AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Courses On Climate Science and / or Environmental Sustainability

This document contains the details of the various courses taught at the various schools of the Amity University Maharashtra, that teach specifically on climate science and/or environmental sustainability.

The Environmental Studies ENV2151 at Semester 1, and Environmental Studies ENV2251 of the UG programs across the Amity University Maharashtra carrying total 4 credits are taught in the curriculum.

School	Course	Credit	Semester
All 17 Schools at AUM	Environmental Studies ENV2151	02	1
All 17 Schools at AUM	Environmental Studies ENV2251	02	2
Amity Institute of Travel and Tourism	Sustainable Tourism Development	02	3
Amity Institute of Travel and Tourism	Tourism Business and Environmental Law	04	6
Amity Law School	Environmental Law	05	4 & 9
Amity School of Fashion Technology	Project- Sustainability & Digitization in Fashion Industry	06	3
Amity School of Fashion Technology	Green Technology & Sustainable Fashion	02	2
Amity School of Fashion Technology	Environment and Green Manufacturing	02	6
Offered to All 17 Schools at AUM	Minor Track on Industrial Safety and Resource Management	18	UG Sem 1 to 6

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Common course on Environmental Science for UG Semester 1 and UG Semester 2

Course Structure: Environmental Studies ENV2151

Semester - I

Course Code	Course Name	Credits
ENV2151	Environmental Studies	2

Contact Hours			Credits Assigned			
Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
02	-	-	02	-	-	02

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- Globally we are facing critical environmental issues like population explosion, indiscriminate use of natural resources, global warming etc. which need to be tackled and we should aware students about the deteriorating environment. Now a days each country focusing on the achievement of fulfilling sustainable development goals.
    - So, it is prime need of today's education system to make such curriculum patterns and make students aware about importance of compulsory Environmental Studies so that to some extent our future generation will be able to curb down environmental issues.

Course Objectives

- Create awareness about environmental problems among learners.
- Impart basic knowledge about the environment and its allied problems.
- Develop an attitude of concern for the environment.
- Motivate learners to participate in environment protection and environment improvement.
- Acquire skills to help the concerned individuals in identifying and solving environmental problems.
- Strive to attain harmony with Nature.

Detailed Syllabus

Module/ Unit	Course Module / Contents		Hours	Marks Weightage
			02	20%
1	Multidisciplinary nature of environmental studies Definition, scope, and importance, need for public awareness			
			08	25%
2	Natural Resources: Renewable and non-renewable resources: Natural resources and associated problems.			
	a)	Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.		
	b)	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.		
	c)	Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.		
	d)	Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.		
	e)	Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.		
	f)	Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.		

		Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.		
3	Ecosystems		**08**	**30%**
	Concept of an ecosystem.			
	Structure and function of an ecosystem			
	Producers, consumers, and decomposers.			
	Energy flow in the ecosystem			
	Ecological succession			
	Food chains, food webs and ecological pyramids.			
	Introduction, types, characteristic features, structure, and function of the following ecosystems: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)			
4	Biodiversity and its conservation		**08**	**25%**
	Introduction – Definition: genetic, species and ecosystem diversity.			
	Biogeographical classification of India.			
	Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values			
	Biodiversity at global, National, and local levels.			
	India as a mega-diversity nation			
	Hot sports 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 conservation of biodiversity.			
Total			**26**	

REFERENCES:

a) Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

b) Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India, Email: mapin@icenet.net (R)

c) Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p

d) Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)

e) Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p

f) De A.K., Environmental Chemistry, Wiley Eastern Ltd.

g) Down to Earth, Centre for Science and Environment (R)

h) Gleick, H.P. 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p

i) Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)

j) Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.

k) Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.

l) Mckinney, M.L. & School, R.M. 1996. Environmental Science Systems & Solutions, Web enhanced edition. 639p.

m) Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)

n) Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)

o) Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p

p) Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.

q) Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut

r) Survey of the Environment, The Hindu (M)

s) Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science

t) Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R)

u) Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)

v) Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p (M) Magazine (R) Reference (TB) Textbook

Course Structure: Environmental Studies ENV2251

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Semester - II

Course Code	Course Name	Credits
ENV2251	Environmental Studies	2

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
02	-	-	02	-	-	02

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- Globally we are facing critical environmental issues like population explosion, indiscriminate use of natural resources, global warming etc. which need to be tackled and we should aware students about the deteriorating environment. Now a days each country focusing on the achievement of fulfilling sustainable development goals.
- So, it is prime need of today's education system to make such curriculum patterns and make students aware about importance of compulsory Environmental Studies so that to some extent our future generation will be able to curb down environmental issues.

Course Objectives

- Create awareness about environmental problems among learners.
- Impart basic knowledge about the environment and its allied problems.
- Develop an attitude of concern for the environment.
- Motivate learners to participate in environment protection and environment improvement.
- Acquire skills to help the concerned individuals in identifying and solving environmental problems.
- Strive to attain harmony with Nature.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Detailed Syllabus

Module/ Unit	Course Module / Contents		Hours	Marks Weightage
5	Environmental Pollution Definition, Cause, effects, and control measures of:		10	35%
	a)	Air pollution		
	b)	Water pollution		
	c)	Soil pollution		
	d)	Marine pollution		
	e)	Noise pollution		
	f)	Thermal pollution		
	g)	Nuclear hazards		
	Solid waste Management: Causes, effects, and control measures of urban and industrial wastes.			
	Role of an individual in prevention of pollution.			
	Pollution case studies.			
	Disaster management: floods, earthquake, cyclone, and landslides.			
6	**Social Issues and the Environment**		10	35%
	From Unsustainable to Sustainable development			
	Urban problems related to energy			
	Water conservation, rainwater harvesting, watershed management			
	Resettlement and rehabilitation of people; its problems and concerns. Case Studies			
	Environmental ethics: Issues and possible solutions.			
	Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents, and holocaust. Case Studies.			
	Wasteland reclamation			
	Consumerism and waste products			
	Environment Protection Act.			
	Air (Prevention and Control of Pollution) Act			

	Water (Prevention and control of Pollution) Act		
	Wildlife Protection Act		
	Forest Conservation Act		
	Issues involved in enforcement of environmental legislation. Public awareness.		
7	**Human Population and the Environment**	06	30%
	Population growth, variation among nations.		
	Population explosion – Family Welfare Programme.		
	Environment and human health.		
	Human Rights.		
	Value Education		
	HIV/AIDS.		
	Women and Child Welfare.		
	Role of Information Technology in Environment and human health.		
	Case Studies.		
Total		**26**	

REFERENCES:

a) Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

b) Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India, Email: mapin@icenet.net (R)

c) Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p

d) Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)

e) Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p

f) De A.K., Environmental Chemistry, Wiley Eastern Ltd.

g) Down to Earth, Centre for Science and Environment (R)

h) Gleick, H.P. 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p

i) Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)

j) Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.

k) Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.

l) Mckinney, M.L. & School, R.M. 1996. Environmental Science Systems & Solutions, Web enhanced edition. 639p.

m) Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)

n) Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)

o) Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p

p) Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.

q) Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut

r) Survey of the Environment, The Hindu (M)

s) Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science

t) Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R)

u) Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)

v) Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p (M) Magazine (R) Reference (TB) Textbook

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Climate Science And / Or Environmental Sustainability Course at Amity Law School

Semester – IV/IX

Course Code	Course Name	Credits
LLB0415	**Environmental Law**	**05**
BAL0919		
BBL0919		
BCL0919		

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
05	-	-	**05**	-	-	**05**

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Continuous Evaluation	Attendance	Total Internal						
20	**05**	**05**	**30**	**70**	3 Hours	-	-	-	100

Course Objectives

Objective: Environmental law is a complex group of laws and regulations which operate to regulate the interaction of human life to the natural environment. Environmental laws consist of treaties, conventions, statutes and regulations. Often environmental law falls under common law. The purpose of environmental law is to protect and preserve the environment. There are two main subjects of environmental laws, control of pollution, and the conservation and management of land.

