**EngM 310 SYLLABUS**

COURSE NAME: Engineering Economy- EngM 310
DETAILS: 3 hour lectures
TERM: Winter

COURSE DESCRIPTION

\*3 (fi 8) (either term or Spring/Summer, 3-0-0) The application of the fundamentals of economics to

engineering alternatives in planning, developing and managing industrial projects. Note: Credit cannot be

obtained for more than one of ENGG 310, 401, ENG M 310 or 401.

REQUIRED MATERIAL

**Mandatory**

The textbook [Park et al. (2012)] contains course readings and the text of questions that are modified for

assignment problems. Assignment solutions, as well as various online learning tools, will be posted on the

course E-Class page. Lecture slides and other handouts, including class notes and sample exam questions,

will be given in class and/or on the course E-Class page.

Students are responsible for learning all the material covered in the course, including the textbook, lecture

slides, class notes, online learning tools, “before-and-after lecture questions” solutions, as well as

assignment solutions. Everything taught in the course may be tested.

**Recommended**

Park, C.S., Zuo, M.J., Pelot, R. (2012), Contemporary Engineering Economics, A Canadian Perspective,

Pearson Canada, Toronto, 3rd Canadian Edition.

LECTURE CONTENT

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| --- | --- | --- | --- |
| **Lecture Number** | **Lecture Topic** | **Textbook Section** | **Textbook Chapter** |
| 0 | 1. Course Overview.
 | [Plan] | [Plan] |
| 1 | 1. Introduction to Engineering Economy.
 | 1 | 1 |
| 2 | 1. Financial Statements.
 | 2.1-2.2 | 2 |
| 3 | 1. Ratio Analysis.
 | 2.3 |
| 4 | 1. Time Value of Money.
 | 3.1 | 3 |
| 5 | * Economic Equivalence.
 | 3.2 |
| 6 | * Interest Formulae.
 | 3.3 |
| 7 | * Equivalence Calculations.
 | 3.4 |
| 8 | * Nominal and Effective Interest Rates.
 | 4.1 | 4 |
| 9 | * Effective Interest Rate Applications.
 | 4.2-4.4 |
| 10 | * Loans.
 | 4.5.1-4.5.2 |
| 11 | * Mortgages.
 | 4.5.3 |
| 12 | * Bonds.
 | 4.6 |
| 13 | * Project Screening.
 | 5.1-5.2 | 5 |
| 14 | * Present Worth Analysis.
 | 5.3-5.4 |
| 15 | * Annual Equivalent Worth Analysis.
 | 5.5 |
| 16 | * Rate of Return Analysis.
 | 5.6 |
| 17 | * Rate of Return Applications.
 | 5.7 |
| 18 | * Rate of Return Additional Topics.
 | 5A |
| 19 | * Mutually-Exclusive Project Analysis.
 | 6.1-6.2 | 6 |
| 20 | * Incremental Analysis.
 | 6.3 |
| 21 | * Analysis Period.
 | 6.4 |
| 22 | * Decision Examples: Make or Buy.
 | 6.5 |
| 23 | * Decision Examples: Life Cycle Cost.
 | 6.6 |
| 24 | * Cost Fundamentals and Examples.
 | 7.1-7.3 | 7 |
| 25 | * Cost-Volume-Profit.
 | 7.4 |
| 26 | * Depreciation Fundamentals.
 | 8.1-8.2 | 8 |
| 27 | * Book Depreciation.
 | 8.3 |
| 28 | * Tax Depreciation.
 | 8.4 |
| 29 | * Corporate Income Tax Fundamentals.
 | 9.1-9.4 | 9 |
| 30 | * Disposal Tax Effects.
 | 9.5 |
| 31 | * Project Cash Flows Fundamentals.
 | 10.1-10.3 | 10 |
| 32 | * After-Tax Cash Flows Applications [1].
 | 10.3.1-10.3.3 |
| 33 | * After-Tax Cash Flows Applications [2].
 | 10.3.4-10.3.6 |
| 34 | * Sensitivity Analysis.
 | 15.2 | 15 |
| 35 | * Replacement Analysis [1].
 | 11.1-11.2 | 11 |
| 36 | * Replacement Analysis [2].
 | 11.3-11.4 |
| 37 | * Course Summary and Final Exam Preparation.
 | [All Covered] | [All Covered] |