Course Title:	**Economics and Finance for Engineers**
Course Code:	**ENGE814**
Descriptor Start Date:	**03/03/2025**
POINTS:	**15.00**
LEVEL:	**8**
PREREQUISITE/S:	**None**
COREQUISITE/S:	**None**
RESTRICTION/S:	**None**

LEARNING HOURS

Hours may include lectures, tutorials, online forums, laboratories. Refer to your timetable and course information in Canvas for detailed information.

Total learning hours: 150

PRESCRIPTOR

Develops advanced understanding of economics and financial management in the engineering sector. Provides advanced overview of the strategic procurement and decision making processes necessary to enable sound assessment of the economic and financial rationale for engineering design decisions.

LEARNING OUTCOMES

1. Critically analyse and evaluate the macro and microeconomic factors impacting the engineering industry.
2. Utilise specialised economic evaluation techniques to determine and evaluate project feasibility.
3. Interpret and critically appraise the main financial statements.
4. Apply project finance concepts to infrastructure projects.
5. Apply Earned Value Analysis techniques to effectively assess project management performance and progress.
6. Evaluate the construction, operation, financial and political risks of infrastructure projects.

CONTENT

• How macroeconomic trends drive innovation and affect engineering processes and practices.
• Factors influencing client decision-making (microeconomics) in engineering services and product adoption.
• Cost-Benefit Analysis (CBA): Principles, steps, and application in project evaluation.
• Understanding financial models and their role in assessing risk (e.g., NPV, IRR).
• Trends in financing and public-private partnerships affecting economic evaluations.
• Balance Sheet: Structure, components (assets, liabilities, and equity), and analysis of financial position at a specific point in time.
• Income Statement: Understanding revenues, expenses, net income/loss, and how performance is assessed over a period.
• Cash Flow Statement: Analysis of cash inflows and outflows, understanding operating, investing, and financing activities.
• Overview of Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS).
• Vertical and Horizontal Analysis: Techniques to assess financial performance and position over time and in relation to total figures.
• Ratio Analysis: Key financial ratios, including profitability, liquidity, solvency, and efficiency ratios, and their implications for business health.
• Trend Analysis: Understanding patterns in financial data over multiple periods.
• Special Purpose Vehicles (SPVs): Understanding their role in isolating project risk and managing financing.
• Debt vs. Equity Financing: Exploring the balance and structure of capital in project finance.
• Non-Recourse Financing: Definition and implications for lenders and sponsors.
• Building a financial model: key components and assumptions specific to infrastructure projects.
• Earned Value Management (EVM) and its significance in project management.
• Importance of risk evaluation and mitigation strategies in infrastructure projects.

LEARNING & TEACHING STRATEGIES

Lectures, Workshops and Seminars based on block course teaching. Extensive use of case studies and case study analysis. Extensive employment of practicing project managers from various engineering companies as visiting lecturers to contextualise teaching. All presentations and learning supported with web-based readings and other materials.

ASSESSMENT PLAN

Assessment Event	Weighting %	Learning Outcomes
Assignment 1: Project Financing and Economic Evaluation	40.00	1,2,3
Assignment 2: Investment AppraisalTechniques and Cash Flow Analyses	60.00	2,4,5,6

Grade Map **MAP1**

A+ A A- Pass with Distinction
B+ B B- Pass with Merit
C+ C C- Pass
D Fail

Disclaimer: Course descriptors may be amended between teaching periods/semesters

Overall requirement/s to pass the course:

To pass a course, students must attempt all assignments, and achieve a minimum overall grade of C-

LEARNING RESOURCES

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For further information, contact: Te Ara Auaha - Faculty of Design & Creative Technologies

Principal Programme:	**AK1317, Master of Engineering Project Management**
Related Programme/s:	**ICE1** **INEXCH1** **SABRD1**

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