

M.Tech Health, Safety, and Environment Engineering

Program Education Objectives

The M.Tech. Programs at IET, JKLU are designed to prepare students for continued learning and successful careers. Our alumni are expected to:

- PEO1: Apply their technical knowledge, complex problem solving and research skills in professional practice.
- PEO2: Continue their intellectual development through critical thinking, self- study, apprenticeship, higher education, professional development courses, as well as participation in research groups and professional networks.
- PEO3: Serve as ambassadors for engineering and sustainability by exhibiting high professional standards with a deep sense of civic responsibility.
- PEO4: Effectively communicate about technical and related issues.
- PEO5: Embrace roles of team members and leaders in their career.

PROGRAM OUTCOMES

The graduates of M.Tech Programs at IET, JKLU will have following competencies:

- PO1: *Life-long learning*: Demonstrate inquisitiveness, open mindedness, and the ability to engage in independent and life-long learning in the broadest context of technological, organizational, economic, and societal changes.
- PO2: Citizenship, Sustainability, and Professional ethics
 - PO2a: Demonstrate knowledge of constitutional values of liberty, equity, justice, and fraternity with understanding of the impact of the engineering solutions in societal and environmental contexts as well as a sense of responsibility for sustainable development.
 - PO2b: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, cultural, and environmental issues and the consequent responsibilities relevant to the professional engineering practice.
 - PO2c: Demonstrate commitment for professional integrity and excellence and respect for ethics, responsibilities and norms as prescribed for the engineering practice.
- PO3: Engineering knowledge and Modern tool usage
 - PO3a: Demonstrate clear conceptual understanding of fundamentals of engineering specialization and cognitive flexibility to appropriately ‘transfer’ what has been learned in a context, to different situations.
 - PO3b: Apply engineering thinking, computational thinking, and the knowledge of mathematics, natural and social sciences, engineering fundamentals, information technology, engineering specialization, and engineering management to the solution of complex engineering problems.
 - PO3c: Create, select, modify, and apply appropriate techniques, best practices, standards, resources, and modern engineering and IT tools including prediction and modelling to engineering and social activities with an understanding of the limitations.
- PO4: Complex problem solving, Design and Research
 - PO4a: Identify, formulate, review research literature, and analyze complex engineering problems to arrive at substantiated conclusions using critical thinking along with

principles of mathematics, computing, engineering as well as natural and social sciences.

PO4b: Use systems thinking and reflection to identify and consider underlying structures, patterns, volatility, uncertainties, complexities, ambiguities, complications, and risks to design and develop engineering solutions for complex problems to meet the specified and anticipated needs with appropriate concern for constraints, performance, sustainability, and professional ethics.

PO4c: Use research-based knowledge and research methods including design of experiments, simulation, analysis and interpretation of data, and synthesis of the information to evaluate and improve the engineering solutions and practice.

PO5: Individual & team work and Engineering management

PO5a: Ability to work effectively as an individual and as a team member or leader in diverse and distributed teams, and in multidisciplinary settings.

PO5b: Ability to apply engineering management principles to one's own and team's work to manage engineering projects and operations and in multidisciplinary environment.

PO6: Communication: Ability to communicate effectively on complex engineering and technology activities, situations, problems, and solutions using verbal, textual, and pictorial elements with the colleagues, engineering community, users, clients, policy makers, and society at large with intellectual honesty, clarity, empathy, and compassion.

PO7: Innovation and entrepreneurship:

PO7a: Demonstrate enthusiasm and understanding to identify opportunities and translate research in engineering and other disciplines to conceive and design innovative engineering solutions for business, industry, and societal problems.

PO7b: Demonstrate enthusiasm and understanding to conceive and plan technology based new ventures either as independent start-up businesses or within existing corporate structures.

Program Specific Outcomes

M.Tech. (Health, Safety, and Environment Engineering)

The Health, Safety, and Environment Engineering graduates of JKLU will be able to:

HSEEPSO1: Interpret and apply legislative requirements, industry standards, and best practices in a variety of workplaces.

HSEEPSO2: Collect, manage, and interpret information and data to identify hazardous conditions and practices in a variety of workplaces.

HSEEPSO3: Prevent and control harm to workers, property, the environment and the general public by conceiving, designing, and implementing alternative engineering and management systems and practices in compliance with laws and/or employer policies by using principles of engineering, industrial safety, risk management, data analytics, automation, and state of the art platforms, components and tools.

HSEEPSO4: Serve in fields of environmental health and safety, safety engineering, industrial hygiene, safety and occupational health in business, consultancy, industry, government, healthcare, education, research, etc.

