



**Department of Civil Engineering**

**College of Engineering**

**University of Salahaddin**

**Subject: Management & Engineering Economy**

**Course Book: 2<sup>nd</sup> Year Grade-Bologna Processes**

**Lecturer's name: Prof Dr. Khalil I. Wali, MSc, PhD, Construction Management**

**Academic Year: Spring Course- Academic 2021-2022**

## Course Book

1. Course name	Management & Engineering Economy
2. Lecturer in charge	Dr. Khalil I. Wali
3. Department/ College	Civil Eng. College of Engineering
4. Contact	e-mail: Khalil.wali@su.edu.krd Tel: 0662260198 Ext.164
5. Time (in hours) per week	Theory 3 hrs
6. Office hours	Availability of the lecturer to the student during the week
7. Course code	Spring Course
8. Teacher's academic profile	The teacher academic profile comprises more than 25 years' experience of teaching and practicing in the field of construction management particularly project management execution and contract management. Covering preparation of feasibility study for various project, preparation of bill of quantities and contract documents as well as tendering process which includes bid submission, bid evaluation, contract award. Also involving in training of various engineering staff in the field of public procurement management.
9. Keywords	Engineering Economy, Construction Management, Projects Management
10. Course overview:	<p>The success of engineering and business projects is more commonly measured in terms of financial efficiency. It is unlikely that a project will achieve maximum financial success unless it is properly planned and operated with respect to its technical, social, and financial requirements.</p> <p>Because engineers are most likely to understand the technical requirements of a project, they are very frequently called upon to make a study combining the technical and financial details, as well as social and aesthetic values of a project.</p> <p>Engineers play a unique and important role in the conception of new idea and projects that will require the expenditure of capital to reach the operational stage.</p> <p>Economy studies are concerned with making comparisons between a numbers of alternative ways of investing resources with a view to selecting the one which will give the optimal future return for the investment.</p> <p>One of the objectives of the majority of business must be to make profit.</p> <p><b>Engineering Economy:</b> Is a body of knowledge devoted to the systematic evaluation of net worth benefits resulting from proposed engineering and business projects in relation to the expenditures associated with those undertakings and objectives.</p> <p>Goods and services may be divided into two types, necessities and luxuries. Obviously, these terms are relative, because for most goods and services what one person may consider being a necessity may consider</p>

by another to be luxury. Economic status is an important factor in one's views regarding luxuries and necessities.

**s11. Course objective:**

**Objectives:**

The basic objective of this course is to provide the a sound understanding of concepts and principles of engineering economy and Construction management and to develop proficiency with methods for making rational decisions regarding problems likely to be encountered in professional practice of the civil engineer. Because the engineers are most likely required to understand the technical requirements of a project, as well as, there are a need to make a study combining the technical and financial feasibility studied to provide the analysis upon which the sound managerial decision making can be based.

**12. Student's obligation**

The obligations of the students throughout the academic year are to attend the class and to prepare themselves for quizzes, tests, exams, and submit reports when required, as well as to share all the activities requested by the lecturer.

**13. Forms of teaching**

The form of teaching based on power point and data show presentations which mainly focus on the textbook and handout prepared by the lecturer. Power points presentation will be used to illustrate the details of the subject, as well as providing the students with complete sets of printed lectures, and using the white board to explain the details of equations and solving the examples and problems.

In classroom and during the presentation there will be focus on sharing the students in the course of explanation by raising a direct question to single student or a group of students.

**14. Assessment scheme**

First periodical examination carried out at the end of January, the second periodical examination carried out on April and the final examination-first trial carried out at the beginning of July, while the second trial carried out on September. The students are required to exercise the classroom activities, quizzes at the end each subject, home works and submission of reports when required.

Marks:

Midterm Exam	30%
Quizzes& Classroom Activities	10%
Final Exam	60%
Total	100%

**15. Student learning outcome:**

The success of engineering and business projects is more commonly measured in terms of financial efficiency. It is unlikely that a project will achieve maximum financial success unless it is properly planned and operated with respect to its technical, social, and financial requirements.

Because engineers are most likely to understand the technical requirements of a project, they are very frequently called upon to make a study combining the technical and financial details, as well as social and aesthetic values of a project.

Engineers play a unique and important role in the conception of new idea and projects that will require the expenditure of capital to reach the operational stage.

Economy studies are concerned with making comparisons between a numbers of alternative ways of investing resources with a view to selecting the one which will give the optimal future return for the investment.

One of the objectives of the majority of business must be to make profit.

Engineers play an increasingly important role in management. More and more decision making in government and industry is done by engineers. Some of these decisions are based on the economic factors involved, and more often there are many others factors that must be weighed and sometimes these may prevail over purely economic considerations. When managers are not engineers, they increasingly call upon engineers to make technical- economic analyses and to base. In such situations, an engineer is essentially in the position of a consultant to management and must combine technical and economic knowledge to provide sound conclusions and recommendations.

The major construction works are time bound and employ huge resources of men, materials and machines. They involve heavy investments, of million to billions of dollars. They require a high level of technology, and need an effective management of resources. The project mission is accomplished within complex project environments, by putting human and non-human resources into a temporary organization headed by a PROJECT MANAGER.

## **16. Course Reading List and References:**

1 W. Sullivan, E. Wicks, J. Luxhoj, "Engineering Economy", 13<sup>th</sup> Ed.2006

2 S. Nunnally, "Construction Methods and Management", 7<sup>th</sup> Ed.2007

Further References:

3 E. DeGarmo, W. Sullivan, J. Canada "Engineering Economy", 7<sup>th</sup> Ed.1984

4 General Conditions of Contracts for Civil Engineering Works - Part I&II

5 FIDIC- International Forms of Contracts

<b>17. The Topics:</b>		
Month	Week No.	Description
February	Week 1	Part I: Engineering Economy General introduction and Background, objectives, references. The Economic Environment and Cost Concepts
	Week 2	Cost – Volume Relationships, Law of Supply and Demand, Example 1
	Week 3	Example 2, Example 3, Introduction to Selection in Present Economy
	Week 4	Total Cost in Material Selection, Example 1, 2 and 3. H.W1, Quiz1 Economy of location, Example 4, Alternative Machine Speed, Example 5.
March	Week 5	Materials with Limit Supply, Example 6, Proficiency, Example 7.
	Week 6	Economy Selection of Beams, Example 8, Production, Example 9.
	Week 7	Chapter4 Money-Time Relation, Example1, Simple and Compound
	Week 8	Interest. Example 1.H.W.2 and Quiz 2. Finding F when Given P, Finding P when Given F, Example 2. Finding F when Given A, Example 3, and 4.
April	Week 9	Finding A when Given F, Example 5, Finding A when Given P, Example 6.
	Week 10	Summary, H.W 3, and Quiz 3.
	Week 11	Deferred Annuities, Example 7.
	Week 12	Beginning of Period CF, Example 8, Middle of Period, Example 9&10. Example 11, Gradient F/G, A/G, Example 12, 13 and 14. Changing Interest Rates, Example 15, 16, H.W 4 and Quiz 4
May	Week 13	Organizational Structure of Firms, Methods of Project Implementation. Bidding and Contract Award, Bonds, Construction Contracts.
	Week 14	Construction Contracts: Contract Elements, Contract types
	Week 15	Contract Administration: General Conditions of Contracts Part I&II, H.W5, and Quiz 5. Submission of report on FIDIC, GCC.
	Week 16	Clauses of General Conditions of Contracts Claims and Disputes, Contract Agreement, Drawings and Specification Planning and Scheduling Bar Graph Method, The Normal Progress Curve.

**18. Practical Topics (If there is any)**

Not applicable

**19. Examinations:**

**1. Compositional:**

In accordance with the type of exam and the type of course materials may the exam questions include asking the questions in the way relevant to each topic and that may start with why, how, what, calculate, explain, determine and so on. Also, may cover true and false type of exams of multiple choices whenever required.

**2. True or false type of exams:**

It is applicable particularly in the second semester which includes huge information end explanation.

**3. Multiple choices:**

Not applicable in engineering economy problems solving.

**20. Extra notes:**

I suggest to undertake public perception to the students to study their views regarding the benefit of course book.

**21. Peer review**

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.

*(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*