

Course Code	Course Title	L	T	P	C
BACLE107	Sustainable Infrastructure Management	3	0	0	3
Pre-requisite	Nil	Syllabus Version			
		1			
Course Objectives					
1. To familiarize the students with the fundamentals of sustainability and sustainable development goals 2. To impart knowledge on the Construction Materials and Techniques used for sustainable construction and to learn the basic concepts of sustainable planning and design 3. To provide adequate knowledge about assessment, rating systems and policies for sustainable infrastructure					
Course Outcomes					
1. Discuss the sustainable development goals and their relevance to Infrastructure 2. Identify suitable materials and techniques for sustainable construction 3. Prepare suitable sustainable building plan for urban infrastructure 4. Apply the assessment methods and analyse the sustainable building rating systems 5. Discuss the policies, governance and future directions in sustainable infrastructure					
Module:1	Fundamentals of Sustainable Infrastructure	8 hours			
Introduction to sustainability in infrastructure; Principles of sustainable development; Environmental, social, and economic aspects of sustainability; Sustainable Development Goals (SDGs) and their relevance to infrastructure; Life cycle thinking and sustainability in construction					
Module:2	Sustainable Construction Materials and Techniques	9 hours			
Eco-friendly and recycled construction materials; Low-carbon and energy-efficient building materials; Green building technologies; Waste minimization and management in construction; Case studies on sustainable construction projects					
Module:3	Sustainable Infrastructure Planning and Management	9 hours			
Sustainable design and planning for infrastructure: Smart cities and sustainable urban planning, Building shape and orientation, Heat insulation and building density, Solar protection, Glare protection, Daylight utilization, Noise protection; Façade construction management					
Module:4	Assessment and Rating of Sustainable Infrastructure	9 hours			

Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA); Infrastructure sustainability rating systems: LEED, BREEAM, IGBC, GRIHA, Envision- Carbon Footprint and Energy Performance Assessment; Life Cycle Cost Analysis (LCCA) for sustainable infrastructure; Case studies on sustainable infrastructure rating and assessment		
Module:5	Policy, Governance, and Future Trends in Sustainable Infrastructure	8 hours
National and international policies for sustainable infrastructure; Role of government, private sector and NGOs in sustainability; Financial aspects: Green financing, Carbon credits, and PPP Models, Net-Zero Infrastructure; AI in sustainability; Future directions in sustainable infrastructure		
Module:6	Contemporary Issues	2 hours
Total Lecture Hours:		45 hours
Text Book(s)		
Fenner, Richard A., Sykes, Judith, Ainger, Charles, " Sustainable Infrastructure: Principles into Practice ", Thomas Telford Ltd, 2 nd Edition, 2022 Fenner, Richard A., Sykes, Judith, Ainger, Charles. T London, , " Sustainable Infrastructure: Principles into Practice ", Thomas Telford Ltd, 5 th Edition, 2022		
Reference Books		
Bry Sarte, S, " Sustainable Infrastructure - The Guide to Green Engineering and Design ", John Wiley and Sons Inc, 1 st Edition, 2015 Pollalis, S. N., Georgoulas, A., Ramos, S., Schodek, D. , " Infrastructure Sustainability and Design ", Routledge, 1 st Edition, 2015 Kubba, S, " Handbook of Green Building Design and Construction: LEED, BREEAM, and Green Globes ", Butterworth Heinemann, 2 nd Edition, 2015		
Mode of Evaluation :Continuous Assessment Test, Digital Assignment, Quiz, Final Assessment Test, Group Discussion, Presentaion		
Recommended by Board of Studies :		28-05-2025
Approved by Academic Council : No. 78		12-06-2025