

**Subject : Engineering Management & Construction Equipments**

**Class: Third Year**

**Hours : 2 hr ( theoretical ) , 2 hr ( practical )**

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**Objectives:**

**Engineering Management** : The student will learn the fundamentals of engineering management , planning , & costs , explained by solved problems for different construction projects .

**Construction Equipments** : The student must know the manual & technical skill to supervise different projects that use different types of construction equipments after graduate .

Week	Syllabus
1	Introduction and historical review of project management.
2&3	Work breakdown structure and management triangle theory.
4&5	Critical path method (CPM): Calculation of activity durations, float time, calculation of critical path, advantages and disadvantages and examples.
6&7&8	Program (Project) evaluation and review technique (PERT): Calculation of activity most likely durations, float time, calculation of critical path, advantages and disadvantages and examples.
9&10	Description of activity durations, crantt chart as outline of critical path description, advantages and disadvantages and examples.
11&12&13	Crashing time method, description, advantages and disadvantages and examples.
14&15	Economical study on time value of money, advantages and and examples.
16	Introduction ,the role of equipments in various projects and its important in economic constructions , the controlling of material and equipments during construction stages .
17&18	Arrangement of machines records , regular and annual maintenance ,the factors affecting the efficiency during work ,the factors affecting the selection and owning of

	<b>machines and calculating the working cost, the standard and special equipments.</b>
<b>19&amp;20</b>	<b>Excavation equipments, hoes, dragline , trench , and tunnel excavators , types and work efficiency, application and examples .</b>
<b>21&amp;22&amp;23 &amp;24&amp;25</b>	<b>Road excavator equipments , shovel, grader , bulldozer ,and scraper , types , work efficiency , productivity , benefit and cost , application and examples.</b>
<b>26&amp;27</b>	<b>Trucks , rear dump truck , bottom dump truck , their capacities and numbers ,the factors affecting their efficiency ,application and examples .</b>
<b>28</b>	<b>Compactors, compactors with vibrators , for clay soils , granular soils , asphalt layers , steel, sheep foot, and pneumatic rollers ,manual vibrating compactors ,action of compacting , methods of compacting different types of soils and asphalt , site laboratory tests.</b>
<b>29</b>	<b>Concrete mix plants , components and specifications , truck mixer and their specifications ,specification of aggregates and cement and their test , concrete spreader at the site .</b>
<b>30</b>	<b>Cranes ,winch ,lifting apparatus, fork cranes , jacks, multistory building cranes.</b>

### **References:**

- 1- Working & tools of builders / G. Barder.**
- 2- Construction Planning , Equipment & Methods / R. L. Peurifoy & W. B. Ledbetter .**
- 3- Construction Methods and Management / S.W. Nunnally**
- 4- Construction Method & Management / S.W. Nunnally**
- 5- Project Planning & Control with PERT & CPM / B.C. Punmia & K.K. Khandelnal .**
- 6- Construction Planning Equipment & Methods / Peurifoy .**