Course Outcome

The students will be able to:

- Understand the evolution of Environmental Law
- Know the sources, causes, effects and kinds of pollution
- Understand the various international initiatives on environmental protection

Detailed Syllabus

Module/ Unit	Course Module / Contents		Hours	Marks Weightage
Module I:	**Introduction:**		**15**	**25%**
1	1.1	Man, Environment and Development: Inter-relation & issues.		
	1.2	Environment & the Law – Scope & importance of Environmental Laws & Studies.		
	1.3	Natural resources: uses & its over-exploitation, consequences.		
	1.4	Biodiversity & equitable use of resources for sustainable lifestyle.		
	1.5	Role of an individual in conservation of natural resources: Collateral damage to ecology.		
	1.6	*Environment & Environmental Pollution – Problem & prospects* and need for sustaining eco-system: why & how?		
Module II	**Status of Environment: International and National Perspectives**		**15**	**25%**
2	2.1	Environmental laws & need for regulating eco-system through law.		
	2.2	*International Environmental Regime: Evolution & rationale Paradigm: The Stockholm Summit, 1972;* The Convention on the Protection of the Ozone Layer (Vienna Convention), 1985; Brundtland Report, 1987; The United Nations Conference on Environment and Development (UNCED), 1992-		

		Earth Summit, Agenda 21 & Rio Summit; Kyoto Protocol, 1997; Sustainable Development Goals, 2015 & Agenda 2030.		
	2.3	Fundamental principles of environmental protection: Sustainable Development, Inter-generational and intra-generational environmental justice & equity, Polluter pays principle, precautionary principle, Environmental Impact Assessment, Environmental audit, Public Trust Doctrine.		
	2.4	Constitutional Perspectives: Directive Principles, Fundamental Rights & Duties, Right to clean and healthy environment, Right to Information. Public interest litigation.		
	2.5	Environment Protection under General Laws: Nuisance, Penal Code, Procedural Laws.		
	2.6	Enforcing agencies & remedies: Courts, Tribunals.		
Module III	**Environmental Laws**			
3	3.1	The Water (Prevention and Control of Pollution) Act, 1974	**15**	**25%**
	3.2	The Air (Prevention and Control of Pollution) Act, 1981		
	3.3	Environmental (Protection) Act, 1986		
	3.4	Public Liability Insurance Act, 1991		
	3.5	The National Environment Tribunal Act, 1995		
	3.6	The National Appellate Environmental Authority Act, 1997		
	3.7	The Biological Diversity Act, 2002.		
Module IV	**Environmental Conservation – Legislative Measures**			

4	4.1	Indian Forest Act, 1927: Kinds of Forests – Private, Reserved, Protected and Village Forests; Greenery conservations Laws, Conservation agencies.	**20**	**25%**
	4.2	The Forest (Conservation) Act, 1980		
	4.3	The Wildlife (Protection) Act, 1972: Sanctuaries and National Parks, Licensing of zoos and parks, Trade or commerce in wild animals, State monopoly in the sale of wildlife, Hunting of Wildlife and offences against wild life.		
	4.4	Emerging Environmental Jurisprudence: Prevention & Conservation		
Total			**65**	**100%**

Recommended Books:

1. Paras Diwan: Studies on Environmental Cases.
2. S.N. Jain (ed.): Pollution Control and the Law.
3. Armin Rosencranzand Shyam Divan: Environmental Law and Policy in India.
4. A.Agarwal (ed.): Legal Control of Environmental Pollution
5. Chetan Singh Mehta: Environmental Protection and Law
6. V.K. Krishna Iyer: Environment Pollution and Law
7. Shah : Environmental Law
8. Paras Diwan : Environmental Law and Policy in India,1991
9. Dr. N. Maheshwara Swamy, Environmental Law, Asia Law House, Hyderabad.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Climate Science And / Or Environmental Sustainability Course at Amity Institute of Travel And Tourism

Course Code	Course Name	Credits
TRM4305	SUSTAINABLE TOURISM DEVELOPMENT	2

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
02	-	-	02	-	-	02

	Theory					Term Work / Practical/Oral			
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	Total
Test	Continuous Evaluation	Attendance	Total Internal						
15	**10**	**05**	**30**	**70**	3 Hours	-	-	-	100

Course outcome

- Understand the principles and concepts of sustainable tourism.
- Assess and evaluate sustainable tourism practices.
- Plan and manage sustainable tourism development projects.
- Promote community engagement and empowerment in tourism development.
- Implement sustainable tourism strategies and practices.

Course Objectives

- To explore the interrelationships between the environment & its resource for sustainable tourism planning and development.

Detailed Syllabus

Module / Unit	Course Module / Contents		Hours	Marks Weightage
	Sustainable Tourism		**6**	**10%**
1	1.1	Sustainable Development: Concept, Definition, and Background		
	1.2	Dimensions of Sustainability;		
	1.3	Social, Economic		
	1.4	Environmental		
	Sustainable Tourism Planning		**10**	**45%**
2	2.1	Principles of STEP – basic concepts and sustainable design		
	2.2	Climate analysis		
	2.3	Analysis and site analysis – design for environment		
	2.4	Locality, socio-economic conditions		
	2.5	Cultural and experiential values.		
3	**Approaches in sustainable tourism**		**10**	**45%**
	3.1	Ecotourism		
	3.2	Global initiative under Quebec City and Oslo		
	3.3	Conventions-Responsible Tourism		
	3.4	Concept and Globa l responses		
	3.5	Cape Town and Kerala Declaration-Community based and pro poor tourism including STEP		
	3.6	Eco-friendly Practices and Energy waste Management		
Total			**26**	**100%**

Recommended Books:

- Sustainable Tourism – A Marketing Perspective, Victor T.C. Middleton and Rebecca Hawkins
- Sustainable Tourism, Salah Wahab and John J. Pigram,
- Sustainable Development – Economic and Policy, P.K. Rao

Course Code	Course Name	Credits
TRM2604	**TOURISM BUSINESS AND ENVIRONMENTAL LAW**	4

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
04	-	-	04	-	-	04

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Continuous Evaluation	Attendance	Total Internal						
15	**10**	**05**	**30**	**70**	3 Hours	-	-	-	100

Course outcome

After going through this subject, the learners will be able to:

- appreciate the relevance of tourism legislation,
- understand what all can be incorporated under tourism legislation,
- comprehend the demand for tourism legislation,
- know about the different Acts and Regulations that have a bearing on tourism in India, and
- learn about the various recommendations that have been made in this regard

Course Objectives

- As a tourism professional it is imperative on you to know all those legal and quasi-legal, regulations that concern the tourist trade in this country

Detailed Syllabus

Module/ Unit	Course Module / Contents		Hours	Marks Weightage
	Understanding Law in Tourism Industry		**11**	20%
1	1.1	Company - meaning, definition		
	1.2	Formation and incorporation under the companies act, 1956.		
	1.3	types of Companies		
	1.4	Laws relating to Accommodation		

	Travel Agents & Tour Operators			
2	2.1	Tourism Packages & Legal Issues	**10**	**15%**
	2.2	Consumer Protection Act - meaning and its relevance in travel and tourism business		
	2.3	MRTPC - applicability and significance in tourism and travel related business.		
	2.4	Travel Insurance and consumer protection act		
	2.5	International consumer protection acts in tourism		
3	**Common Carriers – Air, Land & Sea**		**10**	**20%**
	3.1	Air Law- Law and regulations related to airlines and airways		
	3.2	Air Law- Law and regulations related to airlines and airways		
	3.3	Baggage concessions for tourist, Compensation for lost and damaged baggage		
	3.4	Insurance for tourists and their baggage; DGCA formalities for business and recreational flying in India		
	3.5	Laws related to surface transport		
	3.6	Law of Sea - concept, bill of lading and foreign travels		
4	**Tourist Documents**		**05**	**15%**
	4.1	Laws and legislation relating to tourist entry, stay and departure		
	4.2	Passport Act & Visa Extension		
	4.3	procedure and requirement for procuring various travel documents (passport, visa, Health Certificates & Insurance) with relation to inbound and outbound tourists		
	4.4	Laws relating to currency exchange, FEMA		
5	**Foreigners Act**		**05**	**10%**
	5.1	Foreigners Act 1946; Special permits to restricted areas for foreign tourist in India		
	5.2	Restricted area in India for foreign tourists & related authorities at these places to obtain permits		
	5.3	Permit related to various monasteries and wildlife areas and their procedure		
	Adventure Tour Operation			
	6.1	Law designed for Adventure Tour operation		

6	6.2	Special permits for Rafting, Paragliding, heli-Skiing & Angling	**06**	**10%**
	6.3	Peak booking formalities		
	6.4	IMF rules for mountain expeditions, cancellation of permits and bookings.		
7	**Wildlife, Heritage and Environment**			
	7.1	Wildlife Protection Act - Laws related to Environment and Wildlife	**05**	**10%**
	7.2	Environment Protection Act. Air, Water & Noise Pollution Act		
	7.3	Antiquities & Art Treasures Act – Laws related to Antiquities & Art Treasures.		
	7.4	The Ancient Monument & Archaeological Sites & Remains Act		
	7.5	Laws relating to Protection, Presentation and Conservation of Heritage and Environment		
Total			**52**	**100%**

Recommended Books:

1. Sachindra Shekhar Bishwas - Protecting the Cultural Heritage
2. Sinha P. C - International Encyclopedia of Tourism Management
3. Malik S - Ethical & Legal & Regulatory Aspects Tourism Business
4. Tourism Guide Lines Published by Govt. of India, Ministry of Tourism.
5. Tourism Guidelines Issued By Department of Tourism for Hotel and Restaurant Operation.
6. Sajnani Manohar (1999) Indian Tourism Business: A Legal Perspective, New Delhi.
7. R. K. Malhotra (2005) Socio – Environmental and Legal Issues in Tourism, New Delhi.
8. Gupta S.K. (1989) Foreign Exchange Laws and Practice, Taxman Publications Delhi.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Climate Science And / Or Environmental Sustainability Course at Amity School of Fashion Technology

Semester - III

Course Code	Course Name	Credits
MFT2307	Project- Sustainability & Digitization in Fashion Industry	06

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
03	-	03	03	-	03	06

	Theory					Term Work / Practical/Oral			
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	Total
Test	**Continuous Evaluation**	**Attendance**	**Total Internal**						
30	**15**	**05**	**50**	**50**	3 Hours	-	-	-	100

Course outcome

- Develop an understanding of sustainability practices in the fashion industry, including concepts such as circular economy, responsible sourcing, ethical production, and eco-friendly materials, to evaluate and promote sustainable fashion initiatives.
- Gain knowledge of the digital transformation in the fashion industry, exploring emerging technologies, digital platforms, and data analytics, and understanding their impact on business models, consumer behavior, and supply chain management.
- Explore the integration of sustainability and digitization in fashion product design, production processes, marketing campaigns, and retail experiences, understanding their potential for creating positive environmental and social impact.

Course Objectives

To understand the critical challenges faced by the fashion industry in achieving sustainability and the potential of digitization to address these challenges effectively and develop strategies and innovative solutions that integrate sustainability practices and digital technologies to create a more environmentally responsible and technologically advanced fashion ecosystem.

Detailed Syllabus				
Module/ Unit	**Course Module / Contents**		**Hours**	**Marks Weightage**
1	**<u>Module I -</u> Introduction and Research Proposal**		6	20%
	1.1	Understand the project's scope, objectives, and research questions. Develop a comprehensive research proposal outlining the project's focus and methodology. Conduct an in-depth literature review on sustainability in the fashion industry and the role of digitization.		
2	**<u>Module II -</u> Sustainable Fashion Practices and Technologies**		6	20%
	2.1	Investigate various sustainable practices and technologies used in the fashion industry. Examine how digital technologies are integrated into sustainable fashion design, production, and supply chain management. Study successful sustainable and digitized fashion brands, analyzing their strategies and outcomes.		
3	**<u>Module III -</u> Digitization Impact on Consumer Behavior**		6	20%
	3.1	Explore how digitization influences consumer behavior and purchasing decisions in the fashion industry. Analyze the role of social media, e-commerce platforms, and virtual experiences in shaping sustainable consumer choices. Examine the ethical implications of digitization in the fashion industry, such as data privacy and fair labor practices.		
4	**<u>Module IV -</u> Designing Sustainable Digital Solutions**		6	20%
	4.1	Propose innovative ideas for integrating sustainability and digitization in the fashion industry. Develop a plan for implementing these ideas, considering potential challenges and opportunities.		

		Simulate the implementation of proposed sustainable digital solutions through a virtual fashion project.		
5	**<u>Module V -</u> Project Evaluation and Recommendations**		6	20%
	5.1	Evaluate the project's outcomes based on predefined criteria and objectives. Formulate recommendations for industry to foster sustainability and digitization in the fashion sector. **Presentation and Report**		
Total			30	100

Recommended Books:

1. "Sustainable Fashion and Textiles: Design Journeys" by Kate Fletcher
2. "Eco Fashion" by Sass Brown
3. "Fashion & Sustainability: Design for Change" by Kate Fletcher and Lynda Grose
4. "To Die For: Is Fashion Wearing Out the World?" by Lucy Siegle
5. "Fashion and Sustainability: Design for a Change" by Tamsin Blanchard

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Semester - II

Course Code	Course Name	Credits
MFT1207	Green Technology & Sustainable Fashion	02

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
02	-	-	02	-	-	02

	Theory					Term Work / Practical/Oral			
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	Total
Test	Continuous Evaluation	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- An understanding of the textile supply chain, associated sustainability issues and the effect of industrial revolution on current fashion scenario
- Knowledge of social economic and environmental aspects of sustainability; various methods of sustainability analysis
- An understanding of life cycle thinking, Circular economy, Corporate Social Responsibility, Sustainable design, Green supply chain,
- Familiarity with regulations and standards promoting sustainability in textile supply chain, EMS, GRI, Eco-labeling, GOTS and various voluntary organizations and campaigns

Course Objectives

The course aims to introduce the concept of sustainability in various stages of textile and apparel production, understanding of the environmental issues in textile supply chain and familiarity with guidelines and regulations that support sustainable textile production practices.

