

# Engineering Economics Fall 1398

Department of Industrial Engineering  
Amirkabir University of Technology

**Instructor:** Akbar Esfahanipour ([esfahaa@aut.ac.ir](mailto:esfahaa@aut.ac.ir))

## Learning Objectives

- ) To learn fundamentals of Engineering Economics and basic analysis methods.
- ) To learn After-tax and Inflation-based economic analysis.
- ) To learn sensitivity analysis and economic analysis under risk.
- ) To learn a spreadsheet tool (Excel) for doing economic analysis.

## Contents

- ) Details are shown in the next page table along with the course schedule.
- ) Contents are available through AUT Learning Management System (LMS) at [lms.aut.ac.ir](http://lms.aut.ac.ir)

## References

- ) Main reference: Blank, L. and Tarquin, A. Engineering Economy, 8<sup>th</sup> edition, McGraw-Hill, 2018.
- ) Another useful reference: Newman, D.G., Echenbach, T.G. and Lavelle, J.P. Engineering Economics Analysis 13<sup>th</sup> edition, Oxford University Press, 2017.
- ) Persian Reference: Oskounejad, M.M. Engineering Economics, Economic Evaluation of Industrial Projects, 2<sup>nd</sup> edition, Amirkabir University of Technology Publication, 1398.

## Times & Places

- ) Class Time: Saturday and Monday every week at 16:00 – 17:30.
- ) Class Place: Room 403 (4<sup>th</sup> floor). This may change depending on the number of enrolments.
- ) Advice-giving: Sunday at 11:00-12:00 every week in Room 415 (4<sup>th</sup> floor).

## Grading Policy

- ) Midterm exam: 30 percent
- ) Final exam: 40 percent
  - o Exams are close book.
  - o Midterm materials cannot be excluded from the Final, however the focus in the Final would be the second half of the course.
  - o Students don't require to remember the formulas; therefore, it is possible for students to have one A4 (two sided) cheat sheet including course formulas for the exams.
- ) Assignments and Quizzes: 20 percent
  - o At least four quizzes
  - o Excel Assignments that have to be sent only through LMS.
- ) Class Activity: 10 percent
  - o Active presence in the class
  - o Participation in class discussions

Please note that the above numbers are subject to little changes in favor of the class.

## Class Regulations

- ) Mobile phones must be turned off during the classes.
- ) Students must be present in the class before the instructor.
- ) Plagiarism is strictly prohibited either for the assignments or for the exams. Same penalty would be applied to the both parties.

## Time schedule (Tentatively) for Engineering Economics Fall 1398

Week	Day	Date	Content
First	Saturday	Shahrivar 30	Course Introduction
	Monday	Mehr 1	<b>First Learning Stage: The Fundamentals</b> Fundamentals of Engineering Economics
2	Saturday	Mehr 6	Fundamentals of Engineering Economics cont.
	Monday	Mehr 8	Factors: How Time & Interest Affect Money
3	Saturday	Mehr 13	Factors: How Time & Interest Affect Money cont.
	Monday	Mehr 15	Combining Factors and Spreadsheet Functions
4	Saturday	Mehr 20	Nominal and Effective Interest Rates
	Monday	Mehr 22	Nominal and Effective Interest Rates
5	Saturday	Mehr 27	Holiday – Arbæen
	Monday	Mehr 29	<b>Second Learning Stage: Basic Analysis Tools</b> Present Worth Analysis
6	Saturday	Aban 4	Present Worth Analysis cont.
	Monday	Aban 6	Annual Worth Analysis
7	Saturday	Aban 11	Annual Worth Analysis cont.
	Monday	Aban 13	Rate of Return Analysis: One Project
8	Saturday	Aban 18	Rate of Return Analysis: One Project cont.
	Monday	Aban 20	Rate of Return Analysis: Multiple Alternatives
9	Saturday	Aban 25	Benefit/Cost Analysis and Public Sector Economics
	Monday	Aban 27	Benefit/Cost Analysis and Public Sector Economics cont.
10	Saturday	Azar 2	Mid-term Exam
	Monday	Azar 4	<b>Third Learning Stage: Making Better Decisions</b> Replacement and Retention Decisions
11	Saturday	Azar 9	Replacement and Retention Decisions cont.
	Monday	Azar 11	Breakeven and Payback Analysis
12	Saturday	Azar 16	Breakeven and Payback Analysis cont.
	Monday	Azar 18	<b>Fourth Learning Stage: Rounding Out the Study</b> Effects of Inflation
13	Saturday	Azar 23	Effects of Inflation cont.
	Monday	Azar 25	Depreciation Methods
14	Saturday	Azar 30	Depreciation Methods cont.
	Monday	Dey 2	After-tax Economic Analysis
15	Saturday	Dey 7	After-tax Economic Analysis cont.
	Monday	Dey 9	Sensitivity Analysis and Decision Making under Risk
Last	Saturday	Dey 14	Sensitivity Analysis and Decision Making under Risk cont.
	Monday	Dey 16	Rounding up the course
Saturday		Dey 21	Final Exam: 13 – 15