EASTERN MEDITERRANEAN UNIVERSITY

DEPARTMENT OF INDUSTRIAL ENGINEERING

IENG/MANE 372

INFORMATION SYSTEMS AND TECHNOLOGY COURSE OUTLINE

COURSE CODE	IENG/MANE372	**COURSE LEVEL**	Third Year
COURSE TITLE	Information Systems and Technology	**COURSE TYPE**	Area Core
CREDIT VALUE	(4,1,0) 4	**ECTS Credit Value**	6
PRE-REQUISITE(S)	FOR IENG MGMT201 FOR MANE MGMT102	**CO-REQUISITE(S)**	NONE
LECTURER	Oğuzhan KIRILMAZ	**SEMESTER / ACADEMIC YEAR**	FALL 2024-2025
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COURSE DESCRIPTION

The purpose of this course is to teach students the concepts of information technology and the importance of these concepts within the framework of management of organizations and the ability to exploit continuous innovations in order to stay competitive in business. Information Technology. Basic data information concepts. Appropriate theoretical concepts of decision making. Systems Analysis, Structured analysis methodologies. Information systems development methodologies. Database management. Decision support systems. Expert systems.

COURSE OBJECTIVES

The main objectives of this course are:

1. Information systems and design, alternative approaches to systems development (Prototyping, CASE, JAD, Rapid Application Development, Participatory Design) (Contributing Student Outcomes 4)
2. The sources of software and systems acquisition (outsourcing, off-the-shelf software) (Contributing Student Outcomes 4)
3. Managing the information systems project (initiation, planning, executing, closing down), representing and to schedule project plans (Gantt Chart, Network Diagram) (Contributing Student Outcomes 1, 6)
4. Systems planning and selection, assessing project feasibility (economic, operational, technical, schedule, legal and contractual), internet basics (internet, intranet, extranet, electronic data interchange) (Contributing Student Outcomes 2)
5. Systems requirements, traditional methods (interviewing and listening, observation, business documents), modern methods (JAD, prototyping) (Contributing Student Outcomes 2,3,4,5,6,7,)
6. Process modeling, data-flow diagramming (DFD) and analysis, logic modeling (Contributing Student Outcomes 2)

7. Conceptual data modeling, entity-relationship modeling (ERD), selecting and generating best alternative strategies (Contributing Student Outcomes 2)
8. Designing forms and reports, interfaces and dialogues (Contributing Student Outcomes 3)
9. Database design, normalization, transforming ERD into relations, physical file and database design, designing fields, designing physical tables (Contributing Student Outcomes 6)
10. Systems implementation and operation. Coding, testing, and installation (Contributing Student Outcomes 2)
11. Developing a database software package (MS Access) for the utilization of real- lif e information systems (Contributing Student Outcomes 1,2,5)
12. Working effectively in multidisciplinary teams, making independent research for real life cases, and writing and presenting a technical report on the results (Contributing Student Outcomes 1,2,3,5)

COURSE LEARNING OUTCOMES

On successful completion of this course, students are expected to develop **knowledge** and **understanding** of:
1. Fundamentals of Information Systems
2. How to perform system analysis with special emphasis on information systems
3. Designing Logical Models for the processes of information systems
4. Data Flow Diagrams (DFD)
5. Designing Entity Relationship Diagrams for databases

On successful completion of this course, students are expected to develop **their skills** in:
6. Performing systems analysis on any organization for the purpose of either business redesign or information system design
7. Design or redesigning of process rules
8. Logical design of an information flow within an organization
9. Logical design of a database for an Information System
10. Communication with software professionals who will be developing such systems
11. Both written and oral presentation of a team project study

On successful completion of this course, students are expected to develop their appreciation of and respect for **values and attitudes** regarding the issues of:
12. Role and importance of Information Systems within the manufacturing and service systems
13. Acting as an integral part in a team of professionals
14. Importance of systematic approach to problem solving in real life
15. Using suitable technologies to achieve the goals, and the importance of keeping up-to-date with advances in Information Technology
16. Importance of accuracy in estimating requirements of system users so that customers' information requirements are fully satisfied
17. Impact of computer technology in solving Industrial Engineering problems

