the role of sustainable urbanization.	Apply (BL 3)

(Action verb of each CO to be matched with the next mapping table) (For example: if CO-1 uses the High Order Thinking Skills based action verb, then the corresponding PO must be mapped with High Correlation)

V - Mapping Table Mapping of COs with POs and PSOs

COs/ POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO 10**	**PO 11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
CO-1	2	1				2	3		1			2			
CO-2	3	2				3	3		1			2			
CO-3	3	1	1			2	2					2			
CO-4	3	1	1	1		2	2		1			2			
CO-5	3	2	1			2	2		1			1			

Mapping: 1-Low, 2-Medium, 3-High (Mapping value based on usage of Action verbs in each CO)

Dr.B.MARUTHU KANNAN, [illegible]

Principal

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I – Course Name: 23GE902 Human Values and Ethics

Prerequisite	Course Name	Sem	Category	L	T	P	C
-	23GE902 Human Values and Ethics	III	HSMC	2	0	0	2

II - Course Objectives

1.	To create awareness about values and ethics enshrined in the Constitution of India.
2.	To sensitize students about the democratic values to be upheld in the modern society.
3.	To inculcate respect for all people irrespective of their religion or other affiliations.
4.	To instill a scientific temper in the students' minds and develop their critical thinking and awareness of plagiarism.
5.	To promote a sense of responsibility and understanding of the duties of citizens.

III - Course Content

Preamble: This course aims to provide a broad understanding of the modern values and ethical principles that have evolved and are enshrined in the Constitution of India concerning the democratic, secular, and scientific aspects. The course is designed for undergraduate students so that they can study, understand, and apply these values in their day-to-day life.

Unit – I	**DEMOCRATIC VALUES**	**6 Hours**
Understanding Democratic values: Equality, Liberty, Fraternity, Freedom, Justice, Pluralism, Tolerance, Respect for All, Freedom of Expression, Citizen Participation in the Governance-Indian Freedom Movement.		
Unit – II	**SECULAR VALUES**	**6 Hours**
Understanding Secular values – Interpretation of secularism in the Indian context - Disassociation of state from religion – Acceptance of all faiths – Encouraging non-discriminatory practices.		
Unit – III	**SCIENTIFIC VALUES AND ETHICS**	**6 Hours**
Scientific thinking and method: Inductive and Deductive thinking, Proposing and testing Hypothesis, Validating facts using an evidence based approach. Transparency and Fairness in scientific pursuits – Scientific inventions for the betterment of society - Unfair application of scientific inventions.		
Unit – IV	**SOCIAL ETHICS**	**6 Hours**
Application of ethical reasoning to social problems – Gender bias and issues – Gender violence – Social discrimination – Constitutional protection and policies – Inclusive practices.		
Unit – V	**PROFESSIONAL ETHICS**	**6 Hours**
Plagiarism - Dishonesty - Stealing - Respect for Authority – Collective Bargaining - Confidentiality – Conflicts of Interest – Professional Rights – Employee Rights – Intellectual Property Rights (IPR) – Discrimination. Values, and standards that both employees and employers - Code of ethics in the pworkplace.		

Text Books:	1. Reading Text: Excerpts from John Stuart Mills on Liberty. 2. Reading Text: Excerpt from Secularism in India: Concept and Practice by Ram Puniyani. 3. Reading Text: Excerpt from the Scientific Temper by Antony Michaelis R. 4. Reading Text: Excerpt from 21 Lessons for the 21st Century by Yuval Noah Harari.
Reference Books:	1. The Nonreligious: Understanding Secular People and Societies, Luke W. Galen Oxford University Press, 2016. 2. Secularism: A Dictionary of Atheism, Bullivant, Stephen; Lee, Lois, Oxford University Press, 2016. 3. The Oxford Handbook of Secularism, John R. Shook, Oxford University Press, 2017. 4. The Civic Culture: Political Attitudes and Democracy in Five Nations by Gabriel A. Almond and Sidney Verba, Princeton University Press, **5.** Research Methodology for Natural Sciences by Soumitro Banerjee, IISc Press, January 2022
MOOC/Web Platforms:	1. www.onlineethics.org 2. www.nspe.org 3. www.globalethics.org **4.** www.ethics.org

IV - Course Outcome

On completion of the course, the students will be able to		**Bloom's Level Mapped**
CO1	Understand the importance of democratic values in the harmonious functioning of social life.	Understand (BL 2)
CO2	Build secular values in both their personal and professional life.	Apply (BL 3)
CO3	Build democratic and scientific value in both their personal and professional life.	Apply (BL 3)
CO4	Identify rational solutions to social problems and behave in an ethical manner in society.	Understand (BL 2)
CO5	Build the critical thinking and the pursuit of truth in modern society.	Apply (BL 3)

