Engineering Economics

Module Information

2022.01, Approved

Summary Information

Module Code	5501ICBTEG
Formal Module Title	Engineering Economics
Owning School	Engineering
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	45
Off Site	4
Tutorial	15

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

JAN-PAR	PAR	January	12 Weeks
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module introduces and develops a comprehensive understanding of the principles of economic evaluation of decision alternatives in engineering applications.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Recognise the economic impact of engineering solutions and the application of the basic concepts and terminology used in engineering economics including single payment, uniform series, arithmetic gradient, and nominal and effective interest rates.
MLO2	2	Evaluate alternatives based on basic analysis tools: Present Worth Analysis, Future Worth Analysis, Annual Worth Analysis, Rate of Return Analysis, Benefit/Cost Analysis, breakeven analysis for a single project and between two alternatives
MLO3	3	Perform before and after tax analysis.
MLO4	4	Understand the ways to calculate depreciations and the impact of inflation.

Module Content

Outline Syllabus	Foundations of Engineering Economy (The Role of Engineering Economy in the Decision Making Process, Cash Flows, Interest Rates, Minimum Attractive Rate of Return).Economic Equivalence (Single-Amount Factors, Uniform Series Present Worth Factor and Capital Recovery Factor, Sinking Fund Factor and Uniform Series Compound Amount Factor, Arithmetic Gradient Factors and Geometric Gradient Series Factors, Combining Factors, Nominal and Effective Interest Rates, Nominal and Effective Interest Rates Conversion, Relationships Between Payment Period and Compounding Period).Basic Analysis Tools (Present Worth Analysis, Future Worth Analysis, Annual Worth Analysis, Rate of Return Analysis, Benefit/Cost Analysis).Breakeven and Payback Analysis (Breakeven Analysis, Payback Analysis).Effects of Inflation (Understanding the Impact of Inflation, Present Worth Calculations Adjusted for Inflation, Future Worth Calculations Adjusted for Inflation).Depreciation and Taxation (Methods of depreciation, Income Taxes, After-Tax Economic Analysis).Risk and Uncertainty (Interpretation of Certainty, Risk and Uncertainty, Decision Making Under Risk, Decision Making Under Uncertainty).
Module Overview	
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Artefacts	Practical Assignment	30	0	MLO4
Exam	Exam	70	2	MLO1, MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Karl Jones	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings