



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) in Light of NEP-2020
Civil Engineering Department
Generic Elective (Postgraduate Courses)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY		PRACTICAL			L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
GPCE102	GE	Green Buildings and Sustainable Materials	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit.

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. Learn the principles of planning and orientation of buildings.
2. Acquire knowledge on various aspects of green buildings

Course Outcomes (COs):

The student will be able to

1. Understand the concepts of green buildings.
2. Explain the principles of building planning, its bylaws.
3. Understand the aspects related to design of green buildings
4. Identify use of sustainable material in green buildings.

Syllabus:

UNIT I

8 Hrs.

Introduction: What is Green Building, why to go for Green Building, Benefits of Green Buildings, Green Building Materials and Equipment in India, what are key Requisites for Constructing a Green Building, Important Sustainable features for Green Building.

UNIT II

8 Hrs.


Green Building Technologies: Introduction- Necessity - Concept of Green building. Principles of green building – Selection of site and Orientation of the building – usage of low energy materials – effective cooling and heating systems – effective electrical systems – effective water conservation systems - Certification systems- Green Rating for Integrated Habitat Assessment (GRIHA) and Leadership in Energy and Environmental Design (LEED), case studies,


UNIT III


8 Hrs.

Green Building Design: Introduction, Reduction in Energy Demand, Onsite Sources and Sinks, Maximize System Efficiency, Steps to Reduce Energy Demand and Use Onsite Sources and Sinks, Use of Renewable Energy Sources. Ecofriendly captive power generation for factory, Building requirement, ECBC code.


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UNIT IV

8 Hrs.

Principles of Planning: Relevant building bylaws, site selection for buildings, orientation of buildings, common errors in planning, Provision of rainwater harvesting. Material Conservation Handling of non-process waste, waste reduction during construction, materials with recycled content, local materials, material reuse, certified wood, rapidly renewable building materials and furniture.

UNIT V

8 Hrs.


Sustainable Materials: Role of Construction Materials in Sustainable Construction Activities. Developments and Innovation Construction Materials and Technology to Improve Sustainability.

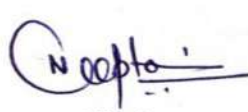
Textbooks:


1. Shahane, V. S, “Planning and Designing Building”, Poona, Allies Book Stall, 2004.
2. Michael Bauer, Peter Möslle and Michael Schwarz “Green Building – Guidebook for Sustainable Architecture” Springer, 2010.
3. Tom Woolley, Sam Kimmins, Paul Harrison and Rob Harrison “Green Building Handbook” Volume I, Spon Press, 2001.


Reference Books:

1. Mili Majumdar, “Energy-efficient buildings in India” Tata Energy Research Institute, 2002.
2. TERI “Sustainable Building Design Manual- Volume I & II” Tata Energy Research Institute, 2009


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