

## MODULE DESCRIPTOR 2019/20

# EF929 Financial Engineering



<b>Registrar:</b> Andrew Ward	<b>Taught To (Programme):</b> MSc Students (Sustainable Engineering) and 5 <sup>th</sup> Year MEng students from across department in the Faculty; PhD students opting for the course as an elective	
<b>Other Lecturers Involved:</b> None	<b>Credit Weighting:</b> 10	<b>Semester:</b> 2
<b>Assumed Pre-requisites:</b> None	<b>optional/ elective class</b>	<b>Academic Level:</b> 5

### Class Format and Delivery (hours):

Lecture	Tutorial	Laboratory	Coursework	Project	Private Study	Total
10	10		50		30	100

### Class Aim(s)

This class explores the role finance plays in business solvency and sustainability. It will give participants an appreciation of the core issues surrounding finance in business and how to analyse financial data to support decision making. The module aims to:

1. Explain the need for and role of finance in business
2. Describes the financial tools that are used for making decisions
3. Explore different strategies for raising finance and investing

The material will be delivered through a series of online lectures and tutorials (classroom based), supported by background reading available on myPlace.

### Learning Outcomes

On completion of the course the student is expected to be able to:

- LO1 Identify and analyse issues arising from the financial accounts and reports of companies
- LO2 Identify sources and methods of raising project finance and implications of these for business and financial risk
- LO3 Analyse the principles underlying operation of financial/capital markets
- LO4 Be able to apply knowledge required to make investment decisions

## Syllabus

### The need and role of finance in business

**Week 1:** Money and the role of finance within an organisation

About the course – course structure – expectations

What is money – finance and reporting – wealth creation – understanding risk and return – corporate governance

**Week 2:** Structure of a business and corporate governance

Limited liability! – equity – assets – liabilities – accounting conventions and principals – standards and legal obligations

**Week 3:** Financial reporting tools: the three statements

Statement of financial position (balance sheet) – statement of income (P&L) – statement of cash flow

**Week 4:** An overview of funding mechanisms

Difference between equity and loans – Funding mechanisms: Bonds, stock and derivatives

**Week 5:** The stock market: how it works

Principles of the stock market – Stakeholders – Tracking stocks – Stock market games

### Tools for Financial Decision Making and Appraisal

**Week 6:** Tools to measure and contrast performance between companies

The problem of comparison – Introduction to financial ratios to measure: profitability, efficiency, liquidity, financial gearing, investment.

**Week 7:** Asset valuation and tools to make investment decisions

The need for a systematic approach to investment – Investment appraisal techniques (e.g. DCF/NPV/IRR/ARR/PP)

### Raising Finance and Investing

**Week 8:** Finance in large businesses and capital project financing

Sources of finance – Capital project financing – Public-Private Partnerships

**Week 9:** Raising Finance in SMEs and Start ups

High risk, high reward – venture capitals – crowd funding

**Week 10:** Investment Decision Making

Portfolio management – financial derivatives

## Assessment Criteria

For each of the Course Learning Outcomes the following criteria will be used to make judgements on student learning:

### **LO1 Identify and analyse issues arising from the financial accounts and reports of companies**

C1 Use data from corporate accounts to assess financial performance and present reasons for success/failure of organisations

C2 Compare financial information across similar organisations using recognised financial tools and equations in order to assess performance

### **LO2 Identify sources and methods of raising project finance and implications of these for business and financial risk**

C1 Show knowledge of the different sources of finance available to businesses

C2 Demonstrate knowledge of the advantages and disadvantages of different financing routes

### **LO3 Analyse the principles underlying operation of financial/capital markets**

C1 Show knowledge of how financial and capital markets exist

C2 Describe the principles of the stock market

### **LO4 Be able to apply knowledge required to make investment decisions**

C1 Apply asset valuation tools used to make investment decisions

C2 Demonstrate understanding of the relationship between risk and return

The standards set for each criterion per Learning Outcome to achieve a pass grade are indicated on the assessment sheet for all assessments.

**Principles of Assessment and Feedback** (<https://www.strath.ac.uk/staff/policies/academic/>)

Assessment will be 50% coursework, with written feedback provided through an assessment feedback sheet. The remaining 50% of assessment will be by multiple choice exam at the end of the module, where a summative mark will be provided.

**Recommended Reading**

Atrill, P., McLaney, E.J., (2019) Accounting and finance for non-specialists, Eleventh edition. ed. Pearson, Harlow, England; New York.

Duhon, T.L., (2012). How the trading floor really works. Wiley, Hoboken, N.J.

Beder, T.S., Marshall, C.M. (Eds.), (2011). Financial engineering: the evolution of a profession, The Robert W. Kolb series in finance. Wiley, Hoboken, NJ.

John D. Finnerty, (2007). Project financing: asset-based financial engineering, 2nd ed.. ed, Wiley finance series. John Wiley & Sons, Hoboken, N.J.

Solomon, J. (2007), Corporate Governance and Accountability. West Sussex: John Wiley & Sons Ltd.

**PLEASE NOTE:**

**Students need to gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. This re-examination will consist entirely of exam.**

**Resit Arrangements**

Resit will be by exam in the August exam diet.

**Approved**

Programme Director Signature:

Date of Last Modifications:

