Course Specifications

University: Benha University                      Faculty: High Institute of Technology

Course specifications
Programme(s) on which the course is given       B.Sc. in Mechanical Engineering
Major or minor element of programmes            N.A.
Department offering the programme               All Engineering Departments
Department offering the course                  Mechanical Engineering Technology
Academic year / Level                            5th, second semester
Date of specification approval

A- Basic Information
Title: Engineering Economy                      Code: M561
Credit Hours: 2                                   Lecture: 2
Tutorial: 2                                       Practical: 0        Total: 4

B- Professional Information
1 - Overall aims of course
By the end of the course the students will be able to:

- Complete computations and manipulations using the basic engineering economic equations.
- Use engineering economy to compare alternatives using the present worth methods, the annual cost method, the benefit and cost ratio method, and the rate of return method.
- Understand type of cost and break-even analysis.
- Understand and apply the role of income tax and depreciation in making engineering economic decisions.
- Understand and apply the role of replacement.
- Understand the role of inflation rate.

2- Intended learning outcomes of course (ILOs)
a. Knowledge and understanding:
By the end of the course the students will be able to:
   a.1 - Provide a knowledge and understanding of the type of cost.
   a.2 - Provide a knowledge and understanding of the time value of money.
   a.3 - Master tools and methods with which to perform economic analyses of engineering projects.
   a.4 - Master asset management techniques.
   a.5 - Learn and use basic concepts for dealing with risk and uncertainty in project outcomes.
   a.6 - Learn and use basic concepts for dealing with replacement problem.

b. Intellectual skills
   b.1 - Analyze the public sector projects economically.
   b.2 - Evaluate different projects with inflation considered.
   b.3 - Evaluate engineering projects after taxes.

c- Professional and practical skills
   c.1 - Apply engineering economic principles and methods to evaluate alternatives and select the most economically efficient one.
   c.2 - Develop a thorough understanding of the cost accounting principles.

d- General and transferable skills
   d.1 - Present a cash flow diagrams and break even charts.
   d.2 - Practice working in a team with case study to analysis project cost.

3- Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Total No. of Hours</th>
<th>Lecture</th>
<th>Tutorial Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to engineering economics study.</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Costs and break-even-analysis.</td>
<td>6</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Computing cash flows and Money – time value.</td>
<td>4</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Basic concepts and cash flow diagrams.</td>
<td>6</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Simple interest rates calculation.</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Compounded interest rates calculation.</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Present worth techniques and it is application.</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Annual cash flow techniques and it is application.</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rate of return techniques and it is application.</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Benefit /cost techniques and it is application. | 4 | 2 | 2
Techniques calculating Deprecation | 4 | 2 | 2
Basics of income taxes and after tax economic analysis. | 5 | 3 | 2
Inflation and factors calculations. | 4 | 2 | 2
Replacement analysis. | 4 | 2 | 2
Total | 60 | 30 | 30

4– Teaching and learning methods

4.1- Class Lectures
4.2-Internet Search
4.3-Practical Case Study

5- Student assessment methods

5.1- Written exams (mid-term &final) to assess understanding scientific knowledge.
5.2- Case study to assess ability to gather data and apply the engineering economy principles to analysis data.

Assessment schedule

Assessment 1...................... Week 2..............
Assessment 2 ................. week 4..............
Mid-Term Exam ............... Week 6 ..........
Quiz ......................... Week 8..............
Case study...................... Week 10..........\nAssessment 4..................... Week 12..........\nFinal Exam..................... Week 15..........\n
Weighting of assessments

Mid-term examination 10%
Final-term examination 60%
Semester work 15%
Other types of assessment 10%
Case study 5%
Total 100%

6- List of references

6.1- Course notes

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6.2- Essential books (text books)

6.3- Recommended books

6.4- Periodicals, Web sites, … etc
http://business.baylor.edu/Karen_Johnson

7- Facilities required for teaching and learning
- Appropriate teaching class accommodations including presentation board and data show.

Course coordinator: Sohier Mohamed Hussien
Head of Department:
Date: //