

IE365 – WORK PRODUCTIVITY ANALYSIS

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

SAMPLE SOURCES AND RESOURCE MATERIALS: Methods, Standards and Work Design, Nibel, B.W. and Freivalds, A., 12th Edition, McGraw Hill, 2009.

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
2. Tools of methods analyst	4
3. Operations analysis	3
4. Worker-and-machine relationship	3
5. Motion and micromotion study	4
6. Job analysis and evaluation	3
7. Time study requirement	3
8. Elements of time study	3
9. Standard time and standard data	4
10. Basic motion times	4
11. Formula Construction	3
12. Work sampling studies	2
13. Follow-up method and uses of time standards	2
14. Lab meetings	30
15. Exams	4
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Total	75

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

CREDIT HOURS: 4 Hours

Type of Instruction:	Contact Hours/Week
Lecture-and-discussion	3

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 student outcomes

As shown in the BSIE Course Outcomes Matrix:

- B. Design and conduct experiments, as well as analyze and interpret data
- D. An Ability to function on technical teams.
- F. Understanding of professional and ethical responsibility
- G. An ability to communicate effectively
- J. A knowledge of contemporary issues

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, Professor of Industrial Engineering, January 15, 2013

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.
- D. Students participate in team projects where they work in groups of 3-4 to satisfy project requirements.
- 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.
- J. Students are required to create a presentation on their choice of contemporary issue and share their findings with their classmates.

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