CONTRIBUTION OF THE COURSE TO MEETING THE REQUIREMENTS OF CRITERION 5

Mathematics and Basic Sciences : 0
Engineering Topics : 4
General Education : 0

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES

Student Outcomes	Level of Contribution		
	Moderate	High	NO
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics		+	
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors		+	
3. an ability to communicate effectively with a range of audiences		+	
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	+		
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives		+	
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	+		
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies	+		

GRADING CRITERIA

Exams: All examinations will be based on lectures, tutorials, labs, assigned readings, project study or other work. To pass these exams students will need to have studied the material well in advance in order to understand the concepts, procedures and techniques. To discourage last minute cramming, the instructor and the assistants will <u>not</u> answer any questions from students on the day of an examination. Exam results will be announced online as soon as the exam papers have been evaluated. Descriptions of these examinations are as follows:

Quizzes: There will be <u>three quizzes</u> that will be announced in advance. A separate <u>lab quiz</u> will be scheduled based on the material/software provided at the lab sessions throughout the semester. Therefore, <u>no make-up</u> will be offered to the students.

Midterm Exam: There will be one midterm examination that covers all the material up to the date of the examination.

Final Exam: The final examination will cover all the material studied throughout the semester and has the same structure as in the midterm examination. It will also be used to determine letter grades. Like the midterm exam, the final exam will be scheduled for a day in the designated final exams week.

Make-up Exam: Make-up examination will only be offered (at the end of the semester) to students who missed the **final or midterm exam** and provided adequate documentations for the reason for their absence <u>within three working days</u> <u>at the latest after the examination date</u>. A student's illness will <u>only</u> be accepted as a valid excuse if it is supported by a written report of a medical doctor.

Re-sit Exam: Re-sit examination is considered as Final Exam and will include Final Exam topics. Re-sit examination will be offered to the students who fall into the following categories: students who have gained letter grades **D-** or **F** (but <u>not NG</u>), and the students who received an academic warning or who are on unsatisfactory or probational status.

Term Project: Students should form groups of **<u>4 students</u>** (exactly, otherwise you should submit a valid excuse in written form) who may be in different class groups, should submit a single project report. The topic for the project will be selected by the project group among the list of topics provided by the instructor. Unfortunately, a penalty for late submissions will be applied if the project report is not submitted on the due date.

Note: All the announcements will be made via teams and/or LMS. It is students' sole responsibility to check announcements on a regular basis.

RELATIONSHIP WITH OTHER COURSES

It is a synthesis course of all the previously taken departmental courses and also a preparation for the graduation project course (IENG492 Manufacturing and Service Systems Design).

LEARNING / TEACHING METHOD

Teaching will be based on enabling the students to understand the concepts and procedures in each topic section and to be able to apply them. To do this the course will be organized into two modules: Lectures and Tutorials/Laboratory sessions. Sometimes four hours of class in a week will be used for lectures according to the perceived need. On the other hand, sometimes 2 hours of class in a week will be organized for lectures, 1 or 2 hours for tutorials and/or laboratory sessions.

Lectures: In lectures, the instructor will attempt to summarize and explain only selected important concepts and points as clearly as possible. To be familiar with the material presented in lectures and participate in class discussions, students are expected to read the material covered in the previous lectures prior to the class meeting. Students will then find the lectures more interesting, and will benefit from the discussion if they come well prepared.

Tutorials: In addition to the regular lectures, there will be tutorial sessions conducted in the classroom by the assistants/Instructor, according to the perceived need. In these hours the assistants/Instructor will do extra example problems. Obviously, the best tutorials are those that meet the learning needs of students. The people who best understand your learning needs are <u>you</u>. Please contact the teachers regarding what you would like to see in the tutorials. Tutorial content will then be determined, and the tutorial date will be announced accordingly.

Laboratory Work: Throughout the semester, there will be several laboratory sessions, which will be conducted by the assistants, to do various computer exercises that require the use of MS Access available in the laboratory. Laboratory sessions will always be held in the Department's PC Labs and their dates announced in advance. If you have any problem in these sessions, please try to resolve your problem with the assistants first.

Office Hours: The students' timetables will be a base for determining appropriate time slots with zero clash (or minimum number of clashes) as much as possible. If students have difficulty in understanding any material after they have tried their best, they should consult their assistants and instructor during their office hours only. However, if you wish to meet the instructor outside of their office hours, please call him by phone or send an e-mail first to make an appointment.