Detailed Syllabus

Module/ Unit	Course Module / Contents		Hours	Marks Weightage
1	**Fashion Industry and Environmental Issues**		6	25%
	1.1	Types of textile fibers, the textile value chain and associated processes, Environmental issues associated with various textiles: natural and man-made fibers.		
	1.2	Factors influencing environmental impacts in textile supply chain: energy (electricity and fossil fuels), water use, water pollution, chemicals, dyes, auxiliaries, waste, air, noise,etc. Industrial revolution: evolution of fashion through first, second, third and fourth industrial revolution, fast fashion, over consumption, sweatshops.		
2	**Sustainability: definition, its various aspects and methods of Assessment**		6	25%
	2.1	Definition of Sustainability, Sustainability triple bottom framework, social, economic, perspective of sustainability.		
	2.2	Terminology in sustainability: environmental sustainability, ecology and ecological balance, circles of sustainability, carbon foot prints, water foot prints, Higg Index.		
3	**Approaches to Achieve Sustainability in Business**		7	25%
	3.1	Circular economy, R's of waste management: reuse, reduce, recycle, refuse, repurpose, recover, rethink, Ecofriendly textile processing and waste minimization, Sustainable fibers- Regenerated fibers, fibers from waste material and bio-engineered fibers.		
	3.2	Corporate Social Responsibility, Workers and community safety: use of safe dyes and auxiliaries, safe chemical handling practices, Sustainable design, Role of supply chain management on sustainability in textile value chain, green supply chain.		
4	**Regulations and standards for Sustainable Practices**		7	25%
	4.1	Environmental Management System: ISO 14000 Certification and standards, Global Reporting Initiative, Fair trade, Organic standards. Eco- labeling, Global Organic textile standard, voluntary organizations and campaigns: ZDHC,SAC,OEK-O-TEX, Detox, Campaign, Revolution Blue Sign		
Total			**26**	**100**

Recommended Books:

6. "Sustainable Fashion and Textiles: Design Journeys" by Kate Fletcher

7. "Eco Fashion" by Sass Brown
8. "Fashion & Sustainability: Design for Change" by Kate Fletcher and Lynda Grose
9. "To Die For: Is Fashion Wearing Out the World?" by Lucy Siegle "Fashion and Sustainability: Design for a Change" by Tamsin Blanch

Semester - VI

Course Code	Course Name	Credits
TPD2606 FSID2606 FCO2606	Environment and Green Manufacturing	02

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
02	-	-	02	-	-	02

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Continuous Evaluation	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- Develop an understanding of environmental issues and sustainability practices within the fashion industry, including the impact of textile production, waste management, and resource conservation.
- Gain knowledge of green manufacturing techniques and technologies, exploring sustainable materials, processes, and supply chain management strategies to reduce environmental footprint.
- Understand the regulatory frameworks, certifications, and industry standards related to environmental sustainability.

Course Objectives

Understand environmental issues in the fashion industry and explore sustainable practices, materials, and processes to minimize environmental impact and gain knowledge to implement green manufacturing techniques, analyze supply chains, and make informed decisions for promoting environmental sustainability in the fashion sector.

Detailed Syllabus				
Module/ Unit	**Course Module / Contents**		**Hours**	**Marks Weightage**
1	**Fashion Industry and Environmental Issues**		**6**	25%
	1.1	Types of textile fibers, the textile value chain and associated processes, Environmental issues associated with various textiles: natural and man-made fibers.		
	1.2	Factors influencing environmental impacts in textile supply chain: energy (electricity and fossil fuels), water use, water pollution, chemicals, dyes, auxiliaries, waste, air, noise,etc. Industrial revolution: evolution of fashion through first, second, third and fourth industrial revolution, fast fashion, over consumption, sweatshops.		
2	**Sustainability: definition, its various aspects and methods of Assessment**		**6**	25%
	2.1	Definition of Sustainability, Sustainability triple bottom framework, social, economic, perspective of sustainability.		
	2.2	Terminology in sustainability: environmental sustainability, ecology and ecological balance, circles of sustainability, carbon foot prints, water foot prints, Higg Index.		
3	**Approaches to Achieve Sustainability in Business**		**7**	25%
	3.1	Circular economy, R's of waste management: reuse, reduce, recycle, refuse, repurpose, recover, rethink, Ecofriendly textile processing and waste minimization, Sustainable fibers- Regenerated fibers, fibers from waste material and bio-engineered fibers.		
	3.2	Corporate Social Responsibility, Workers and community safety: use of safe dyes and auxiliaries, safe chemical handling practices, Sustainable design, Role of supply chain management on sustainability in textile value chain, green supply chain.		
4	**Regulations and standards for Sustainable Practices**		**7**	25%
	4.1	Environmental Management System: ISO 14000 Certification and standards, Global Reporting Initiative, Fair trade, Organic standards. Eco- labeling, Global Organic textile standard, voluntary		

		organizations and campaigns: ZDHC,SAC,OEK-O-TEX, Detox, Campaign, Revolution Blue Sign			
Total			**26**	**100**	

Recommended Books:

1. "Sustainable Fashion and Textiles: Design Journeys" by Kate Fletcher
2. "Eco Fashion" by Sass Brown
3. "Fashion & Sustainability: Design for Change" by Kate Fletcher and Lynda Grose
4. "To Die For: Is Fashion Wearing Out the World?" by Lucy Siegle
5. "Fashion and Sustainability: Design for a Change" by Tamsin Blanchard

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Climate Science And / Or Environmental Sustainability Course at Amity School of Applied Science

Minor Track on

Industrial Safety and Resource Management

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Course Structure: Industrial Safety and Resource Management ISRM101

Semester - I

Course Code	Course Name	Credits
ISRM 101	**Industrial Safety**	3

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
03	-	-	03	-	-	03

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- Safety training and education provides students with knowledge and skills needed to do work safely at the workplace.
- Students gain information about rules and regulations which will limit the risk factors associated with jobs and business safety.
- This course provides an overview of the important issues in Industrial safety & Resource Management and its impact on the global economy market.

Course Objectives

- Create awareness in students to develop skills to respond appropriately to emergencies and use necessary safety equipment.
- Impart basic knowledge about the Industrial safety and Resource Management
- Recognize and understand the importance of workplace hazards.
- Acquire skills to help the concerned individuals in identifying and solving safety issues and control plans.

- Help students to know their safety related rights and responsibilities at work.

