



**IE 471-001 Plan for Industrial System design, *Three semester hours***  
**Fall 2014,**  
TR 3:30 P.M.-4:45 P.M./AG/IT 118A

**Instructor:**

E. Delbert Horton, Ph.D., P.E.  
Associate Professor, Professional Track  
Department Engineering & Technology

**Contact Information:**

Office Time: TWR 9:00 AM-4:30 PM  
Office Number: AG/IT 218  
Telephone: (903) 468-8122  
Fax: (903) 886-5960  
Email: Delbert.Horton@tamuc.edu  
***“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. Recognize the need for and ability to engage in lifelong learning.
2. Demonstrate the role of teaming in an engineering environment.
3. 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.
4. Be able to define the physical requirements for the proposed design project.
5. Be able to relate system design requirements to specific work structure activity and prepare a schedule of the proposed personnel requirements in the approach.
6. Develop an overview of principles of system operations.
7. Be able to propose a model system design requirements for project process.
8. Be able to relate the proposed model components to implemental system level components.
9. Be able to layout, prepare and present the proposed system operations in a presentation with visual aides describing the system, final project proposal, highlighting the proposed system solution implementation.
10. Encourage exposure to examples and cases of applications dealing with engineering ethics (emphasis of the global influences on this issue)

## COURSE REQUIREMENTS

Student teams will be responsible for finding and developing a real-world industrial design project with an industry sponsor. The faculty will support this effort but it is the students' responsibility. The teams will prepare a proposal (technical and management sections) to outline the team's approach and methodology in meeting the sponsor's project requirements. These proposed activities will be the initial project plan for the execution of industrial design project for the following spring semester in IE 495, Industrial Systems Design. The proposal prepared during this course will serve as the major deliverable for IE 471 course. Prerequisite: The student must have the following: Senior Classification, IE Majors Only, IE 471 course must be scheduled in the fall semester prior to the student's enrollment in IE 495 during the final spring semester, and consent of instructor.

### COURSE OUTLINE/OVERVIEW

This course is a pre cursor for IE 495 Industrial Systems Design. Each student will be pre-enrolled in the following spring IE 495 and a member of a student team. The objective of the course is for each team to develop a real world industrial design project with an industry sponsor. Each IE 471 team prepares a proposal (technical and management sections) to outline the approach and methodology that the team plans to follow in working with industry sponsor on real-world industrial engineering process improvement activities. The proposed improvement activity will be the systems design project planned for the following spring semester IE 495 Industrial Systems Design. The proposal prepared during this class 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 will include 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.

There will be wo course deliverables for each team. These **team-capacity** deliverables are

1. Team's Project Proposal
2. Presentation of Proposal to client.

In an **individual capacity**, each student will be expected to participate in the Team Dynamics, Life Learning, and Engineering Ethics learning experience components--- Examinations or Assignments

These team deliverables and the individual student achievements will be the components used for evaluation of the student grades for IE 471.

The project subject is typical type of problems that 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 IE 471 course and the following IE495 course, the professor will not have the answers but he is available for advice and assistance. This will be the situation in industry as well as--if the solutions to these projects are known, then industrial engineers would not be needed.

## **COURSE EVALUATION**

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

Proposal for a Class Project: Students are expected to participate in the locating an industry sponsor and defining the requirements of the project. Then, the teams perform the analysis, concept, planning and the preparation efforts (including: conceptualize, analysis to support the approach, planning, defining the resources for the project and writing/illustrating the proposal for the class project. Each student will be expected to participate in the proposal efforts. 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 complete proposal for the team designated project.

<u>Evaluation Factors:</u>	<u>Values</u>
1. Overall Evaluation of Proposal	15%
2. Analysis to support the proposal approach to meeting the objectives	15%
3. Conceptual approach to the project	15%
4. Assignments and Examination(Teaming, Life Long learning and Engineering Ethics)	30%
5. Individual student contribution to the team project (Professor, Industry Sponsors, other team members inputs)	25%
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 for recording.

## **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 follow the TAMU-Commerce CoSEA Academic Honesty Policy.

### **STUDENT EXPECTATIONS:**

- Students are expected to attend all class periods. Students who do not attend class regularly may find this course to be more challenging than it should be. Students missing more than **four (4) class meetings** will be assigned a final grade of "F" for the course and will not be allowed to attend any more class meetings, regardless of the reason(s) for the absences. Students are considered absent from a class meeting if they miss any portion of class time. Class time begins when the instructor arrives, but no earlier than the scheduled start of class time. Class time ends when the instructor dismisses class, but no later than the scheduled end of class time.
- Students are expected to make a legitimate attempt to pass the course, as judged by the instructor. Students who do not make a legitimate attempt to pass the course will be assigned a final grade of "F" for the course and will not be allowed to attend any more class meetings.

Any violations of the following student expectations, as judged by the instructor, will result in letter grade reductions to course work grades and/or to the final course grade of the offending student.

- Students are expected to have complete knowledge of and to be fully compliant with the Code of Student Conduct in the current Student Guidebook at <http://www.tamuc.edu/studentlife/guidebook.htm>
- Students are expected to be fully prepared for each class before it meets.
- Students are expected to refrain from any disruptive behaviors during class. This includes (but is not limited to) not being in their seat at the scheduled start time of class; packing up and leaving class before it is dismissed by the instructor; talking or making other noises

- while the instructor is presenting material or a student is asking a question; sleeping; doing work for another course; reading newspapers, magazines, or other non-course materials; and using a computer at times and for purposes other than those designated by the instructor.
- Students are expected to have cell phones (**NO TEXTING**), music devices, and pagers turned off during class.

## **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 (course assignment, examination, or presentation) or provide them with any portion of it. If the instructor determines a student has performed dishonestly on course work, then that student will be assigned a grade of "0" for that specific 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:**

#### **Students with Disabilities:**

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**  
**Room 132**  
**Phone (903) 886-5150 or (903) 886-5835**  
**Fax (903) 468-8148**  
[StudentDisabilityServices@tamuc.edu](mailto:StudentDisabilityServices@tamuc.edu)

<b>COURSE OUTLINE / CALENDAR</b>
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### **COURSE MILESTONES SCHEDULE:**

Life Long Learning Assignments	To be announced (TBA)
Team Dynamic Assignments	To be announced (TBA)
Engineering Ethics Assignment	To be announced (TBA)

Statement of Problem:  
Project Proposal

NLT October 31, 2014  
NLT December 5, 2014

Project Proposal Presentation to Client

To be announced (TBA)

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.