JK LakshmiPat University, Jaipur
Institute of Engineering and Technology
Course Structure for the M.Tech (Batch 2019-2021), May 2020
Health, Safety, and Environmental Engineering (HSE);
M.Tech programs offer the exit option after one year with PG Diploma

Courses						Credits
Semester I						
Statistical Data Analysis-I	Industrial Automation and Internet of Things-I	Industrial Safety Management	Elective-I	Project-I/ Research Methodology -I	CCCT/ Liberal Arts/ Pedagogy	21
AS2101	EE2101	ME2101	CE2201	PR2101	IL1101	
(3 0 4)	(3 0 2)	(3 0 4)	(3 0 0)	(2 0 0)	(2 0 0)	
5	4	5	3	2	2	
Semester II						
Computer Aided Risk Analysis	Risk and Hazard Management	Regulation for Health, Safety, and Environment Management	Elective-II	Project-II/ Research Methodology-II	CCCT/ Liberal Arts/ Pedagogy	21
CS2107	IL2103	IL 2104	IL2201/ CE2202	PR2102	CC1106	
(3 0 4)	(3 0 2)	(3 0 4)	(3 0 0)	(2 0 0)	(2 0 0)	
5	4	5	3	2	2	
Semester III						
Internship (6- 8 weeks) PS2101						4
Elective-III	Elective – IV	Dissertation-I / Industrial Project –I / Entrepreneurial Project-I				16
ME2201	ME2202/ CE2205	PR2104				
(3 0 0)	(3 0 0)					
3	3	10				
Semester IV						
Dissertation-II / Industrial Project-II / Entrepreneurial Project-II						16
PR2107 (16)						
Total Credits						78

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M. Tech (HSEE) (Batch: 2019-2021)		
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Course Code: AS2101

Course Name: Statistical Data Analysis-I

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

[AS2101.1]. Frame real world analysis problems using statistical concepts and solve those using standard techniques.

[AS2101.2]. Use professional level tools to support the study of statistics.

[AS2101.3]. Communicate quantitative ideas to a range of audiences.

[AS2101.4]. Apply recommended practices for data analysis.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
AS2101.1	1	1			2			2		2							3		
AS2101.2	2		1		1		3	1		2							1		
AS2101.3		1			1								3						
AS2101.4	2				3					2							3		1

Course Code: EE2101

Course Name: Industrial Automation and Internet of Things-I

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

[EE2101.1]. Analyze the link between Information Technology and Operational Technology.

[EE2101.2]. Explain the key components that make up an Industrial automation & IoT system.

[EE2101.3]. Discuss protocols and standards employed at each layer of the Industrial automation & IoT stack. Choose technology for communication and real-time data collection.

[EE2101.4]. Design, deploy and test a basic Industrial automation & IoT system.

[EE2101.5]. Apply recommended engineering practices to meet desired requirements for applications. Consider sustainability and cybersecurity as design constraints.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES				
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PSO 1	PSO 2	PSO 3	PSO 4	
EE2101.1	1						3				1									2
EE2101.2	1				2		3				2									2
EE2101.3	1						3				2									2
EE2101.4					2														3	2
EE2101.5					2						2								3	2

Course Code: ME2101

Course Name: Industrial Safety Management

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

[ME2101.1]. Analyse the effect of the release of toxic substances.

[ME2101.2]. Explain the industrial laws, regulations and source models.

[ME2101.3]. Apply the methods of prevention of fire and explosions.

[ME2101.4]. Identified the relief and its sizing methods.

[ME2101.5]. Explain the methods of hazard identification and preventive measures.

[ME2101.6]. Apply standard safety procedures in an industrial environment.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	P O 1	P O 2a	P O 2b	P O 2c	P O 3a	P O 3b	P O 3c	P O 4a	P O 4b	P O 4c	P O 5a	P O 5b	P O 6	P O 7a	P O 7b	PS O 1	PS O 2	PS O 3	PS O 4
ME2101.1	1	2	2		2	2		1	3					2	1		3	2	2
ME2101.2	2	2		1					1							3			
ME2101.3	1									3				1	2	2		3	
ME2101.4						1		1	2		2	3		1	1	3	2		
ME2101.5	2			1			2		2				3					3	
ME2101.6		2	3			2	1		2		2			1	1		2		3

Course Code: PR2101

Course Name: Project-I

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

[PR2101.1]. identify and understand the various types of solids wastes and their sources.

[PR2101.2]. determine the important parameter for preparation of organic compost from solid wastes.

[PR2101.3]. determine the impact of different parameter on C: N ratio of organic compost.

[PR2101.4]. design and carry out scientific study of bio-digester for methane gas production from food waste.