Detailed Syllabus				
Module/ Unit	**Course Module / Contents**		**Hours**	**Marks Weightage**
	ISRM 101: Industrial Safety		08	20%
1	**HISTRORY AND DEVELOPMENT OF SAFETY MOVEMENT**			
	1.1	Need for safety		
	1.2	Safety legislation: Acts and rules, Safety standards and codes		
	1.3	Safety policy: safety organization and responsibilities and authorities of different levels.		
2	**ACCIDENT SEQUENCE THEORY**		08	20%
	2.1	Accident sequence theory		
	2.2	Causes of accidents,		
	2.3	Accident prevention and control techniques		
	2.4	Plant safety inspections,		
	2.5	Job safety Analysis and investigation of accidents, First aid.		
3	**CHECK LIST PROCEDURES**		09	25%
	3.1	Checklist procedure, Preliminary hazard analysis.		
	3.2	What if analysis, Failure mode effect analysis, Hazard and operability (HAZOP) studies		
	3.3	Hazard analysis techniques: Fault tree analysis, Event tree analysis, General outline of DOW index, Risk estimation and management, Major hazard control, On-site and Off-site emergency preparedness.		
4	**IDENTIFICATION AND TYPES OF HAZARDS**		08	20%
	4.1	Identification of hazard, Safety in material handling: hazards and safe Practices, safety with storage of materials		
	4.2	Electrical hazards: classification, safe work practices.		
	4.3	Chemical hazards: laboratory safety, bulk handling of chemicals.		
	4.4	Fire and explosion hazards, Fire detection, Prevention, control, and extinguishments, Industrial layout, Industrial waste management		
5		INDUSTRIAL SAFETY		
	5.1	History of Safety Movement in India and abroad.		

	5.2	The Accident Problem, Nature & size need for safety, legal, humanitarian, economic and social considerations.	06	15%
Total			**39**	

REFERENCES:

1. R.K. Jain and Sunil S. Rao, Industrial Safety, Health and Environment Management Systems, Khanna publishers, New Delhi (2006)

2. Slote.L. Handbook of Occupational Safety and Health, John Willey and Sons, NewYork .

3. Frank P. Lees, Loss of prevention in Process Industries, Vol. 1 and 2, Butterworth- Heinemann Ltd., London (1991).

4. Industrial Safety -National Safety Council of India.

5. The Factories Act with amendments 1987, Govt. of India Publications DGFASLI, Mumbai

6. Grimaldi and Simonds, Safety Management, AITBS Publishers, New Delhi (2001)

7. Industrial Safety and pollution control handbook: National Safety Council and Associate publishers Pvt. Ltd, Hyderabad (1993).

8. Handbook of Environmental Health and Safety: Herman Koren and Michel Bisesi, Jaico Publishing House, Delhi (1999).

9. Handbook of Environmental Risk Assessment and Management: Peter Calow, Blackwell Science Ltd. USA (1998).

10. Risk Assessment and Environmental Management: D. Kofi Asvite-Dualy, John Willey & Sons, West Sussex, England (1998).

11. Introduction to Environmental Engineering & Science: Gilbert M. M., Pearson Education, Singapore (2004).

12. Safety A personal Focus David L Bever 13. Fire Equipment David L. Bever 14. Industrial Safety National Safety Council of India

15. Engineering Chemistry, Jain & Jain

16. Industrial Management Jain & Bawa

17. Handbook of Hazardous Air pollutions, Dennis P Nolan P.E

18. Remediation and Treatment Technologies. Dennis P Nolan P.E

19. Fire Technology, R.S. Gupta

20. Major hazard control, Inter National Labor Office

21. Encyclopedia of occupational health and safety, Inter National Labor Office

22. Safety, health and working condition in the transfer of technology, Inter National Labor Office

23. Radiation protection, Inter National Labor Office

24. Fire service Manual (4 volumes)

25. Publications from Inter National standard organizations like ISO, OSHA, IOSH, NEBOSH etc.

Course Structure: Industrial Safety and Resource Management ISRM102

Semester - II

Course Code	Course Name	Credits
ISRM 102	**SAFETY LEGISLATIONS & MANAGEMENT**	3

Contact Hours			Credits Assigned			
Theory	**Practical**	**Tutorial**	**Theory**	**Practical**	**Tutorial**	**Total**
03	-	-	03	-	-	03

	Theory					Term Work / Practical/Oral			
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	Total
Test	Home Assignment	Attendance	Total Internal						
15	**10**	**05**	**30**	**70**	**3 Hours**	-	-	-	100

Course outcome

- Students will utilize regulatory standards as a guide to apply policies, procedures, standards and occupational safety and health principles. Industry recognized best practices, origin of the standards, the process and rules of inspections, citations, and penalties.
- This course provides an overview of the important issues in Industrial safety & Resource Management and its impact on the global economy market.

Course Objectives

- Create awareness in students to develop skills to respond appropriately to emergencies and use necessary safety equipment.
- Impart basic knowledge about the Industrial safety and Resource Management
- Recognize and understand the importance of workplace hazards.
- Acquire skills to help the concerned individuals in identifying and solving safety issues and control plans.
- Help students to know their safety related rights and responsibilities at work.

Detailed Syllabus				
Module/ Unit	**Course Module / Contents**		**Hours**	**Marks Weightage**
	ISRM 102 INDUSTRIAL SAFETY LEGISLATIONS		12	25%
1	**INDUSTRIAL SAFETY LEGISLATIONS**			
	1.1	Factories Act, 1948, Workman's Compensation Act, 1943, Employees State Insurance Act, 1948.		
	1.2	Mines Act, Boiler Vessels Act. Child Labour and Women Employee Act.		
	1.3	The factories rules, History, Provisions under the factories Act and rules made there under with amendments, Functions of safety management.		
	1.4	ILO Convention and Recommendations in the furtherance of safety, health, and welfare		
2	**OCCUPATIONAL SAFETY, HEALTH, AND ENVIRONMENT MANAGEMENT**		12	25%
	2.1	Industrial Hygiene – Concepts – Physical, Chemical and biological Hazards – Industrial Physiology –Ventilation and Heat		
	2.2	Noise and Vibration. Occupational Health – Concepts – Occupational Health Services.		
	2.3	Personal Protective Equipment – Types and uses		
	2.4	ILO Legislations – Convention and Recommendation concerning Occupational Health and Safety		
	2.5	Trade Policy affecting Occupational Health and Safety.		
3	**SAFETY ORGANIZATION**		09	20%
	3.1	Role of safety committee and its formation, Safety awareness program: motivation, education and training, Appraisal of plant safety and measurement of safety performance,		
	3.2	Total loss control concept, Introduction to productivity, Quality, Reliability, and Safety (PQRS) theory		
4	**IDENTIFICATION AND TYPES OF HAZARDS**		06	15%
	4.1	SAFETY MANAGEMENT:		

		Role of management in Industrial Safety. Safety Management- Principles & Practices		
5		Industrial Visits to following industries / Institutes in and around Navi Mumbai Industrial Area Chemical industry, NMMC Fire Department, Textile Industry, Fertilizer / Pesticide Industry		15%
Total			39	

