MEE 511 – Work Study and System Design

COURSE PARTICULARS

Course Code: MEE 511  
Course Title: Work Study and System Design  
No. of Units: 3  
Course Duration: Two hours of theory and one hour of tutorial per week for 15 weeks.  
Status: Electives  
Course Email Address: mee511@gmail.com  
Course Webpage: http://www.mee.futa.edu.ng/courseschedule.php?coursecode=MEE  
Prerequisite: NIL

COURSE INSTRUCTORS

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Department of Mechanical Engineering CAD and CAM Laboratory, Akure, Nigeria  
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COURSE DESCRIPTION

This course focused on systems analysis and optimization of work study and productivity. This includes practical example: production study optimization and analysis, industrial location and localization). Productivity measurement such as: machine efficiency, labour, skill, availability, remuneration and economic situation.

Motion study which covers: measurement of labour, line balancing, work station, work study and work measurement, standard time, work sampling and use of work study software packages.

COURSE OBJECTIVES

The objectives of this course are to teach the students:

- the techniques of raising productivity.
- how optimum use of human and other resources can be obtained.
- how to evaluate the work-content through work-measurement.
- how to set the time standards for setting incentive schemes.
COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

- identify non-value adding operations by investigation of all the factors affecting the jobs.
- applying work-study as a means of enhancing the production efficiency (productivity) of the firm by elimination of waste and unnecessary operation.
- establish time standard for jobs.
- use acceptable technique to reduce work content of a system.
- understand the advantages and disadvantages of a Work Study and system design.
- Make use of available software application to work study.

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Class Attendance</td>
<td>10%</td>
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<tr>
<td>Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Test(s)</td>
<td>10%</td>
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<tr>
<td>Final Examination</td>
<td>60%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
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GENERAL INSTRUCTIONS

**Attendance:** It is expected that every student will be in class for lectures and also participate in all practical exercises. Attendance records will be kept and used to determine each person’s qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

**Academic Integrity:** Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person’s work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students’ misconduct as spelt out in the Students’ Handbook.

**Assignments and Group Work:** Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

**Code of Conduct in Lecture Rooms and Laboratories:** Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, etc.) during lectures. Food and drinks are not permitted in the laboratories.
READING LIST


Legend
1- Available in the University Library
2- Available in Departmental/School Libraries
3- Available on the Internet.
4- Available as Personal Collection
5- Available in local bookshops.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Remarks</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Introduction and Course Overview of Work study and System Design</td>
<td>During this first class, the expectation of the students from the course will also be documented.</td>
</tr>
<tr>
<td>2 &amp; 3</td>
<td>● Productivity, and its measurement</td>
<td>There will be teaching of productivity management, productivity improvement, factors affecting technological development, Productivity Analysis and measurements.</td>
</tr>
<tr>
<td>4 &amp; 5</td>
<td>● Human factors involved in Work Design</td>
<td>When learning human factors involved in work design, students will be taught: work and man-machine, analysis of man-machine system, Anthropometric, Ergonomics, physiological and psychological factors.</td>
</tr>
<tr>
<td>6</td>
<td>Basic Principles of Work Study</td>
<td>Students will be taught the techniques of work study, work study and management and strategies to be adopted.</td>
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<tr>
<td>Week(s)</td>
<td>Topics</td>
<td>Description</td>
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<td>---------</td>
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<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>7 &amp; 9</td>
<td>• Method Study</td>
<td>Technique for work simplification and work design; operation process and flow process charts; Critical examination and analysis, and construction of simultaneous motion chart will be taught to students.</td>
</tr>
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<td></td>
<td><strong>MID-SEMESTER TEST</strong></td>
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<tr>
<td>10 &amp; 11</td>
<td>• Work Measurement, Time Study and Equipment Needed</td>
<td>Terminology used in work measurement, Work measurement techniques, Time study, and standard time determination will be taught.</td>
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<tr>
<td>15</td>
<td>REVISION</td>
<td>This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students’ expectations for the course have been met.</td>
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