



**IE 495-001 Industrial System design, *Four semester hours***  
**Spring 2015,**  
MW 2:00 P.M.-3:40 P.M./AG/IT 118A

**Instructor:**

E. Delbert Horton, Ph.D., P.E.  
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***“Appointment Recommended”***

<b>COURSE INFORMATION</b>
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**COURSE TEXT**

The Team Handbook, 3rd  
Peter R. Scholtes, Brian L. Joiner, Barbara J. Streibel, Oriell Incorporated  
ISBN 1-884731-266-0  
February 2003

***COURSE REFERENCE TEXT/MATERIALS***

FACILITIES PLANNING 3<sup>RD</sup> Edition, Tompkins et al, John Wiley, ISBN 0-471-41389-5

FACILITY DESIGN: Manufacturing Engineering, S. Konz, Publishing Horizons, Inc., 2<sup>nd</sup> Edition, 1994

MANUFACTURING FACILITIES: Location, Planning and Design, D.R. Sule, PWS Publishing Company, 2<sup>nd</sup> edition, 1994

FACILITY LAYOUT AND LOCATION : An Analytical Approach, R.L. Francis and J.A. White, Prentice-Hall, 1974

METHODS, STANDARDS, AND WORK DESIGN, 11<sup>th</sup> edition, Benjamin Niebel and Andris Freivalds, McGraw-Hill Higher Education, ISBN 0-070246824-6

SIMULATION WITH ARENA, 2<sup>nd</sup> edition, W. David Kelton, Randall P. Sadowski, Deborah A. Sadowski, McGraw Hill, 2002. 0-07-239270-3

INTRODUCTION TO STATISTICAL QUALITY CONTROL, 4<sup>th</sup> edition, Douglas C. Montgomery, John Wiley & Sons, Inc. ISBN 0-471-31648-2

OPERATIONS RESEARCH Applications and Algorithms, 3<sup>rd</sup> edition, Wayne L. Winston, Duxbury Press, ISBN 0-534-520200 includes software package.

PROJECT MANAGEMENT, THE MANAGERIAL PROCESS, FOURTH EDITION, Clifford F. Gray, Erik W. Larson  
ISBN 978-0-07-352515  
@2008

ENGINEERING COST ESTIMATING, 3<sup>rd</sup> edition, Phillip F. Oswald, Prentice Hall, 1992, ISBN 0-13-276627-2

## **ASSESSMENT OF STUDENT OUTCOMES**

Upon satisfactory completion of the course, the student as a industrial system designer will:

1. Apply the engineering design process and application of quantitative tools as a foundation for demonstrating the proposed approach is a valid approach for the team's industrial design project.
2. Be able to define the physical requirements for the proposed design project.
3. Be able to relate system design requirements to specific work structure activity
4. Be able to prepare a schedule of the proposed personnel requirements in the approach.
5. Develop an overview of principles of system operations.
6. Be able to propose a model system design requirements for project process.
7. Be able to relate the proposed model components to implemental system level components.
8. Be able to layout, prepare and present the proposed system operations in a presentation with visual aids describing the system, final project proposal, highlighting the proposed system solution implementation.

## **COURSE REQUIREMENTS**

IE 471 student teams prepared a proposal (technical and management sections) to outline the approach and methodology the team plans to follow in working with industry sponsors on real-world industrial engineering process improvement activities for the IE 495 course. Prerequisites: The IE 495 proposed improvement activity will be the systems design project planned for the following spring semester of the student successful enrollment of IE 471, Plan for Industrial Systems Design; Senior Classification; IE Majors Only and consent of instructor.

### **COURSE OUTLINE/OVERVIEW**

IE 471 Plan course was the pre cursor for the IE 495 Industrial Systems Design. Each student enrolled in the spring IE 495 and is a member of a student design team. The objective of the course is for each team to execute the project plan as developed in a proposal (technical and management sections) for IE 471. The proposed improvement activity will be the systems design project planned for the IE 495 Industrial Systems Design course. The IE 471 proposal prepared is intended to present: the background for the problem, statement and description of the problem, the approach, the methodology and analytical support of the team's plans for the execution of the project. The proposal will include a project network schedule with the project work breakdown structure (WBS) and program plan including a quantitative labor cost estimate per team members per WBS task. The proposal includes all project deliverables with due dates. The proposal will outline the project organization with roles and responsibilities of each team member. These roles and responsibilities will be designated as tasks within the overall team project. These Project plans will be reviewed and revised, if necessary, during the first stage of this IE 495 System Design course.

