

Module Title: Sustainable Building Construction

Elective Module

Content:

1. Fundamentals of Sustainable Building Design and Construction
 - Climate change
 - Renewable fuels
 - Current and proposed legislation
 - Government current and proposed financial incentives
 - Green buildings, green communities
 - DEAP software
1. Site Assessment
 - Site layout
 - Building orientation
 - Shelter and shade
 - Land use
 - Transportation
2. Green material selection; technical and cost details
 - U-value and sources of heat loss
 - Concrete frame
 - Timber frame
 - Poroton blocks; Straw bale; Cob; Rammed Earth; Hemp plaster;
 - Underground buildings
 - Windows
3. Green Technology Selection; technical and cost details
 - Solar Thermal Panels
 - Photovoltaic Panels
 - Wood pellet and chip boilers, wood pellet stoves
 - Geothermal heating
 - Heat Recovery Ventilation
 - Lighting
4. Indoor Environmental Quality
 - Health issues
 - Indoor air pollutants
 - Ventilation
5. Sustainability at Construction Stage
 - Construction waste management
 - Prevention of water and air pollution during construction
 - Green construction technology
 - Planning for sustainable construction
6. Building Operations and Maintenance
 - Facilities management considerations for sustainability
 - Sustainable building use
 - Sustainable building maintenance
7. Water Conservation
 - Outdoor water conservation and quality protection strategies
 - On-site management methods for storm-water and waste-water
 - Indoor water conservation