

20FM018 LAND GRADING AND EARTH MOVING MACHINERY

Hours Per Week :

L	T	P	C
3	-	-	3

Total Hours :

L	T	P	WA/RA	SSH/HS	CS	SA	S	BS
45	-	-	-	-	-	-	-	-

Course Description & Objective:

To equip with the applications of land grading machinery, their design, operation and maintenance. To understand the different types of earth moving systems and their applications.

Course outcomes:

On completion of this course, the student would be able to:

1. clarify basic concepts associated with earth-moving machinery
2. understand the properties of soil and ground in earth-moving
3. recognize the basic tools used in the mechanization of leveling of land for what purpose these tools, learning how to use and where to use

SKILLS:

Study various off-road vehicles specifications.

Study of various land levelers.

UNIT I

Engineering fundamentals related to earth moving machinery, swell, shrinkage and compaction measurements, use of tractors and crawlers and effect of altitude and temperature on their performance.

UNIT II

Grading of sloppy lands. Principles of mechanisms used in crawler mounted tractors. Dump trucks and their mechanisms. Load hoisting equipment.

UNIT III

Land cleaning and reclamation equipment, power shovels, drag lines and cam shells, rubber tyre for earth moving machinery.

UNIT IV

Earth diggers and ditchers. Bull dozers and scrapers. Elevating and self powered graders. Trenching machineries and wagons.

UNIT V

Automation of earth moving and grading machines. Boring machines. Different methods of boring. Economic analysis of land development machinery.

Text books:

1. Dutta S K. 1987. Soil conservation and land management, International Distributors, Dehradun.
2. Sigma and Jagmohan. 1976. Earth moving machinery, Oxford and IBH

Reference books:

3. Wood and Stuart. 1977. Earth moving machinery, Prentice Hall.
4. Nicolas H L, Day D H. 1998. Moving the earth, The work book of excavation, McGraw Hill

ACTIVITIES:

- o *Earth Moving by using Dozers*
- o *PERT and CPM analysis of real time vehicles used in land grading in University.*