

**K L UNIVERSITY**  
**GREEN BUILDINGS (11 – CE 643)**

**SYLLABUS**

L	T	P	Cr
3	0	0	3

*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,

*Green Building Concepts and Practices*

Indian Green Building Council, Green Building Moment in India, Benefits Experienced in Green Buildings, Launch of Green Building Rating Systems, Residential Sector, Market Transformation;

**Green Building Opportunities And Benefits:** Opportunities of Green Building, Green Building Features, Material and Resources, Water Efficiency, Optimum Energy Efficiency, Typical Energy Saving Approach in Buildings, LEED India Rating System and Energy Efficiency,

*Green Building Design*

Introduction, Reduction in Energy Demand, Onsite Sources and Sinks, Maximise 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,

*Air Conditioning*

Introduction, CII Godrej Green business centre, Design philosophy, Design interventions, Energy modeling, HVAC System design, Chiller selection, pump selection, Selection of cooling towers, Selection of air handling units, Precooling of fresh air, Interior lighting system, Key feature of the building. Eco-friendly captive power generation for factory, Building requirement.

*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;

**Indoor Environment Quality And Occupational Health:** Air conditioning, Indoor air quality, Sick building syndrome, Tobacco smoke control, Minimum fresh air requirements avoid use of asbestos in the building, improved fresh air ventilation, Measure of IAQ, Reasons for poor IAQ, Measures to achieve Acceptable IAQ levels,

**Text Books:**

1. Handbook on Green Practices published by Indian Society of Heating Refrigerating and Air conditioning Engineers, 2009.
2. Green Building Hand Book by Tomwoolley and Samkimings, 2009.

**Reference Books:**

1. Complete Guide to Green Buildings by Trish riley
2. Standard for the design for High Performance Green Buildings by Kent Peterson, 2009

## **14CT509      MECHANIZED CONSTRUCTION AND MACHINERY**

### **Unit -I      STANDARD TYPES OF EQUIPMENT**

Special equipment, cost of owning and operating equipment, depreciation costs, investment and operating costs, economic life, sources of construction equipment, factors affecting selection of construction equipment, balancing of equipment. Study of equipment with reference to available types and their types and their capacities, factors affecting their performance

### **Unit –II      EARTHMOVING EQUIPMENT -I**

Tractors and attachments, dozers and rippers, scrapers , shovels, draglines, trenching machines, clamshell, hoes, trucks and wagons, dumpers, rollers and compactors Drilling and blasting equipments,

### **Unit –III      EARTHMOVING EQUIPMENT -II**

Bits, jackhammers, drifters, drills, blasting material, firing charge, safety fuse, electric blasting caps, drilling patterns, transporting and handling of explosives. Pile driving equipmentsTypes, pile driving hammers, single acting and double acting, differential acting hammers, hydraulic and diesel hammers, vibratory drivers

### **Unit –IV      PUMPING EQUIPMENTS**

Reciprocating, diaphragm & centrifugal pumps, well point system Stone crushing equipment:- jaw, gyratory and cone crushers, hammer mills, roll crushers, rod and ball crushers, aggregate screens and screening plants,

### **Unit –V      PUMPING EQUIPMENTS**

Portable plants Concrete manufacture, transport, placing and compacting equipment, mixers, central batching and mixing plants, pavers, transit mixers, concrete pumps shotcrete Air Compressor Equipments for moving materials, builder's hoists, forklifts , cranes, belt-conveyors, cableways, ropeways.

**Lab:**

Students have to visit minimum of 5 construction Sites practicing Pre-cast Construction or Pre Engineering Construction and shall submit the reports on various construction machinery and equipment used and practiced in panels/elements production, transportation, erection, jointing, grouting and finishing.

**Text Books**

1. Construction planning, Equipments and methods. R.L.Peurify, TMH, 1996

**Reference**

1. "Construction Equipment and its Planning and Applications", Mahesh Varma, Metropolitan Book Co.(P) Ltd., New Delhi. India.
2. Construction Machinery and Equipment in India". (A compilation of articles Published in Civil Engineering and Construction Review) Published by Civil Engineering and Construction ReviewNew Delhi, 1991