[PR2101.5]. learn field sampling, analytical techniques and preservation of samples.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO1	PO 2a	PO 2b	P O 2c	P O 3a	P O 3b	P O 3c	P O 4a	P O 4b	P O 4c	P O 5a	P O 5b	P O 6	P O 7a	P O 7b	PS O 1	PS O 2	PS O 3	PS O 4
PR2101.1	2		1		2						2		1				2	2	2
PR2101.2	1		1			1				1	2		1			1	2		2
PR2101.3	1				2		1										1		1
PR2101.4	1	1			2	1				2				1				2	2
PR2101.5	1										1								2

Course Code: IL1101

Course Name: Management Perspectives

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

[IL1101.1]. Comprehend the importance of management and its functional areas in businesses and also its interaction with technology.

[IL1101.2]. Highlight specific external and internal issues impacting businesses.

[IL1101.3]. Integrate and analyze multiple dimensions of management aspects to solve business problems.

[IL1101.4]. Evaluate the aspects that management might consider when evaluating technical and engineering projects such as planning and scheduling, personnel management, cost control etc. from a management perspective.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES														CORRELATION WITH PROGRAM SPECIFIC OUTCOMES				
	PO 1	PO 2 a	PO 2 b	PO 2 c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
IL1101.1	1				1														
IL1101.2	1	2											1						
IL1101.3	2		1		1						2		1						
IL1101.4	2			1							2	3							

Course Code: CE2201

Course Name: Industrial Waste Management

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

[CE2201.1]. Analyze key sources, typical quantities generated, composition, and properties of solid and hazardous wastes.

[CE2201.2]. Compare effective methods of solid & hazardous wastes handling and segregation of wastes at source.

[CE2201.3]. Test the most common techniques for preventing, minimizing, recycling, disposing and treatment of waste and their application on-site remediation.

[CE2201.4]. Recognize the relevant regulations that apply for facilities used for disposal, and destruction of waste.

[CE2201.5]. identify, formulate, and solve engineering problems, and an understanding of professional and ethical responsibility

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES														CORRELATION WITH PROGRAM SPECIFIC OUTCOMES				
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
CE2201.1	2	2										2		2			3		2
CE2201.2	2	2					2			1	1	2				1	2		2
CE2201.3	2		2				1			2		1		1		1		2	2
CE2201.4			1										1			3		2	
CE2201.5	2		1			2				2	1		2	2				3	

Course Code: CS2107

Course Name: Computer-Aided Risk Analysis

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

[CS2107.1]. identify the attributes to reduce identified risks

[CS2107.2]. get insight in how to perform risk analysis.

[CS2107.3]. get insight in computer models for estimating risk

[CS2107.4]. handle a case study with a risk analysis.

[CS2107.5]. effectively use existing risk analysis tools to solve real life problems of industry

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES														CORRELATION WITH PROGRAM SPECIFIC OUTCOMES				
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PSO 1	PSO 2	PSO 3	PSO 4
CS2107.1								2									3		
CS2107.2				2						3								3	
CS2107.3					2	3												2	
CS2107.4								3	3	2		2					2		
CS2107.5			2									2		2					3

Course Code: IL2103

Course Name: Risk and Hazard Management

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

[IL2103.1]. Identify hazards in chemical and petrochemical workplace activities using hazard identification techniques and hazard assessment process.

[IL2103.2]. Plan preventive actions needed to minimize hazards in chemical and petrochemical workplace activities.

[IL2107.3]. Assess health risks at different workplaces by integrating relevant data from a variety of sources.

[IL2107.4]. Take appropriate corrective action in emergency situations, i.e., fire, explosion, and accident.

[IL2107.5]. Assess risk and vulnerability for the electrical system considering both natural and manmade failures.

[IL2107.6]. Plan restoration stages for integrated power systems considering multiple contingencies.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	P O 1	P O 2a	P O 2b	P O 2c	P O 3a	P O 3b	P O 3c	P O 4a	P O 4b	P O 4c	P O 5a	P O 5b	P O 6	P O 7a	P O 7b	PS O 1	PS O 2	PS O 3	PS O 4
IL2103.1	2	2	2		1	3	2	2	3				2	2	2		2	2	2
IL2103.2	2		2		2	2			2									3	2
IL2103.3							2	2	2	2							2		
IL2103.4									3	3									3
IL2103.5								2					2				3		
IL2103.6									2		3					2			2

Course Code: IL2104

Course Name: Regulation for Health, Safety, and Environment Management

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

[IL2104.1]. Explain the Guidelines of major occupational health safety (OHS) legislation and various Act.

