EASTERN MEDITERRANEAN UNIVERSITY

Introduction to Manufacturing and Service Systems Design

Fall 2013-2014

COURSE OUTLINE

COURSE CODE	**IENG490**	**COURSE LEVEL**	4th Year
COURSE TITLE	Introduction to Manufacturing and Service Systems Design		
COURSE TYPE	***Area Core***		
LECTURER(S)	Asst. Prof. Dr. Emine ATASOYLU		
CREDIT VALUE	(1,0,1)1	**ECTS VALUE**	3
PREREQUISITES	Submission of IENG310 report.		
CO-REQUISITES	IENG441.		
DURATION OF COURSE	15 weeks.		
WEB LINK:	http://ie.emu.edu.tr (http://ie.emu.edu.tr/lec/lecturer.php?lec=Emine+ATASOYLU&course=ieng490)		
RESEARCH ASSISTANTS:	Will be announced on the course webpage.		
TIME TABLE AND PLACE	Check the web site for class hours, meeting and Lab schedules; IE-D-101 or IE-C102; department meeting room.		
TEXT BOOK	There won't be any specific textbook in this course. The students are referred to the collection of the books on Industrial Engineering and related fields in the EMU Library, which can be searched at: http://library.emu.edu.tr		

CATALOGUE DESCRIPTION

The course aims to prepare the senior year students for their Manufacturing and Service Systems Design Project course (IENG492). The students are first introduced to the type of the manufacturing or service system that they are going to design as the requirement of IENG492 during the next academic semester. Then they are asked to conduct a market survey, submit information on the types of products/services they are going to produce, amount of sales, prices, competing producers, processes required to producing and distributing them, and relevant standards/laws/rules and regulations available in the place where the system will be established. Additionally, students are required to design the products/services, make forecasting for their sales, and prepare a feasibility study of the system.

COURSE OBJECTIVES (CO)

1. To accomplish a synthesis of the techniques and methodologies covered in the previous courses on the design of a complex industrial or service system,
2. To provide the student with hands-on experience using computer software packages in the related fields of Industrial Engineering,
3. To improve the student' teamwork skills,
4. To motivate the students to do independent research and to improve learning habits,
5. To improve the student's both written and oral communication skills.

GENERAL LEARNING OUTCOMES (COMPETENCES)

On successful completion of this course, students will develop **knowledge** and **understanding** of:

- Applying fundamental concepts, techniques and methodologies of IE to design a complex industrial or service system (CO 1, 2),
- The relationships between various problems of different fields of IE (CO 1),
- Developing the ability to think critically (CO 1, 4),
- Importance of conducting an independent research and integration of the findings through a proper project team work by demonstrating involvement in and support for team activities (CO 1, 2, 3),
- Importance of effective communication with team members, faculty and professionals in the field (CO 3, 5),
- The importance of standards in engineering design (CO1).

On successful completion of this course, students will develop **their skills in**:

- The synthesis of the techniques and methodologies of IE (CO 1),

- Working in a project team with faculty advising (CO 3),
- Extracting relevant information from all available sources (including all forms of information technology, library searching, professionals etc.) related to the project (CO 4, 5),
- Using engineering standards in design (CO1)
- Performing feasibility studies and financial analysis of a real world project (CO 1),
- Using IE software for decision making (CO 1, 2),
- Generating and assessment of alternative plans (CO 1, 2),
- Effective communication of team members to accomplish project activities (CO 3, 5),
- The ability to design, deliver and defend a group presentation of completed project (CO 3, 5),
- Submitting periodic complete, well-organized quality project reports (CO 5),

On successful completion of this course, students will develop their appreciation of and respect for **values and attitudes** regarding the issues of:

- Understanding of professional behaviors, engineering and professional ethics (CO 3, 4),
- Sharing the responsibilities and recognition of the need for and an ability to engage in life-long learning (CO 1, 2, 4),
- Role of IE practices in solving real world problems (CO 1, 4),
- Importance of adhering to work schedules in real world (CO 1, 4).

GRADING CRITERIA

Although the student's overall grade will be based on the general assessment of the course coordinator(s), the following percentages may give an idea about the relative importance of various assessment tools. The course coordinator(s) reserve the right to modify these percentages in case they deem it necessary.

Assessment Item	***Weight* (%)**
First Progressive Report	30
Final Report	40
Oral Presentation	20
Lab- software applications	10

Note that it is very likely that members of the same project team will take different grades since their individual performance in oral presentations may be different. Semester letter grades will be announced on the EMU web site by the Registrar's Office after the last day for the submission of letter grades to the Registrar. Thus students should not insist on asking their letter grades to the course coordinator(s) or research assistants before this announcement.

DISCUSSION MEETINGS (Contact Hours):

Besides the Lab and lecture hours the students of this course will have scheduled meeting hours to discuss the progress of their ongoing work with the course coordinator(s). Students are encouraged to ask questions of clarification during these meetings. Students will not be evaluated based on their performance during these discussions; however it will be beneficial for the team to obtain feedback and advice from the course coordinator(s).

TERM PROJECT ASSIGNMENT

There will be one synthesis project to be carried out in steps. Each step of the project may be considered as a part of the big project.

- Students should work in teams of 4.
- Students taking this course in different groups may form a project team.
- It is the student's responsibility to find his/her team members, sign up the *project team information form* which may be downloaded from the course web page at http://ie.emu.edu.tr which has the names, e-mail address, contact phone numbers (preferably cellular) of all members in the team, submit it to the course coordinator/s not later than October 11, 2013 Friday; 14:00. All the members in a team should have one free hour during Monday between 16:30 to 17:20.
- Any student whose name does not appear in any project team information form will be

arbitrarily assigned to any team. If a team fails to form a team of 4 students and submit only one, two or 3 names, then either this team may arbitrarily receive additional member(s), or team members in this team may be arbitrarily assigned to other teams with members less than 4.

- The composition of the study teams may not be changed once finalized. If a team member leaves the team for any reason then he/she will get an NG grade.
- The term project topic is announced separately on the course web pages. Each team will be asked to write one progress and one final report for the project study, and submit it to one of the course coordinators, or to the department secretary. The deadline for submitting the progress report is November 18 Monday and that for the final project report is Jan 06, 2014 Monday 16:00 at the latest. A CD or DVD which contains the soft copy of the final project should be attached to the inside of back cover of each report.
- Term project reports should be prepared in accordance with the thesis writing guide which may be downloaded from EMU University Graduate Studies Web site.
- Deadlines of report submissions are strict. Beware that the failure to submit term project reports on time because of lack of computer access and use is not an acceptable excuse. Thus, if a team fails to submit any project report on time, then all members will get an NG grade from the course.
- Each member of a team will receive the same mark from the written report evaluation, which is based on writing style, logical organization, work done and an understanding of the project study, but may receive different marks from oral presentation.
- Every team will also give an oral presentation of their project study at the end of the semester (time schedule will be announced later). Each team will have exactly 15 minutes for presentation and 10 minutes for answering the questions.
- Teams must not discuss and exchange views and copy any text or software from other teams. Furthermore copying from previously written reports and/or from a published source is strictly prohibited unless it is a short excerpt with proper reference. Here is an example:

You write in your report:
The very important observation “Omelet is made from eggs.” is given in [23].
Then you must have something like this in your reference list:
[23] Very Clever Person: *Notes on Daily Observations of the World,* Publishing House Academic Press, Princeton, 2008, page 532.

- It is expected that each term project team will submit original reports, which reflect only the work of team members. For a team of students working together with another team and submitting a similar report, they will be failed and these students will be reported to EMU Student’s Disciplinary Committee.
- Other details regarding the term project study will be given later.

Examinations: Lab exams and any in-term exam will be announced on the course web site

Make-up Examinations: No makeup exams

Course Withdrawal: Students are not allowed to withdraw from this course.

Software Packages: Each student is expected to have a background in IE/OR related software packages, and use these available packages in the IE Computer Laboratories: LINDO, LINGO, GINO, STORM, POM-QM, QS, XCELL+, ARENA, SPSS, BESTFIT, MATLAB, MAPLE, ACCESS, etc., some technical drawing packages AUTOCAD, VISIO, GOOGLE SKETCH, etc., general documentation and presentation packages MSWord, Excel, Power Point and internet browsers (e.g. Internet Explorer, Netscape), etc. Make sure you attend the pre-scheduled lab hours regularly.

Computer Access & Usage: The computers in the IE Computer Laboratories are available for the student’s use. Always plan ahead if you rely on the computers in the labs. Increased demand towards the deadlines of the project reports will reduce the available computer time. One should also be aware of power failures. Furthermore, students should always be courteous, considerate and in a professional manner while using the computer facilities of the IE Department.

Internet Access: Some course material and announcements may be accessed form the course web site

at: http://ie.emu.edu.tr .

Announcements: It is the students' responsibility to regularly check the IENG490 website for updates.

Paper Flow & Evaluation Results Information flow from lecturers will be through course web pages, handouts will be kept to a minimum. The course coordinator(s) will keep the graded reports, which can be examined within a maximum of one-week following the announcement of the report results.

