



Arab Academy for Science, Technology & Maritime Transport
College of Engineering & Technology
Department of Basic and Applied Science

University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc. Mechanical Engineering

Form No. (12)
Course Specification

1- Course Data

Course Code: NE364	Course Title: Engineering Economy	Academic Year/Level: 5th year / 9th semester
Specialization:	No. of Instructional Units	Lecture
	3 Credits	2 Hrs.
		Practical
		2 Hrs.

2- Course Aim

Applying breakeven analysis concepts in analyzing profits and losses and comparing different alternatives.
Complete computations and manipulations using the basic engineering economic equations.
Use engineering economy to compare alternatives by the present worth methods, the annual cost method, the benefit and cost ratio method, and the rate of return method.
Understand and apply the role of income tax and depreciation in making engineering economic decisions

3- Intended Learning Outcome (ILO's)

a- Knowledge and Understanding	<p>K7) Business and management principles relevant to engineering.</p> <ul style="list-style-type: none"> - : Define different types of cost elements - Identify the cost and revenue concepts - Identify the concept of breakeven analysis - Define cash flow and its representation on time scale - Identify the relation between time and the value of money - Identify the interest formulas for uniform series payments - Identify the interest formulas for uniform series payments - Define effective interest rates - Define methods for investment assessment - Define methods to compare between mutually exclusive alternatives - Identify incremental approach for comparing alternatives - Define methods to compare alternatives with unequal life times - Define methods to calculate assets depreciation charge and book values
b- Intellectual Skills	<p>I8) Select and appraise appropriate ICT tools to a variety of engineering problems.</p> <ul style="list-style-type: none"> - Classify cost elements into fixed or variable costs - Analyze results to investigate profitability of projects - : Analyze results to select alternatives - Analyze results to select alternatives - Analyze results to select alternatives

<p>c- Professional Skills</p>	<p>P7) Apply numerical modeling methods to engineering problems.</p> <ul style="list-style-type: none"> - Apply breakeven analysis to investigate company's profit or losses - Apply breakeven analysis to investigate different alternatives - Apply interest formulas to case study problems - Apply interest formulas to case study problems - : Apply nominal and effective interest rates to case study problems - Apply methods for assessment of investments - Apply methods to case study problems - Apply methods to case study problems
<p>d- General Skills</p>	<p>G1) Collaborate effectively within multidisciplinary team.</p> <ul style="list-style-type: none"> - Collaborate to design a candidate project, define its cost elements and discuss its feasibility from the economic point a view

4- Course Content

Lecture		
Wk	Hrs	
1	2	Introduction & overview
2	2	Cost concepts and the economic environment decision making
3	2	Cost and Breakeven analysis
4	2	Principles of money-time relations, concept of equivalence
5	2	Cash flow diagrams: interest formulas and uniform series
6	2	Cash flow diagrams: uniform gradient and geometric sequence
7	2	7 th week evaluation
8	2	Nominal and effective interest rates, continuous compounding
9	2	Applications of engineering economy: methods of investment assessment
10	2	Comparing alternatives: equal useful life times
11	2	Comparing alternatives: incremental approach
12	2	12 th week evaluation
13	2	Comparing alternatives: unequal useful life times
14	2	Depreciation
15	2	Revision
16	2	Final Exam

5- Teaching and Learning Methods

<ol style="list-style-type: none"> 1. Lectures 2. Tutorials 3. Individual and group coursework 4. Project group technical reports Individual and group projects

6-Teaching and Learning Methods for Students with Special Needs

<ol style="list-style-type: none"> 1. Consulting with lecturer during office hours 2. Consulting with teaching assistant during office hours

7- Student Assessment

a- Procedures used:	<ol style="list-style-type: none"> 1. Written examinations to assess the Intended learning outcomes. 2. Continuous assessment (reports, discussions, etc.....) to assess the Intellectual skills.
b- Schedule:	Assessment 1: 7 th Week Written Exam Assessment 2: 12 th Week Written Exam Assessment 3: Continuous Assessments Assessment 4: 16 th Week Final Written Exam
c- Weighing of Assessment:	7 th Week Examination : 30 % 12 th Week Examination: 20 % Final-term Examination: 40 % Oral Examination : 0 % Semester Work : 10 % Total : 100%

8- List of References:

a- Course Notes	
b- Required Books (Textbooks)	E.L. Grant, W.G. Ireson, and R.S. Leavenworth, "Principles of Engineering Economy", John Wiley and Sons, latest edition. Chan S. Park, "Contemporary Engineering Economics", Addison Wesley, latest edition.
c- Recommended Books	
d- Periodicals, Web Sites, ..., etc.	

Course coordinator:

Program Manager: