

The Hong Kong University of Science and Technology

UG Course Syllabus Template

[Course Title] Business for Electronic Engineers

[Course Code] ELEC4720

[No. of Credits] 3

[Pre-requisites] MATH 2350 OR MATH 2351 OR ELEC 2600

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Course Description

This course provides electronic engineering and IT students an introduction to the key concepts and knowledge in business management. Topics covered include: the organization of technology enterprises, fundamentals of financial and managerial accounting, economic decision making, operations and supply chain, marketing and sales, managerial finance, introduction to mathematical finance, and engineering career planning.

Intended Learning Outcomes (ILOs)

By the end of this course, students should be able to:

1. Understand the work of a manager in a technology enterprise.
2. Understand the work of the marketer as value creator.
3. Understand the basic principles of accounting and performance measurement.
4. Understand profitability from principles of economics and finance.
5. Understand how engineering analytic skills can be applied to management, economics, and finance.
6. Understand different career options available to electronic engineering and IT students.

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)	Due date
Homework	30%	9/25, 10/9, 10/30, 11/13, 12/04
Group-Based Activities	10%	9/21, 9/28, 10/12, 10/28, 11/16, 11/23
In-Class Quizzes	10%	In-Class
Final examination	50%	TBD

* Assessment marks for individual assessed tasks will be released within two weeks of the due date.

There are five homework assignments, and they will be made up of analytical as well as multiple-choice and essay questions.

Analytical questions are mainly related to accounting, economics, and finance. Examples include:

- In accounting – categorizing and recording transactions, identifying accounting entries, working through the financial statements, costing and cost allocations, reflective questions on goodwill amortization and allocations, deferred tax assets and liabilities, etc.
- In economics – working with fixed and variable costs, economic versus accounting profits, pricing and production decisions in perfect competition, monopoly, and oligopoly markets.
- In managerial finance – working with discounted cash flows, interest rates, internal rate of return, and cost of capital.
- In mathematical finance – Applying probability theories, calculus and linear algebra to portfolio analysis, derivation of the Capital Asset Pricing model and Black-Scholes formula, proof of the No Arbitrage Theorem and use of risk-neutral probabilities.

The multiple-choice and essay questions are mainly related to business organization, operations and supply chain, and marketing. It is typical to use such types of questions to assist students' learning on these subjects. These questions are effective in helping students clarify their understanding of various concepts and terminologies.

There will be several in-class group-based activities designed to stimulate participation and collective active learning. Students will be assessed based on participation only. These activities include:

1. Activity-Based Costing system set-up
2. Market simulation
3. Supply chain simulation
4. Marketing plan
5. Binomial option pricing
6. Financial statement analysis

There will be also several announced and unannounced in-class short quizzes, partly graded by participation and partly by performance. Some quizzes serve as reviews, some stimulate reflective thinking, and some collect feedback from students.

Class attendance and participation is crucial in ELEC4720 because most of the concepts are easy for engineering students to learn if they are guided to think about them the right way and if they have worked through them once.

Finally, there will be a 2.5-hour final examination where the problems will be similar to the homework assignment problems.

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Homework	ILOs 1, 2, 3, 4, 5	For ILOs 3, 4, 5 covering accounting, economics, finance, the homework assignment problems are primarily analytical in nature. Students will demonstrate their attainment of ILOs via numerical answers and the associated analytical process. For ILOs 1, 2, 6, particularly as related to marketing and production and operation processes, the homework assignment problems will mainly be multiple-choice and essay questions through which students demonstrate correct and accurate understanding of various concepts and terminologies.
Group-Based Activities	ILO 1, 2, 3, 4, 5, 6	These tasks are designed to encourage participation and collective active learning. Students will be graded only by participation/attendance
In-Class Quizzes	ILO 1, 2, 3, 4, 5, 6	These tasks are graded partly by participation and partly by performance. Some serve as reviews, some stimulate reflective thinking, and some collect feedback from students.
Final Examination	ILOs 1, 2, 3, 4, 5	The final examination assesses students' understanding of concepts covered and ability to apply them for solving various problems.

Grading Rubrics

Problems in homework assignments and the final examination are mostly either analytical questions or multiple-choice questions, in a 6:4 ratio. The analytical questions typically require a series of numerical answers and a score will be given for each answer. In some cases, there can be partial credits for an incorrect answer. For multiple choice questions, typically a score is awarded for each correct answer. A very small percentage of homework assignment and final examination problems are essay questions. Typically, a score is set for each common answer with full score for the perfect answer.

For the in-class group-based activities, a score will be awarded as long as a student's participation/attendance is recorded.

For the in-class quizzes, some will be based on participation only (score is awarded if there is on-the-spot submission), and some will be multiple-choice quizzes for which scores are rewarded for each correct answer. Some quizzes will be announced ahead of time and some unannounced.

Final Grade Descriptors:

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of all subject matters covered with highly accurate problem-solving, the ability to readily apply the concepts covered to new problems and situations, and the ability to identify potential questions and issues
B	Good Performance	Shows good knowledge and understanding of the main subject matters, with ability to solve related familiar problems accurately. Displays high motivation to learn, good capacity to extend into new problems and situations, and contributes to group activities
C	Satisfactory Performance	Possesses adequate knowledge of the main subject matters, and competence in dealing with familiar problems with sufficient accuracy. Shows persistence and effort to achieve the intended learning outcomes, and motivation to extend into new problems and situations.
D	Marginal Pass	Has marginal knowledge of the core subject matters with some ability to apply them towards future profession.
F	Fail	Has insufficient understanding of the basic subject matters for applying them in meaningful ways. Shows insufficient effort towards achieving learning goals.

Course AI Policy

AI can be consulted, but any work that results from AI (e.g., homework solution) must be identified and referenced. The final examination is closed book.

Communication and Feedback

Assessment marks for individual assessed tasks will be communicated via Canvas within two weeks of submission. Feedback on assignments will primarily be communicated via posted solutions. Students with questions are welcome to come to the instructor's office hour or make appointments with the instructor anytime.

Resubmission Policy

There is generally no make-up for any missed in-class group-based activities and in-class quizzes. Homework assignments will not be accepted after the due date without approval from the instructor.

Required Texts and Materials

Textbook:

[Principles of Accounting](#), free online access, Openstax, Rice University 2019

Reference Books/Materials:

1. Principles of Marketing by Philip Kotler, Pearson, 18th edition or later

2. Operations and Supply Chain Management, Robert Jacobs and Richard Chase, McGraw Hill, 5th edition or later
3. Foundations of Finance, Keown, Martin and Petty, Pearson, 10th edition or later
4. Options, Futures, and Other Derivatives, John Hull, Pearson, 11th edition

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to [Academic Integrity | HKUST – Academic Registry](#) for the University's definition of plagiarism and ways to avoid cheating and plagiarism.