ASSIGNMENTS

Besides the textbook material, there will be some reading assignments, which will support the lectures. For any type of examination, students are also responsible from studying all assigned readings, even if they might not be discussed in class.

METHOD OF ASSESSMENT

Although the student's overall grade will be based on the general assessment of the instructor, the following percentages may give an idea about the relative importance of various assessment tools.

Quizzes	15%
Midterm Examination	20%
Final Examination	25%
Term Project Final Report & Presentation	25%
Access Tutorial Grade (Lab Exam)	10%
Attendance & Participation (bonus)	5%
TOTAL	100%

Note that the instructor reserves the right to modify these percentages in case he finds it necessary. Letter grade equivalents of numerical performances will be announced by the Registrar's Office after the last day for the submission of letter grades.

NG (Nil-grade): Conditions that lead to NG (Nil-grade):
1. Not attending the **Final Exam** or its **Make-up Exam without a valid excuse**.
2. Not attending the **Mid-term Exam without a valid excuse**.
3. Not submitting the **Term Project**.
4. Not attending the **Project Presentation.**
5. Not attending any one of the **Lab Exams without a valid excuse**.

Objections: Any form of document concerning work that is to be used by the instructor as the basis of grading will be shown to the student upon request, **within a week following the announcement of the grade**. The objection to any grade must be made to the assistants within that period. If, after an exam has been graded, you think an error was made in grading or you have questions about the grading of the material, please examine the exam solutions first, and then write your questions or comments on a separate sheet of paper and turn this paper to the assistants.

ATTENDANCE AND NG GRADE

Attendance will be taken every Lecture/Tutorial/Lab session. Note that EMU regulations allow instructors to give a grade of **NG** (Nil Grade) to a student whose absenteeism is more than 30% of the Lecture/Tutorial/Lab hours and/or who do not complete sufficient work that are included in the assessment of the course.

TEXTBOOK/S

Students must have the following textbook:
- Valacich, Joseph, Joey George, and Jeff Hoffer, "Essentials of System Analysis and Design": Pearson Higher Education International Version, 6th Edition.

Lecture Notes: Students are expected to make their own notes. Lecture notes and/or overheads used in class will not be made available for copying. Material presented in class taken from other than

the textbook will be made available on the web page of the course (refer to http://www.ie.emu.edu.tr).

EXTENDED READING LIST

Note that aside from these books, EMU Library has quite a good collection of books on the intermediate and advanced levels in the related fields of industrial engineering discipline.

TOPICS COVERED and COURSE SCHEDULE

WEEK	TOPICS
1	Introduction
2	The Systems Development Environment (Chap. 1) The Source of Software. (Chap. 2)
3	Managing the Information Systems Project (Chap. 3)
4	Systems Planning and Selection (Chap.4)
5	Determining System Requirements; (Chap. 5)
6	Determining System Requirements; (Chap. 5)
7	Structuring System Requirements; (Chap. 6)
8-9	**Mid Term Exam Week**
10	Data Modeling; (Chap. 7)
11	Designing the Human Interface (Chap. 8)
12	Database Design; (Chap. 9)
13	System Implementation and Operation (Chap. 10)
14	**Term Project Presentations**
15-17	**Final Exam Week**

ACADEMIC HONESTY, PLAGIARISM & CHEATING

This is intentionally failing to give credit to sources used in writing regardless of whether they are published or unpublished. Plagiarism (which also includes any kind of cheating in exams) is a disciplinary offence and will be dealt with accordingly. According to university by laws cheating and plagiarism are serious offences punishable with disciplinary action ranging from simple failure from the exam or project/report, to more serious action (suspension from the university for up to one semester). Disciplinary action is written in student records and may appear in student transcripts. Any act not suitable for a university student will not be tolerated and may lead to formal disciplinary action. Example of this are: getting someone else to take the examinations for you, misrepresentation of your own answer sheet as another's work, cheating, knowingly assisting other students to cheat, abusing the tolerance or breaking the discipline of the class.

PLEASE KEEP THIS COURSE OUTLINE FOR FUTURE REFERENCE AS IT CONTAINS IMPORTANT INFORMATION!!!