Attendance: Students are expected to regularly attend class and the scheduled discussion meetings, and intelligently participate in these meetings.

Punctuality: Students are expected to be in class, discussion meetings, lab hours, seminars and exams on time, and latecomers will not be admitted, as arriving late is too disruptive.

Academic Every student at EMU should behave according to universally accepted norms of behavior and ethics. If a student participates in unlawful unacceptable activities such as listed below, his/her case will be sent to the University Students Disciplinary Committee, and will be treated according to the university by-laws and procedures. Depending on the seriousness of the case, it can lead to a requirement to undertake additional work, failure in the course or in a part of it, suspension from the University or even permanent expulsion from the University:

- collusion (material copied from another project team's report with that team's knowledge),
- purloining (material copied from another project team's report or work without that team's knowledge),
- ghost writing (project team's report written by third party and presented by a team as their own),
- verbatim copying (material copied word for word or exactly duplicated without any acknowledgement of the source),
- inappropriate/inadequate acknowledgement (material copied word for word which is acknowledged as paraphrased but should have been in quotation marks, or material paraphrased without appropriate acknowledgements of its source),
- getting someone else to take the examinations for a student,
- misrepresentation of student's exam answer sheet as another's work,
- any form of cheating and knowingly assisting other students to cheat in the examinations,
- abusing the tolerance or breaking the discipline of the class, etc.,

Language: The language of communication in this course is English as the University commits it. Thus, students and staff should avoid the use of other languages in both their oral and written communication during meetings and presentations.

Grade Improvement Grades for each assessment item will be earned for the required work only. No additional work will be accepted for "extra credit" or "grade improvement".

Objections: Any form of document concerning work, which is to be used by the course coordinators as the basis of grading will be shown to the student upon request. Students, who feel strong that they have received grades that are improper, have the right of formal appeal. The following rules should be obeyed:

- The objection to any grade must be made to the course coordinators within a week following the announcement of the grades.
- If you think an error was made in grading or you have questions about the grading of the material, please write your questions or comments on a separate sheet of paper and submit this paper to the course coordinators. Objections will be evaluated within one week of receipt of the appeal.

Office Hours: If the students want to ask or discuss anything about their project-work with their course coordinator(s), they should send an e-mail to use the announced "Office Hours" or to schedule an additional meeting.

Course Instructors Evaluation: Eastern Mediterranean University is committed to continuous improvement, and seeks students' input to that process through their participation in instructor evaluation process. Please complete the questionnaire, which will be provided towards the end of semester on Student Portal. Your response will be processed so that, unless you wish otherwise, the course coordinator will not be aware of your identity. Please help us to help our students by providing feedback on your experiences in this course. In addition to the end of semester evaluation, you may also provide your feedback at any time during the semester by discussing the matter with the course lecturer(s) during office hours.

Important Dates

Activity	Date
Last Date for Team Members Lists	October 11, 2013 Thursday 14:00
First Team meetings	October 21, 2013 Monday 16:30
Progress Report	November 18, 2013, Monday 16:00
Final Report Submission Deadline	Jan 06, 2014, Monday 16:00
Presentations Date	Jan 10, 2014 Friday, schedule will be announced later.

Important Notes:

1. Please keep this course syllabus for future reference as it contains important information. If you lose it, you may download it from course web pages.
2. If you have any question on the coursework, please always refer to this syllabus to obtain the answer yourself first. If the answer is in the syllabus, then please do not insist on asking the same question to your course coordinators and research assistants.

CONTRIBUTION OF COURSE TO MEETING THE REQUIREMENTS OF CRITERION 5

Mathematics and Basic Sciences	: 0 %
Engineering Science	: 30 %
Engineering Design	: 50 %
General Education	: 20 %

The course makes significant contributions to the following *program outcomes* (PO):

Program Outcomes				
Level of Satisfaction of the Program Outcomes ⓪: Not Applicable ①: Low Level of Satisfaction ②: High Level of Satisfaction	(a) an ability to apply knowledge of mathematics, science and engineering	⓪	①	❷
	(b) an ability to design and conduct experiments, as well as to analyze and interpret data	⓪	①	❷
	(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	⓪	①	❷
	(d) an ability to function on multi-disciplinary teams	⓪	①	❷
	(e) an ability to identify, formulate, and solve engineering problems	⓪	①	❷
	(f) an understanding of professional and ethical responsibility	⓪	①	❷
	(g) an ability to communicate effectively	⓪	①	❷
	(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	⓪	①	❷
	(i) a recognition of the need for, and an ability to engage in life-long learning	⓪	①	❷
	(j) a knowledge of contemporary issues	⓪	①	❷
	(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	⓪	①	❷