

Zarqa University

Faculty of Engineering Technology

Department: Energy Engineering

Course title:

Engineering Economics and
Management



Prerequisite: Wind energy

Instructor: TBD

Lecture's time: TBD

Semester: TBD

Office Hours: TBD

Course description:

This course is designed to present engineering students the major concepts and techniques of engineering economic analysis that are needed in the decision-making process. The emphasis of this course is on the analytical analysis of money and its impact on decision making. It will emphasize the systematic evaluation of the costs and benefits associated with proposed technical projects. The student will be exposed to the concept of "time value of money " and the methods of discounted cash flow. Students are prepared to make decisions regarding money as capital within a technological or engineering environment. Engineering management relies on the knowledge of engineering economics to be able to evaluate projects from a financial perspective. Optimizing financial performance of a project is a key responsibility of the engineer in the decision-making process

Aims of the course:

1. The objectives of this course are to cover the concepts and techniques of engineering economy and project management. More specifically, the course consists of three main parts:
2. Part I: introduction to Engineering Economy.
3. Part II: Interest formulas and equivalence
4. Part III: Economic analysis of alternatives.
5. Part IV: Principles of project management

Intended Learning Outcomes (ILOs):

1. Formulate and solve time value of money problems.
2. Identify relevant and pertinent data and apply net present value and internal rate of return methods to solve economic problems.
3. Be able to evaluate multiple alternatives to determine the best alternative using several different methods.
4. Have the ability of using computerized spreadsheets for analyzing and evaluating a variety of financial problems.



Course structures:

Day	C. hrs	ILO	Topic(s)	Teaching Procedure *	Learning Activities **	Learning Platform
Sun 21/2/2 021	1	1	Chapter 1: Terminology & Cash flow diagrams	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 23/2/2 021	1	1	Chapter 1: Terminology & Cash flow diagrams	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 25/2/2 021	1	1	Chapter 1: Terminology & Cash flow diagrams	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 28/2/2 021	1	1	Chapter 2: Factors and their use	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 2/3/20 21	1	1	Chapter 2: Factors and their use	Interactive lectures, using PPT slides/class notes, digital pen	lecturing, discussion, problem solving.	Teams & Moodle
Thu 4/3/20 21	1	1	Chapter 2: Factors and their use	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 7/3/20 21	1	1	Chapter 3: Nominal and effective IR & continuous compounding	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 9/3/20 21	1	1, 2	Chapter 3: Nominal and effective IR & continuous compounding	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 11/3/2 021	1	1, 2	Chapter 3: Nominal and effective IR & continuous compounding	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 14/3/2 021	1	1, 2	Chapter 3: Nominal and effective IR & continuous compounding	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 16/3/2 021	1	1, 2	Chapter 4: Use of multiple factors	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 18/3/2 021	1	1, 2	Chapter 4: Use of multiple factors	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 21/3/2 021	1		Chapters 1 and 2 and 3		Quiz 1	Teams & Moodle



Day	C. hrs	ILO	Topic(s)	Teaching Procedure *	Learning Activities **	Learning Platform
Tue 23/3/2 021	1	1, 3	Chapter 5: Present worth and capitalized-cost evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 25/3/2 021	1	1, 3	Chapter 5: Present worth and capitalized-cost evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 28/3/2 021	1	1, 3	Chapter 5: Present worth and capitalized-cost evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 30/3/2 021	1	1, 4	Chapter 5: Present worth and capitalized-cost evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 1/4/20 21	1	1, 4	Chapter 6: Equivalent-uniform – annual-worth evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 4/4/20 21	1	1, 4	Chapter 6: Equivalent-uniform – annual-worth evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 6/4/20 21	1	1, 4	Chapter 6: Equivalent-uniform – annual-worth evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 8/4/20 21	1	1, 4	Chapter 6: Equivalent-uniform – annual-worth evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	Student presenting role	Teams & Moodle
Sun 11/4/2 021	1	1, 5	Chapter 6: Equivalent-uniform – annual-worth evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	Student presenting role	Teams & Moodle
Tue 13/4/2 021	1	1, 5	Chapter 7: Rate-of-return computation for single projects	Interactive lectures, using PPT slides/class notes, digital pen.	Student presenting role	Teams & Moodle
Thu 15/4/2 021	1	1, 5	Chapter 7: Rate-of-return computation for single projects	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 18/4/2 021	1	1, 5	Chapter 7: Rate-of-return computation for single projects	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 20/4/2 021	1	1, 5	Chapter 8. ROR computation for Multiple alternatives	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 22/4/2 021	1	1, 5	Chapter 8. ROR computation for Multiple alternatives	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle

Day	C. hrs	ILO	Topic(s)	Teaching Procedure *	Learning Activities **	Learning Platform
Sun 25/4/2 021	1	1, 5	Chapter 8. ROR computation for Multiple alternatives	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 27/4/2 021	1	1, 5	Chapter 8. ROR computation for Multiple alternatives	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 29/4/2 021	1	1, 5	Chapter 8. ROR computation for Multiple alternatives	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 2/5/20 21	1		Chapters 5 and 6		Quiz 2	Teams & Moodle
Tue 4/5/20 21	1	1,6	Chapter 9: Benefit cost ratio evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 6/5/20 21	1	1,6	Chapter 9: Benefit cost ratio evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 9/5/20 21	1	1,6	Chapter 9: Benefit cost ratio evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 11/5/2 021	1	1,6	Chapter 9: Benefit cost ratio evaluation	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 13/5/2 021			Eid Al Fitter (expected)			
Sun 16/5/2 021	1		Chapters 7 and 8		Quiz 3	Teams & Moodle
Tue 18/5/2 021	1	1,7	Chapter 10: Replacement analysis	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 20/5/2 021	1	1,7	Chapter 10: Replacement analysis	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Sun 23/5/2 021	1	1,7	Chapter 10: Replacement analysis	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 25/5/2 021			Independence anniversary			
Thu 27/5/2 021	1	1,7	Chapter 10: Replacement analysis	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle

Day	C. hrs	ILO	Topic(s)	Teaching Procedure *	Learning Activities **	Learning Platform
Sun 30/5/2021	1	1,7	Chapter 11: Depreciation and depletion models	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Tue 1/6/2021	1	1,7	Chapter 11: Depreciation and depletion models	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
Thu 3/6/2021	1		Review and discussion.	Interactive lectures, using PPT slides/class notes, digital pen.	lecturing, discussion, problem solving.	Teams & Moodle
TBD	1		Final Exam		Mark: 50%	Online Exam system
Total	46					

Textbook:

Textbook: Blank, L. and Tarquin, a., Basis of Engineering Economy, McGraw Hill International Editions

Equipment: Internet Connection, Laptops, and Webcams

Assessment Methods:

Method	Grade	Date	Platform	Assignment
Midterm Exam	%35	Fixed by the Department		
Participation, Presentation, Attendance...etc	%15	During Semester		
Final Exam	%50	Fixed by the Department		