[IL2104.2]. Implement appropriate OHS legislation at different workplaces.

[IL2104.3]. Prepare a work safety analysis, applying the concepts of danger, hazard and preventive measures in any activity at different workplaces.

[IL2104.4]. Design Safety and Occupational Health Plans for different projects according to the OHS 18001 standard and the current laws.

[IL2104.5]. Assess workplace conditions against relevant standards and regulations.

[IL2104.6]. Evaluate and deploy appropriate control systems for air, noise and heat pollutants.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
IL2104.1	1	2	2	1					1				1			3		2	2
IL2104.2						3										3		2	
IL2104.3	2				2	2	3	2				2		1		3		3	
IL2104.4	2			2					2		1					2			2
IL2104.5	1	2									2	2					3		
IL2104.6			2							2					1	2		2	

Course Code: PR2102

Course Name: Project-II

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

[PR2102.1]. Identify and assess the major air pollutants

[PR2102.2]. Monitor the major ambient air quality parameters.

[PR2102.3]. Analyze the key water pollutant in domestic as well as industrial wastewater discharge.

[PR2102.4]. Test the different chemical, physical and biological parameters of waste water.

[PR2102.5]. Interpret, compare the data of air and water quality parameters for better impact mitigation.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES				
	P O 1	P O 2a	P O 2b	P O 2c	P O 3a	P O 3b	P O 3c	P O 4a	P O 4b	P O 4c	P O 5a	P O 5b	P O 6	P O 7a	P O 7b	PS O 1	PS O 2	PS O 3	PS O 4	
PR2102.1	2		1		2						2		1					2	2	2
PR2102.2	1		1			1				1	2		1			1	2			
PR2102.3	1				2		1										1			
PR2102.4	1	1			2	1				2				1				2	2	
PR2102.5	1										1									2

Course Code: CC1106

Course Name: Critical Thinking for Decisions at Workplace

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

[CC1106.1]. Apply techniques of critical thinking to analyse organisational problems through positive inquiry

[CC1106.2]. Describe and analyse appropriate problem-solving and ethical decision-making processes

[CC1106.3]. Choose the most effective and logical decision among multiple alternatives

[CC1106.4]. Evaluate solutions and anticipate likely risks based on purpose, context and ethics

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES				
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PSO 1	PSO 2	PSO 3	PSO 4	
CC1106.1	1										2		2							
CC1106.2	2					1		2					1							
CC1106.3								1		1	2	1								
CC1106.4							1	2				2								

Course Code: IL2201

Course Name: Occupational Hygiene and Health

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

[IL2201.1]. Identify the health hazard and the importance of occupational hygiene.

[IL2201.2]. Explain the role of the occupational hygienist in the workplace.

[IL2201.3]. Apply the Hazard recognition techniques and use Methods of controlling exposure.

[IL2201.4]. Identify Ergonomic & psychosocial Hazards in the workplace.

[IL2201.5]. Apply the basic principles for measurement, control, and evaluation of occupational hygiene.

[IL2201.6]. Interpret data and apply recommendations of occupational hygiene reports.

[IL2201.7]. Characterize the common hazards in a wide range of production processes found in India.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES														CORRELATION WITH PROGRAM SPECIFIC OUTCOMES				
	PO 1	PO 2a	PO 2b	PO 2C	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
IL2201.1	1		1									1	1				2		1
IL2201.2	1										2						2		
IL2201.3	2		1			1											3		2
IL2201.4	2						1			1				1			2	1	2
IL2201.5	2		2																2
IL2201.6	1			1								1					3	2	1
IL2201.7	1															1			

Course Code: CE2202

Course Name: Safety in Construction

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

- [CE2202.1]. Define the key safety requirements in construction Industries
- [CE2202.2]. Identify the hazards and risks involved in construction industries
- [CE2202.3]. Implement the Effective Safety Management System
- [CE2202.4]. Reduce of workplace injuries through incident prevention methods
- [CE2202.5]. Improve safety culture within the organization
- [IL2201.6]. Apply Indian Standards for safety in Construction site

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO 1	PO 2a	PO 2b	PO 2C	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
CE2202.1	2																		
CE2202.2	2													1		2	3		
CE2202.3	1							3			3			3				2	
CE2202.4																			
CE2202.5	1	2												2					2
CE2202.6	2			2												3			

Course Code: PS2101

Course Name: Internship

Course Code: ME2201

Course Name: Fire Engineering and Management

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

[ME2201.1]. Distinguish between a portable fire extinguisher and fixed fire extinguisher systems.

[ME2201.2]. List different types of fire brigades and the Occupational, Safety, and Health Administration (OSHA) requirements.