REFERENCES:
1. R.K. Jain and Sunil S. Rao, Industrial Safety, Health and Environment Management Systems, Khanna publishers, New Delhi (2006)
2. Slote. L. Handbook of Occupational Safety and Health, John Willey and Sons, New York.
3. Frank P. Lees, Loss of prevention in Process Industries, Vol. 1 and 2, Butterworth- Heinemann Ltd., London (1991).
4. Industrial Safety -National Safety Council of India.
5. The Factories Act with amendments 1987, Govt. of India Publications DGFASLI, Mumbai
6. Grimaldi and Simonds, Safety Management, AITBS Publishers, New Delhi (2001)
7. Industrial Safety and pollution control handbook: National Safety Council and Associate publishers Pvt. Ltd, Hyderabad (1993).
8. Handbook of Environmental Health and Safety: Herman Koren and Michel Bisesi, Jaico Publishing House, Delhi (1999).
9. Handbook of Environmental Risk Assessment and Management: Peter Calow, Blackwell Science Ltd. USA (1998).
10. Risk Assessment and Environmental Management: D. Kofi Asvite-Dualy, John Willey & Sons, West Sussex, England (1998).
11. Introduction to Environmental Engineering & Science:Gilbert M. M., Pearson Education, Singapore (2004).
12. Safety A personal Focus David L Bever 13. Fire Equipment David L. Bever 14. Industrial Safety National Safety Council of India
15. Engineering Chemistry, Jain & Jain
16. Industrial Management Jain & Bawa
17. Handbook of Hazardous Air pollutions, Dennis P Nolan P.E
18. Remediation and Treatment Technologies. Dennis P Nolan P.E
19. Fire Technology, R.S. Gupta
20. Major hazard control, Inter National Labor Office
21. Encyclopedia of occupational health and safety, Inter National Labor Office
22. Safety, health and working condition in the transfer of technology, Inter National Labor Office
23. Radiation protection, Inter National Labor Office
24. Fire service Manual (4 volumes)
25. Publications from Inter National standard organizations like ISO, OSHA, IOSH, NEBOSH etc.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Course Structure: Industrial Safety and Resource Management ISRM201

Semester - III

Course Code	Course Name	Credits
ISRM 201	Safety Awareness & Training	3

Contact Hours			Credits Assigned			
Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
03	-	-	03	-	-	03

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- Students will utilize regulatory standards as a guide to apply policies, procedures, standards and occupational safety and health principles. Industry recognized best practices, origin of the standards, the process and rules of inspections, citations, and penalties.
- This course provides an overview of the important issues in Industrial safety & Resource Management and its impact on the global economy market.

Course Objectives

- Create awareness in students to develop skills to respond appropriately to emergencies and use necessary safety equipment.
- Impart basic knowledge about the Industrial safety and Resource Management
- Recognize and understand the importance of workplace hazards.
- Acquire skills to help the concerned individuals in identifying and solving safety issues and control plans.
- Help students to know their safety related rights and responsibilities at work.

Detailed Syllabus				
Module/ Unit	**Course Module / Contents**		**Hours**	**Marks Weightage**
	ISRM 201 Safety Awareness & Training		10	20%
1	TRAINING FOR SAFETY:			
	1.1	Assessment of needs		
	1.2	Design & development of training program		
	1.3	Training methods and strategies		
	1.4	Training of manager, supervisors & workers. evaluation of training programs.		
2	EMPLOYEE PARTICIPATION:			
	2.1	Purpose, nature, scope, and methods	04	15%
	2.2	Safety committee and union participation.		
3	TRADE UNIONS:		09	20%
	3.1	History of trade unions in India.		
	3.2	Role of trade unions in safety and health		
	3.3	Collective bargaining and safety		
4	SAFETY PROMOTION & PUBLICITY:		06	20%
	4.1	Safety suggestion schemes		
	4.2	Safety competitions, Safety incentive Schemes		
	4.3	Audio Visual Publicity, other promotional methods.		
5	HUMAN BEHAVIOUR AND SAFETY		10	25%
	5.1	Human factors contributing to accidents. Individual differences		
	5.2	Behaviour as function of self and situation. Perception of danger and acceptance of risks.		
	5.3	Knowledge and responsibility vis-a-vis safety performance.		
	5.4	Role of management, Supervisors, and safety department in motivation.		
Total			39	

REFERENCES:

1. R.K. Jain and Sunil S. Rao, Industrial Safety, Health and Environment Management Systems, Khanna publishers, New Delhi (2006)
2. Slote. L. Handbook of Occupational Safety and Health, John Willey and Sons, New York.
3. Frank P. Lees, Loss of prevention in Process Industries, Vol. 1 and 2, Butterworth- Heinemann Ltd., London (1991).
4. Industrial Safety -National Safety Council of India.
5. The Factories Act with amendments 1987, Govt. of India Publications DGFASLI, Mumbai
6. Grimaldi and Simonds, Safety Management, AITBS Publishers, New Delhi (2001)
7. Industrial Safety and pollution control handbook: National Safety Council and Associate publishers Pvt. Ltd, Hyderabad (1993).
8. Handbook of Environmental Health and Safety: Herman Koren and Michel Bisesi, Jaico Publishing House, Delhi (1999).
9. Handbook of Environmental Risk Assessment and Management: Peter Calow, Blackwell Science Ltd. USA (1998).
10. Risk Assessment and Environmental Management: D. Kofi Asvite-Dualy, John Willey & Sons, West Sussex, England (1998).
11. Introduction to Environmental Engineering & Science:Gilbert M. M., Pearson Education, Singapore (2004).
12. Safety A personal Focus David L Bever 13. Fire Equipment David L. Bever 14. Industrial Safety National Safety Council of India
15. Engineering Chemistry, Jain & Jain
16. Industrial Management Jain & Bawa
17. Handbook of Hazardous Air pollutions, Dennis P Nolan P.E
18. Remediation and Treatment Technologies. Dennis P Nolan P.E
19. Fire Technology, R.S. Gupta
20. Major hazard control, Inter National Labor Office
21. Encyclopedia of occupational health and safety, Inter National Labor Office
22. Safety, health and working condition in the transfer of technology, Inter National Labor Office
23. Radiation protection, Inter National Labor Office
24. Fire service Manual (4 volumes)
25. Publications from Inter National standard organizations like ISO, OSHA, IOSH, NEBOSH etc.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Course Structure: Industrial Safety and Resource Management ISRM201

Semester - IV

Course Code	Course Name	Credits
ISRM 202	Industrial Hygiene, Occupational Health & Disaster Management	3

Contact Hours			Credits Assigned			
Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
03	-	-	03	-	-	03

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- Students will utilize regulatory standards as a guide to apply policies, procedures, standards and occupational safety and health principles. Industry recognized best practices, origin of the standards, the process and rules of inspections, citations, and penalties.
- This course provides an overview of the important issues in Industrial safety & Resource Management and its impact on the global economy market.

Course Objectives

- Create awareness in students to develop skills to respond appropriately to emergencies and use necessary safety equipment.
- Impart basic knowledge about the Industrial safety and Resource Management
- Recognize and understand the importance of workplace hazards.
- Acquire skills to help the concerned individuals in identifying and solving safety issues and control plans.
- Help students to know their safety related rights and responsibilities at work.

Detailed Syllabus				
Module/ Unit	**Course Module / Contents**		**Hours**	**Marks Weightage**
	ISRM 202 Industrial Hygiene, Occupational Health & Disaster Management		12	25%
1	ENVIRONMENTAL STRESSES			
	1.1	Physical, chemical, biological, and ergonomic stresses		
	1.2	Principles of industrial hygiene,		
	1.3	Overview of control measures. Permissible limits.		
	1.4	Stress, Exposures to heat, Heat balance, Effects of heat stress, WBGT index measurement, Control Measures.		
2	**CHEMICAL EXPOSURE**		12	25%
	2.1	Chemical agents, IS/UN classification,		
	2.2	Flammables, Explosives, Water sensitive chemicals, Oxidants, Gases under pressure,		
	2.3	Chemicals causing health hazards: irritants, asphyxiates, anesthetics,		
	2.4	systemic poisons and carcinogens, Chronic and acute exposure, Routes of entry,		
	2.5	Types of airborne contaminants, Introduction to air sampling and evaluation methods,		
	2.6	Occupational exposure limits, Engineering control measures, Principles of ventilation		
3	**OCCUPATIONAL HEALTH**		06	20%
	3.1	Concept of health and occupational health, Spectrum of health		
	3.2	Occupational and work-related diseases, Levels of prevention,		
	3.3	History of occupational health, Characteristics of occupational diseases,		
	3.4	Essentials of occupational health service, personal protective equipment's (respiratory and non-respiratory)		
4	**OCCUPATIONAL SAFETY, HEALTH, AND ENVIRONMENT MANAGEMENT**		06	15%
	4.1	Bureau of Indian standards on safety and health 14489 - 1998 and 15001 – 2000 OSHA,		
	4.2	Process Safety Management (PSM) as per OSHA, PSM principles,		
	4.3	OHSAS – 18001, EPA Standards, Performance measurements to determine effectiveness of PSM		
5	**SEMINAR**			
	5.1	Need for Safety, Safety Policy HAZOP, Hazard Analysis		