V - Mapping Table Mapping of COs with POs and PSOs

COs/ POs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	-	-	-	-	-	2	2	3	2	2	-	2	-	-
CO2	-	-	-	-	-	2	2	3	2	2	-	2	-	-
CO3	-	-	-	-	-	2	2	3	2	3	-	2	-	-
CO4	-	-	-	-	-	3	3	3	2	3	-	3	-	-
CO5	-	-	-	-	-	3	3	3	2	3	-	3	-	-

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23MB203 - HUMAN RESOURCE MANAGEMENT							
Program Name	**PG - MBA**	**SEM**	**Category**	**L**	**T**	**P**	**C**
Perquisites	**NIL**	II	PCC	3	0	0	3

Course Objectives

1.	To familiarize the students with Human Resource Management. Concepts and functions.
2.	To help the students in identifying problems in the management of Human Resources.
3.	To acquaint the students with different strategies and legislations used in management of HR related issues in the organization

Preamble:

This course aims at enabling the students to understand the broader spectrum of Human Resource management. This course helps the students to understand the primary and ancillary functions of Human Resource Management.

Unit - I	**PERSPECTIVES IN HUMAN RESOURCE MANAGEMENT**	**9 Hours**

Evolution of human resource management - The importance of the human capital - Role of human resource manager - Challenges for human resource managers - trends in Human resource policies - Computer applications in human resource management - Human resource accounting and audit - Case Study.

Unit - II	**HUMAN RESOURCE PLANNING AND RECRUITMENT**	**9 Hours**

Importance of Human Resource Planning - Forecasting human resource requirement - matching supply and demand - Internal and External sources - Organizational Attraction - Recruitment, Selection, Induction and Socialization- Theories, Methods and Process - Case Study.

Unit -III	**TRAINING AND DEVELOPMENT**	**9 Hours**

Types of training methods –purpose- benefits- resistance. Executive development programme - Common practices - Benefits – Self-development – Knowledge management--Case Study.

Unit -IV	**EMPLOYEE ENGAGEMENT**	**9 Hours**

Compensation plan - Reward - Motivation - Application of theories of motivation - Career management - Mentoring - Development of mentor - Protégé relationships - Job Satisfaction, Employee Engagement, Organizational Citizenship Behavior: Theories, Models.

Unit - V	**PERFORMANCE EVALUATION AND CONTROL**	**9 Hours**

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Method of performance evaluation - Feedback - Industry practices. Promotion, Demotion, Transfer and Separation - Implication of job change. The control process - Importance - Methods - Requirement of effective control systems grievances - Causes - Implications - Redressal methods- Performance Management System (PMS).
TOTAL: 45 PERIODS

Text Books:	1. ArunMonappa&Saiyadain - Personnel Management - TMGH, New Delhi. 2. David A. Decenzo, Stephen P. Robbins - Personnel/ Human resource Management - PHI, New Delhi.
Reference Books:	1. Tripathi, P.C. and Kapoor, N.D. - Personnel Management and Industrial Laws - Sultan Chand & Sons, New Delhi . 2. Guy, V & Mattock J The New - International Manager - Kogan Page, London. 3. Aswathappa. K, - Human Resource and Personnel Management - Tata McGraw Hill, New Delhi 4. Garry Dessler & BijuVarkkey - Fundamentals of Human Resource Management - Pearson 5. Sharon Pande&SwapnalekhaBasak - Human Resource Management - Text and cases - Vikas 6. P. R. N. Sinha, S. P. Shekhar and InduBala - Human Resource Management - Cengage.
MOOC/ Web Platforms:	1. https://mrcet.com/downloads/MBA/digitalnotes/Human%20Resource%20Management.pdf 2. http://14.139.185.6/website/SDE/SLM-III%20Sem%20BBA%20Human%20Resource%20Management.pdf

Course Outcome

	On completion of the course, the students will be able to	Bloom's Level Mapped
CO1	Classify the functions of human resources and understanding the strategies for existing environment.	Understanding (K2)
CO2	Appraise the methods of recruitment and prepare a selection strategy for a specific job.	Analyzing (K4)
CO3	Demonstrate appropriate implementation, monitoring and assessment procedures of training and design compensation schemes that are cost effective, improve productivity and comply with the legal framework.	Analyzing (K4)
CO4	Demonstrate knowledge on appraisal method and develop strategies to empower employees.	Applying (K3)
CO5	Investigate the enrichment concepts in HRM with its latest trends.	Analyzing (K4)

Mapping Table Mapping of COs with POs and PSOs

COs/POs	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PSO-1	PSO-2	PSO-3
CO-1	3			1		1			3
CO-2	3	3		1		1	2		
CO-3	3	3		1		1			
CO-4	3	2		1		1		1	
CO-5	3	3		1		1			2

Mapping: 1-Low, 2-Medium, 3-High

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