[ME2201.3]. Describe the number system used by the United Nations and Department of Transportation (DOT) in classifying hazardous materials.

[ME2201.4]. Describe the Life Safety Code requirements that are located in the model building codes that are used throughout the world.

[ME2201.5]. Determine factors necessary when selecting an appropriate fire detection system.

[ME2201.6]. Prepare, review, and/or approve all applicable safe-practice standards.

[ME2201.7]. Explain that all legislation is aimed at protecting life, society, and property.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	P O 1	P O 2a	P O 2b	P O 2C	P O 3a	P O 3b	P O 3c	P O 4a	P O 4b	P O 4c	P O 5a	P O 5b	P O 6	P O 7a	P O 7b	PS O 1	PS O 2	PS O 3	PS O 4
ME2201.1	3															2		3	
ME2201.2			2															2	2
ME2201.3				1	2												3		
ME2201.4			2						1									2	
ME2201.5									2								2	3	
ME2201.6				2		2					2						2	2	2
ME2201.7	2			2					2							3		2	2

Course Code: ME2202

Course Name: Chemical Safety

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

[ME2202.1]. Assess the severity of the consequences of incidents.

[ME2202.2]. Identify the hazard by different techniques in a chemical processing plant.

[ME2202.3]. Assess the level of risk for different kind of hazards in a chemical processing plant.

[ME2202.4]. Explain the legal framework controlling process plant safety in India.

[ME2202.5]. Analyze the root cause of accidents in chemical industry.

[ME2202.6]. Evaluate the onsite and offsite emergency plan for chemical spill or fire.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PSO 4
ME2202.1	2				2													2	2
ME2202.2					3	2		2	2								2		
ME2202.3	2				2				3								3		
ME2202.4	2	2	2	3	1							2				3			
ME2202.5			2							2							2	3	
ME2202.6	3				2	2				2								2	3

Course Code: CE2205

Course Name: EIA and Environmental Auditing

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

[CE2205.1]. Identify objectives of an environmental impact assessment and environmental audits.

[CE2205.2]. Use the basic steps and elements of an EIA and Environmental Audit (EA).

[CE2205.3]. Apply legislation and rules for EIA, EMA, and EA.

[CE2205.4]. Identify, assess and address environmental concerns and adopt EIA & EA as tools for sustainable development.

[CE2205.5]. Conduct environmental audits and pollution prevention assessments and critically evaluate its outcomes.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
CE2205.1	2	2	1									1						1	2
CE2205.2	1	1	2													2	1	2	2
CE2205.3	1	1	2													3		1	1
CE2205.4	1	2					2					1						1	2
CE2205.5																			

Course Code: PR2104

Course Name: Industrial Project-I

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

[PR2104.1]. Identify skills and capabilities that intersect effectively with the needs of industry.

[PR2104.2]. Apply and practice good communication skills in the workplace setting.

[PR2104.3]. Reflect and evaluate on experiences that might lead to future employment.

[PR2104.4]. Report research findings in written and verbal forms.

[PR2104.5]. Demonstrate and apply research skills to complete a project.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PSO 1	PSO 2	PSO 3	PSO 4
PR2104.1	2		2		3	3	1	3			3			1		2			
PR2104.2		2			2						2		3				2		2
PR2104.3	2		2	2	2	2	2				3	3						2	
PR2104.4		3		3	3		1				2		2	3	2			2	2
PR2104.5	2			3	3	2					3			3	3	2			3

Course Code: PR2107

Course Name: Industrial Project-II

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

[PR2104.1]. Identify skills and capabilities that intersect effectively with the needs of industry.

[PR2104.2]. Apply and practice good communication skills in the workplace setting.

[PR2104.3]. Reflect and evaluate on experiences that might lead to future employment.

[PR2104.4]. Report research findings in written and verbal forms.

[PR2104.5]. Demonstrate and apply research skills to complete a project.

Course Outcome	CORRELATION WITH PROGRAM OUTCOMES															CORRELATION WITH PROGRAM SPECIFIC OUTCOMES			
	PO 1	PO 2a	PO 2b	PO 2c	PO 3a	PO 3b	PO 3c	PO 4a	PO 4b	PO 4c	PO 5a	PO 5b	PO 6	PO 7a	PO 7b	PS O 1	PS O 2	PS O 3	PS O 4
PR2104.1	2		2		3	3	1	3			3			1		2			
PR2104.2		2			2						2		3				2		3
PR2104.3	2		2	2	2	2	2				3	3						2	
PR2104.4		3		3	3		1				1		2	2	2			2	2
PR2104.5	2			3	3	2					3			2	3	2			3