There will be four course deliverables for each team. These deliverables are

1. Development of System Requirements
2. Design Review of the Team's Design alternatives
3. Team Final Design Report and Presentation
4. Reporting the weekly status of the overall project with individual team members weekly status reports included. Using the project management tools available.

These deliverables will be the components used for evaluation of the project execution and the student grades.

The project subject is typical of the problems an industrial engineer would encounter during their career. The project team approach is very similar to the approach problems are addressed industry. That is, each team member brings to the team their individual expertise or knowledge that is needed. Their individual contributions may include tasks areas outside their specialty but these tasks are required to be completed by the team.

In this course, the course professor/industrial sponsors will act in advisory roles. In this course, the professor does not have the answers but he is available for advice and assistance.

## COURSE EVALUATION

The final course grade will be based on the following factors.

Class Design Project: Students are expected to participate in the analysis, concept, planning and the preparation efforts (including: conceptualize, analysis to support the approach, planning, defining the resources for the project for the class project. Each student will be assigned to a team for the project. Each team will be assigned an engineering problem. The team will be expected to submit a project plan for the team designated project.

<u>Evaluation Factors:</u>	<u>Values</u>
1. Analysis to support the project plan approach to meeting the objectives	10%
2. Conceptual approach to the project	25%
3. Final Design and Report with Presentations to sponsor management	35%
4. Project status reporting(weekly, see deliverable #4)	10%
5. INDIVIDUAL STUDENT CONTRIBUTION: (Professor, Industry Sponsors, Team members inputs) attendance, on campus and at sponsor facilities:	20%
Total	100%

### Grading Scale:

A= 90-100%  
 B= 80-89%  
 C= 70-79%  
 D= 60-69%  
 Fail < 60%

Note, all handouts including syllabi, exams, and topic presentation materials are copyrighted. The instructor will keep all exam questions and presentation materials. The student will be allowed to keep their examination submittals. If you desire to make a copy of your presentations, please make it before submitting the presentation materials.

## **COURSE AND UNIVERSITY PROCEDURES/POLICIES**

### **ATTENDANCE POLICY**

No assignment will be excused. Late work will receive a deduction in score/grade. Students are expected to attend class and to participate in a manner to facilitate the educational process.

### **CONDUCT IN CLASSROOM**

All students enrolled at the university shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. Attendance will be kept and evaluated as part of class participation. The no sounding of cell phones and using a cell phone or text messaging is prohibited in class. No tobacco products, food and drinks are allowed in the classroom. Each student will be expected to sign and turn in the TAMU-Commerce CoSE Academic Honesty Policy.

### **ACADEMIC DISHONESTY**

Efforts made by any student to achieve dishonestly will not be tolerated. Course work that students submit to the instructor is to be their own. Students may discuss course work and other course material with the instructor and/or fellow students (except during tests), but it is inappropriate to have another student do their course work or provide them with any portion of it. If the instructor determines a student has achieved dishonestly on course work, then that student will be assigned a grade of "0" for that entire course work. If the instructor determines a student has committed a second act of academic dishonesty, then that student will be assigned a final grade of "F" for the course and will not be allowed to attend any more class meetings.

### **UNIVERSITY SPECIFIC PROCEDURES:**

#### *ADA Statement*

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services**

**Texas A&M University-Commerce**  
**Gee Library 132**  
**Phone (903) 886-5150 or (903) 886-5835**  
**Fax (903) 468-8148**  
[StudentDisabilityServices@tamu-commerce.edu](mailto:StudentDisabilityServices@tamu-commerce.edu)  
[Student Disability Resources & Services](#)

<b>COURSE OUTLINE / CALENDAR</b>
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COURSE MILESTONES SCHEDULE (Monday Dates)

Discussions with Sponsor's Managers for Requirement	January 26, 2015
Preliminary Design Review with Sponsor:	March 2, 2015
Project Final Design—Internal Review	April 20, 2015
Project Final Design Report and Presentation with Sponsor	May 4, 2015

SYLLABUS CHANGES: The instructor has made every effort to provide the students with an accurate syllabus. However, situations may arise during the semester resulting in changes in the information provided in this syllabus. If this occurs, the changes will be announced in class. If students miss a class, it is their responsibility to find out if any changes have been made.

E. Delbert Horton is the owner of this syllabus and all lectures. Students are prohibited from selling (or being paid for taking) notes during this course to or by any person or commercial firm without the express written permission of the professor teaching this course.