	5.3	Chemical Hazards, Safety in Chemical/fertilizer / textile / food industry	03	15%
Total			39	

REFERENCES:

1. R.K. Jain and Sunil S. Rao, Industrial Safety, Health and Environment Management Systems, Khanna publishers, New Delhi (2006)
2. Slote. L. Handbook of Occupational Safety and Health, John Willey and Sons, New York.
3. Frank P. Lees, Loss of prevention in Process Industries, Vol. 1 and 2, Butterworth- Heinemann Ltd., London (1991).
4. Industrial Safety -National Safety Council of India.
5. The Factories Act with amendments 1987, Govt. of India Publications DGFASLI, Mumbai
6. Grimaldi and Simonds, Safety Management, AITBS Publishers, New Delhi (2001)
7. Industrial Safety and pollution control handbook: National Safety Council and Associate publishers Pvt. Ltd, Hyderabad (1993).
8. Handbook of Environmental Health and Safety: Herman Koren and Michel Bisesi, Jaico Publishing House, Delhi (1999).
9. Handbook of Environmental Risk Assessment and Management: Peter Calow, Blackwell Science Ltd. USA (1998).
10. Risk Assessment and Environmental Management: D. Kofi Asvite-Dualy, John Willey & Sons, West Sussex, England (1998).
11. Introduction to Environmental Engineering & Science: Gilbert M. M., Pearson Education, Singapore (2004).
12. Safety A personal Focus David L Bever 13. Fire Equipment David L. Bever 14. Industrial Safety National Safety Council of India
15. Engineering Chemistry, Jain & Jain
16. Industrial Management Jain & Bawa
17. Handbook of Hazardous Air pollutions, Dennis P Nolan P.E
18. Remediation and Treatment Technologies. Dennis P Nolan P.E
19. Fire Technology, R.S. Gupta
20. Major hazard control, Inter National Labor Office
21. Encyclopedia of occupational health and safety, Inter National Labor Office
22. Safety, health and working condition in the transfer of technology, Inter National Labor Office
23. Radiation protection, Inter National Labor Office
24. Fire service Manual (4 volumes)
25. Publications from Inter National standard organizations like ISO, OSHA, IOSH, NEBOSH etc.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Course Structure: Industrial Safety and Resource Management ISRM201

Semester - V

Course Code	Course Name	Credits
ISRM 301	Control of Workplace Hazards	3

Contact Hours			Credits Assigned			
Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
03	-	-	03	-	-	03

	Theory					Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

Course outcome

- Students will utilize regulatory standards as a guide to apply policies, procedures, standards and occupational safety and health principles. Industry recognized best practices, origin of the standards, the process and rules of inspections, citations, and penalties.
- This course provides an overview of the important issues in Industrial safety & Resource Management and its impact on the global economy market.

Course Objectives

- Create awareness in students to develop skills to respond appropriately to emergencies and use necessary safety equipment.
- Impart basic knowledge about the Industrial safety and Resource Management
- Recognize and understand the importance of workplace hazards.
- Acquire skills to help the concerned individuals in identifying and solving safety issues and control plans.
- Help students to know their safety related rights and responsibilities at work.

Detailed Syllabus				
Module/ Unit	**Course Module / Contents**		**Hours**	**Marks Weightage**
	ISRM 301 Control of Workplace Hazards		10	20%
1	**CONTROL OF PHYSICAL HAZARDS**			
	1.1	Purpose of ventilation. Classification of Ventilation as General Ventilation (Natural and Mechanical modes), Local Exhaust Ventilation		
	1.2	Special methods for Thermal Stress control such as Air conditioning, Radiant Heat Control.		
	1.3	Engineering Control of noise, Vibration damping, Noise isolation, Noise sorption. Silencers. Case studies on the impact of noise from compressors and generators		
	1.4	Vibration: Effects, measurement, and control.		
2	**CONTROL OF LIGHTING HAZARDS**		04	15%
	2.1	Purpose of lighting. Advantages of good illumination.		
	2.2	Lighting and safety. Lighting and the work.		
	2.3	Sources and types of artificial lighting. Principles of good illumination.		
	2.4	Recommended minimum standards of illumination.		
	2.5	Design of lighting installation, Lighting and colour,		
3	**CONTROL OF CHEMICAL HAZARDS**		10	25%
	3.1	Hazardous properties of chemicals and appreciation of information provided in Material safety data sheets.		
	3.2	Classification of dangerous materials with pictorial symbols, common hazard, and common precautions for each class.		
	3.3	Safety in bulk storage of hazardous substances. Safety in shelf storage of hazardous substances.		
	3.4	Safety in handling of chemicals in the plant by pipelines. Hazards of chemical reactions, and possibilities of reactions going out of control.		
	3.5	Common hazards of important chemical reactions and their control.		
4	**CONTROL OF MECHANICAL HAZARDS**		09	20%
	4.1	Common hazards of important unit operations and their control.		
	4.2	Safety considerations in process control instrumentation. Safe start up, shut down and emergency shut down procedures.		
	4.3	Safety in sampling and gauging. Safety aspects of plant modifications.		
	4.4	Proper identification of plants and equipment.		

	4.5	Maintenance of component failure history Corrosion prevention for safety.		
	4.6	Preventive maintenance of vulnerable equipment. Safe entry into confined spaces.		
5	CONTROL OF ELECTRICAL HAZARDS		06	20%
	5.1	Dangers from electricity. Safe limits of amperages, Voltages Safe distance from lines.		
	5.2	Capacity and protection of conductors, Joints and connections		
	5.3	Means of cutting power overload and short circuit protection. Earth fault protection.		
	5.4	Earth insulation and continuity tests. Protection against overvoltage		
	5.5	Hazards arising out of 'borrowed' neutrals. Other precautions. Portable electrical apparatus		
	5.6	flame proof electrical apparatus. flame proof electrical equipment's, Precautions in their selection, installation, maintenance, and use.		
	5.7	Control of hazards due to static electricity.		
Total			39	

REFERENCES:
1. R.K. Jain and Sunil S. Rao, Industrial Safety, Health and Environment Management Systems, Khanna publishers, New Delhi (2006)
2. Slote. L. Handbook of Occupational Safety and Health, John Willey and Sons, New York.
3. Frank P. Lees, Loss of prevention in Process Industries, Vol. 1 and 2, Butterworth- Heinemann Ltd., London (1991).
4. Industrial Safety -National Safety Council of India.
5. The Factories Act with amendments 1987, Govt. of India Publications DGFASLI, Mumbai
6. Grimaldi and Simonds, Safety Management, AITBS Publishers, New Delhi (2001)
7. Industrial Safety and pollution control handbook: National Safety Council and Associate publishers Pvt. Ltd, Hyderabad (1993).
8. Handbook of Environmental Health and Safety: Herman Koren and Michel Bisesi, Jaico Publishing House, Delhi (1999).
9. Handbook of Environmental Risk Assessment and Management: Peter Calow, Blackwell Science Ltd. USA (1998).
10. Risk Assessment and Environmental Management: D. Kofi Asvite-Dualy, John Willey & Sons, West Sussex, England (1998).
11. Introduction to Environmental Engineering & Science: Gilbert M. M., Pearson Education, Singapore (2004).
12. Safety A personal Focus David L Bever 13. Fire Equipment David L. Bever 14. Industrial Safety National Safety Council of India
15. Engineering Chemistry, Jain & Jain
16. Industrial Management Jain & Bawa

17. Handbook of Hazardous Air pollutions, Dennis P Nolan P.E
18. Remediation and Treatment Technologies. Dennis P Nolan P.E
19. Fire Technology, R.S. Gupta
20. Major hazard control, Inter National Labor Office
21. Encyclopedia of occupational health and safety, Inter National Labor Office
22. Safety, health and working condition in the transfer of technology, Inter National Labor Office
23. Radiation protection, Inter National Labor Office
24. Fire service Manual (4 volumes)
25. Publications from Inter National standard organizations like ISO, OSHA, IOSH, NEBOSH etc.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Course Structure: Industrial Safety and Resource Management ISRM201

Semester - VI

Course Code	Course Name	Credits
ISRM 302	Project	3

Contact Hours			Credits Assigned			
Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
-	-	-	-	-	-	03

Assessment	Oral- Project Presentation /Viva Voce	100 Marks

Course outcome

- Students will utilize regulatory standards as a guide to apply policies, procedures, standards and occupational safety and health principles. Industry recognized best practices, origin of the standards, the process and rules of inspections, citations, and penalties.
- This course provides an overview of the important issues in Industrial safety & Resource Management and its impact on the global economy market.

Course Objectives

Course Objectives:

- Project work after industrial exposure enhances the practical knowledge of the student. It is necessary in their job, career, and business.
- Students will learn to work under factory discipline. They will understand industry management, functions, and responsibilities of various departments.
- Project works develops problem solving skills in students.
- Students will be able to recognize and evaluate occupational safety and health hazards in the workplace, and to determine appropriate hazard controls following the hierarchy of controls.
- Students will furthermore be able to analyze the effects of workplace exposures, injuries and illnesses, fatalities, and the methods to prevent incidents using the effective safety and health management systems and task-oriented training.

UNIT	ISRM 302: RESEARCH PROJECT	CREDITS
VI		03

	Topics for Project:	
1.	1. Safety audit	
2.	HAZOP study	
3.	Preparation of emergency plan.	
4.	Design of management information system	
5.	In-plant safety inspection	
6.	Preparation of safety report	
7.	Safety organization and management	
8.	Study of employee's participation in safety.	
9.	Safeguarding of machinery	
10.	Material handling study.	
11.	Design of workplace study	
12.	Housekeeping study	
13.	Lighting study	
14.	Ventilation study	
15.	Fire hazard study	
16.	Electrical hazards study.	
17.	Noise control study.	
18.	Job safety analysis study.	
19.	Fault tree analysis study.	
20.	Hazards identification study.	
21.	Accident investigation and reporting study.	
22.	Measuring safety performance.	
23.	Study of cases under Factories Act	
24.	Any other topic as per the syllabus of theory courses and approval of the faculty	

Project Guidelines: Details of Project Report

- The project report should be up to 20 -30 pages.
- Font Size 12 Font: Book Antiqua Line Spacing: 1.5
- Page A4 Size Printing: One Sided
- Chapters 1: Introduction
- Chapter 2: Aims Objectives
- Chapter 3: Methodology / Mode / Procedure
- Chapter 4: Observations / Outcomes
- Chapter 5: Conclusion
- Chapter 6: Reference
- The project report should include the certificate from the concern Industry / Institute.
- The page numbers are at the right-hand side of the page in header column.
- The Project Report Should be hard bind and the text on the front page is as below.

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

AMITY UNIVERSITY MUMBAI

An Industrial Safety & Resource Management Project Report

Title of the Project

Submitted in partial fulfilment of the requirement for the degree of Bachelor of----------

---

Submitted By:

Name of the Student

Enrolment Number

Semester

Course

Course B Tech / B.Sc. / BA / BID/BFA/BARCH……

Under the Guidance of

Name of the Faculty (Project Guide)

Amity School of XXXXXXXXX

Amity University Maharashtra

JUNE 2023

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Title of the Project

Name of the Student

Enrolment Number

Semester

Course

Course B Tech / B.Sc. / BA / BID/BFA/BARCH……

Amity School of XXXXXXXXX

Amity University Maharashtra

JUNE 2023

AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

CERTIFICATE

This is to certify that Mr./Miss ---------- of class -------Course-------(Year) Enrolment No.---------- has satisfactorily completed the Industrial Safety & Resource Management (ISRM) project report prescribed by Amity University Mumbai during the academic year ------.

Name & Signature
Project Guide

Name & Signature
External Examiner

Name & Signature
Head of Department

REFERENCES:

1. R.K. Jain and Sunil S. Rao, Industrial Safety, Health and Environment Management Systems, Khanna publishers, New Delhi (2006)
2. Slote. L. Handbook of Occupational Safety and Health, John Willey and Sons, New York.
3. Frank P. Lees, Loss of prevention in Process Industries, Vol. 1 and 2, Butterworth- Heinemann Ltd., London (1991).
4. Industrial Safety -National Safety Council of India.
5. The Factories Act with amendments 1987, Govt. of India Publications DGFASLI, Mumbai
6. Grimaldi and Simonds, Safety Management, AITBS Publishers, New Delhi (2001)
7. Industrial Safety and pollution control handbook: National Safety Council and Associate publishers Pvt. Ltd, Hyderabad (1993).
8. Handbook of Environmental Health and Safety: Herman Koren and Michel Bisesi, Jaico Publishing House, Delhi (1999).
9. Handbook of Environmental Risk Assessment and Management: Peter Calow, Blackwell Science Ltd. USA (1998).
10. Risk Assessment and Environmental Management: D. Kofi Asvite-Dualy, John Willey & Sons, West Sussex, England (1998).
11. Introduction to Environmental Engineering & Science: Gilbert M. M., Pearson Education, Singapore (2004).
12. Safety A personal Focus David L Bever 13. Fire Equipment David L. Bever 14. Industrial Safety National Safety Council of India
15. Engineering Chemistry, Jain & Jain
16. Industrial Management Jain & Bawa
17. Handbook of Hazardous Air pollutions, Dennis P Nolan P.E
18. Remediation and Treatment Technologies. Dennis P Nolan P.E
19. Fire Technology, R.S. Gupta
20. Major hazard control, Inter National Labor Office
21. Encyclopedia of occupational health and safety, Inter National Labor Office
22. Safety, health and working condition in the transfer of technology, Inter National Labor Office
23. Radiation protection, Inter National Labor Office
24. Fire service Manual (4 volumes)
25. Publications from Inter National standard organizations like ISO, OSHA, IOSH, NEBOSH etc.