



GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering

Subject Code: 3734806

Semester – III

Subject Name: Environment and Sustainable Development

Type of course: Program Elective V

Prerequisite: To understand the relation between environment and sustainable development and its impact on society.

Rationale: The course helps developing understanding about how a region or a city should be made sustainable and resilient at the same time keeping in mind various environmental impacts.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	ESE (V)	PA (I)		
3	0	0	3	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs
1	Environment and Sustainability co-relation: Sustainable Development Goals, its evolution and the acceptance of sustainability worldwide. Energy-Renewable and Non-renewable, and Role of renewable energy sources in environmental protection, Greenhouse gases, CO ₂ mitigation, Sustainable development. Environment and need for sustainable development, global warming and its impacts on the society.	18
2	The Five Capitals Model – a framework for sustainability Why do we need a framework for sustainability? What is the Five Capitals Model? Building a vision and links to existing policies. Five Capitals- Natural Capital, Human Capital, Social Capital, Manufactured Capital, Financial Capital.	18
3	Foundations to building sustainable and resilient communities Social and economic context, need for resilience building, six foundations: people, system's thinking, adaptability, transformability, sustainability, courage	18



GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering

Subject Code: 3734806

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
05	25	20	25	10	15

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

- M.H. Fulekar , Bhawana Pathak , R K Kale, "Environment and Sustainable Development",
- M. C. Dash, "Concepts of Environmental Management for Sustainable Development", I K International Publishing House Pvt. Ltd (30 May 2013), ISBN-10: 9789382332275 ISBN-13: 978-9382332275
- Jeffrey D. Sachs, "The Age of Sustainable Development", Columbia University Press (10 April 2015), ISBN-10: 9780231173155 ISBN-13: 978-0231173155
- H.M. Saxena, "Environmental Ecology, biodiversity And Climate Change: Towards Sustainable Development", Rawat publications (2014), ISBN-10: 8131606902 ISBN-13: 978-8131606902

Course Outcome:

Sr. No.	CO statement	Marks % weightage
CO-1	Students should be able to understand the co - relation between sustainability and environment.	40
CO-2	Students should be able to understand framework of sustainability and its impact on society.	30
CO-3	Students should be able to understand how a region or a city should be made resilient by keeping various environmental aspects.	30

Major Equipment: Computers with higher configuration and internet server