

Faculty Name: SRIVATHSA H U				Academic Year: 2024-2025			
Department: CIVIL ENGINEERING							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
21CV753	Environmental Protection & Management	Core	-	3	0	0	40
Objectives	This course will enable students to Gain knowledge in Environmental protection and Management systems						
Topics Covered as per Syllabus							
Module 1 - Environmental Management Standards:							
Unique Characteristics of Environmental Problems - Systems approach to Corporate environmental management - Classification of Environmental Impact Reduction Efforts -Business Charter for Sustainable Production and Consumption – Tools, Business strategy drivers and Barriers - Evolution of Environmental Stewardship. Environmental Management Principles - National policies on environment, abatement of pollution and conservation of resources - Charter on Corporate responsibility for Environmental protection. 8 Hours							
Module 2 - Environmental Management Objectives:							
Environmental quality objectives – Rationale of Environmental standards: Concentration and Mass standards, Effluent and stream standards, Emission and ambient standards, Minimum national standards, environmental performance evaluation: Indicators, benchmarking. Pollution control Vs Pollution Prevention - Opportunities and Barriers – Cleaner production and clean technology, closing the loops, zero discharge technologies 8 Hours							
Module 3 - Environmental Management System EMAS:							
ISO 14000 - EMS as per ISO 14001– benefits and barriers of EMS – Concept of continual improvement and pollution prevention - environmental policy – initial environmental review – environmental aspect and impact analysis – legal and other requirements- objectives and targets – environmental management programs – structure and responsibility – training awareness and competence- communication – documentation and 2 document control – operational control – monitoring and measurement – management review 8 Hours							
Module 4 - Environmental Audit:							
Environmental management system audits as per ISO 19011- – Roles and qualifications of auditors - Environmental performance indicators and their evaluation – Non-conformance – Corrective and preventive actions -compliance audits – waste audits and waste minimization planning – Environmental statement (form V) - Due diligence audit 8 Hours							
Module 5 - Applications of EMS							
Waste Audits and Pollution Prevention opportunities in Textile, Sugar, Pulp & Paper, Electroplating, Tanning industry, Dairy, Cement, Chemical industries, etc. Trans boundary movement, disposal, procedures, of hazardous wastes. 8 Hours							
List of Text Books							
1. Christopher Sheldon and Mark Yoxon, “Installing Environmental management Systems – a step by step guide” 2. Earthscan Publications Ltd, London, 1999. 2. ISO 14001/14004: Environmental management systems – Requirements and Guidelines – International Organisation for Standardisation, 2004 3. ISO 19011: 2002, “Guidelines for quality and/or Environmental Management System auditing, Bureau of Indian Standards, New Delhi, 2002							
List of Reference Books							
1. Paul L Bishop „Pollution Prevention: Fundamentals and Practice , McGraw- Hill International, Boston,2000. 2. Environmental Management Systems: An Implementation Guide for Small and Medium-Sized Organizations, Second Edition, NSF International, Ann Arbor, Michigan, January 2001.							
URLs:							
1. https://youtu.be/fj79O9RSvcA 2. http://nptel.ac.in/ 3. https://nptel.ac.in/courses/120108004							

Course Outcomes	Appreciate the elements of Corporate Environmental Management systems complying to international environmental management system standards	L2
	Lead pollution prevention assessment team and implement waste minimization options	L3
	Develop, Implement, maintain and Audit Environmental Management systems for Organizations	L3
Internal Assessment Marks: Three Unit Tests each of 20 Marks, Two assignments each of 10 Marks and Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for 20 Marks. The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be scaled down to 50 marks		

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	21CV743	TITLE: Environmental Protection & Management						Faculty Name:		SRIVATHSA H U		
List of Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	2					1	1	1				2
CO-2	2					1	1					2
CO-3	2					1	1				1	2

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

The Correlation of Course Outcomes (CO's) and Program Specific Outcomes (PSO's)

Subject Code:	21CV743	TITLE: Environmental Protection & Management	Faculty Name:	SRIVATHSA H U
List of Course Outcomes	Program Specific Outcomes			
	PSO1		PSO2	
CO-1	-		2	
CO-2	-		2	
CO-3	-		2	

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution