



## Course Descriptor [ENGR404-Engineering Economics]

<b>Proposed Academic Year</b>	2019-2020	<b>Last Reviewed Academic Year</b>	2020-2021
<b>Course Code</b>	ENGR404	<b>Course Title</b>	Engineering Economics
<b>Credit hours</b>	3	<b>Level of study</b>	Undergraduate
<b>College / Centre</b>	College of Engineering	<b>Department</b>	Civil & Environmental Engineering
<b>Co-requisites</b>		<b>Pre-requisites</b>	

### 1. COURSE OUTLINE

[Basics of cost analysis and accounting. Application of engineering economics to decision making. Analysis of engineering alternatives based on use of interest computations, valuations, depreciation, and cost estimates]

### 2. AIMS

[The objective of this course is to introduce the basic concepts of engineering economy and to demonstrate the importance of financial management and engineering decisions in financial project analysis. This includes an overview of financial accounting, time-value of money, risk in financial decisions, and book and tax depreciation]

### 3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

<b>Learning Outcomes (Definitive)</b>	<b>Teaching and Learning methods (Indicative)</b>	<b>Assessment (Indicative)</b>
Upon successful completion of this course, students will be able to:		
1. Apply the basic concepts of engineering economics to a decision making process	Lectures, Tutorials; Group work and seminars; etc	Quiz, Written Examination
2. Derive and use the different engineering economy factors	Lectures, Tutorials; Group work and seminars; etc	Quiz; Written Examination
3. Evaluate investment opportunities and compare between alternatives using single and combined economic factors	Lectures, Tutorials; Group work and seminars; etc	Assignment, Written Examination
4. Perform a replacement study considering inflation and indirect cost allocation	Lectures, Tutorials; Group work and seminars; etc	Written Examination
5. Use depreciation and depletion models; perform breakeven analysis and sensitivity	Lectures, Tutorials; Group work and seminars; etc	Written Examination



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analysis.		
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### 4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Quiz	20
Mid-term Examination	20
Participation and assignments	20
Final Examination	40
<b>TOTAL</b>	<b>100%</b>

### 5. ACHIEVING A PASS

Students will achieve 3 credit hours for this course by passing ALL of the course assessments and achieving a minimum overall score of 50%

NB \*Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)	
LECTURE TOPIC	TIME (HOURS)
Syllabus presentation	1.5
Basic concepts of engineering economics	1.5
Simple and compound interest	1.5
Minimum Attractive rate of Return	1.5
Excel exercises	1.5
Engineering economics abbreviations and terminologies	1.5
Single payment factors	1.5
Excel exercises	1.5
Uniform series factors	1.5
Excel exercises	1.5
Arithmetic and geometric gradient factors	1.5
Hand and Excel exercises	1.5
Combining economic factors	1.5
Hand and excel exercises	1.5
Economic decision making using economic factors	1.5
Hand and excel exercises	1.5
Nominal and effective interest rate	1.5
Hand and excel exercises	1.5



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Deferent forms of payment and compounding periods	1.5
Hand and excel exercises	1.5
Economic indicators and proposal evaluation	1.5
Hand and excel exercises	1.5
Inflation and indirect cost	1.5
Hand and excel exercises	1.5
Breakeven analysis	1.5
Hand and excel exercises	1.5
Sensitivity analysis	1.5
Hand and excel exercises	1.5
Global revision	3
<b>TOTAL HOURS</b>	<b>45</b>
<b>Plus RECOMMENDED INDEPENDENT STUDY HOURS</b>	<b>90</b>
<b>TOTAL COURSE HOURS</b>	<b>135</b>

### 7. RECOMMENDED READING

#### Core text/s:

Leland T Blank & Anthony Tarquin (2017) Engineering Economy (8th edition), McGraw-Hill Education

#### Library + online resources:

MIT-esd-70j-fall-2009 - MIT OpenCourseware

<https://ocw.mit.edu/courses/engineering-systems-division/esd-70j-engineering-economy-module-fall-2009/>