Designation as a 'Required' or 'Elective' course
TYPE OF COURSE: Required for BSIE and BSEM Majors

Course (catalog) description
COURSE DESCRIPTION: IE365 Work Productivity Analysis. 4 hours
Operations analysis, man-machine relationship, motion study, micro-motion study, time study, predetermined time systems, performance rating, standard data techniques, work sampling, and wage payment plans

Prerequisite(s)
PREREQUISITE(S): Credit or Concurrent Registration in IE 342 – Probability and Statistics for Engineers, 3 Hours

Textbook(s) and/or other required material

Course objectives
COURSE OBJECTIVES: The course is designed to provide students with an opportunity to follow the evolution of Industrial Engineering and offers traditional tools of industrial engineers that have been developed for methods engineering and time study. Students get hands-on experience with some of these tools through laboratory projects. With the successful completion of the course, students will be equipped with a broad understanding of professional and ethical responsibility of a method engineer as well as a palette of traditional tools of methods engineers for productivity and quality improvements.

Topics covered
MAJOR TOPICS: Hrs
1. Introduction to motion and time study (3 hrs)
2. Tools of methods analyst (4 hrs)
3. Operations analysis (3 hrs)
4. Worker-and-machine relationship (3 hrs)
5. Motion and micromotion study (4 hrs)
6. Job analysis and evaluation (3 hrs)
7. Time study requirement (3 hrs)
8. Elements of time study (3 hrs)
9. Standard time and standard data (4 hrs)
10. Basic motion times (4 hrs)
11. Formula Construction (3 hrs)
12. Work sampling studies (2 hrs)
13. Follow-up method and uses of time standards (2 hrs)
14. Lab meetings (30 hrs)
15. Exams (4 hrs)

Total 75 hrs
**Class/laboratory schedule, i.e., number of sessions each week and duration of each session.**

CREDIT HOURS: 4 Hours  

<table>
<thead>
<tr>
<th>Type of Instruction</th>
<th>Contact Hours/Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture-and-discussion</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory</td>
<td>2</td>
</tr>
</tbody>
</table>

**Contribution of course to meeting the professional component**

The course deals with the subject that industrial engineering has been most identified with: motion and time study, and productivity improvement. Through the course, students get a chance to view the evolution of industrial engineering and learn traditional methods engineering tools that have been developed for improving quality and productivity at large. Owing much to the peculiar subject matter, students are exposed to and better understand professional and ethical issues on ‘fair wage,’ ‘objective performance rating,’ and allocation of ‘proper allowances’ for standard time, to name a few.

**Relationship of course to program outcomes**

As shown in the BSIE Course Outcomes Matrix:

b. Design and conduct experiments, as well as analyze and interpret data  
f. Understanding of professional and ethical responsibility  
g. An ability to communicate effectively

**Person(s) who prepared this description and date of preparation**

Hong Seo Ryoo (Assistant Professor) of Mechanical & Industrial Engineering, January 31, 2002  
Rao Kodali (Lecturer), October 6, 2006  
Houshang Darabi (Associate Professor), January 22, 2008

**Comments on outcomes**

b. Through the use of exemplary problems in the text as well as through lab projects, students learn to analyze, simplify, and formulate problems and apply the techniques learned in course for their solution.

f. Owing to the subject matter, students are exposed to professional and ethical issues centered on ‘fair wage,’ ‘objective performance rating,’ and allocation of ‘proper allowances’ for standard time throughout the semester. Chapters of text on standard time basically deal with this issue.

g. Lab projects require technically written lab reports that are graded based upon not only the accuracy of results but also for the contents, the format, and the efficacy of presentation. Depending upon instructor, oral presentations may be required for some of the lab reports.

These outcomes are what students are expected to gain from this course.