

The Hong Kong University of Science and Technology
UG Course Syllabus

Information Technology Revolution: Past, Present and Future

ELEC 1150

3 credits

Pre-requisites / co-requisites: none

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Course Description

This course introduces the basic concepts of information technology and explores its applications in daily life, from consumer electronics and the internet to medicine, business and social networking. Topics follow the historical arc of the field: the transistor and the power of 0 and 1, Shannon and information theory, the silicon revolution, five generations of computing, wired and wireless communications, the internet and the World Wide Web, information security, computing problems and algorithms, programming basics and generative AI, emerging trends in IT, and entrepreneurship. The aim is to identify the key technological advances, understand how they changed our life and society, and imagine how the field will continue to develop. Teaching is by lectures and tutorials with in-class discussion; no prior programming or engineering background is assumed. Materials, submissions and grades are on Canvas.

Intended Learning Outcomes (ILOs)

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

1. Identify the key advances in information technology and the enabling technologies behind them.
2. Describe how these advances are applied in different fields and the revolutionary changes they brought to those fields.
3. Evaluate the key benefits and the potential drawbacks or issues underlying these changes.
4. Recognize future trends in information technology development and the possible benefits and issues associated with them.

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
In-class quizzes (4 × 2 points)	8%	In lecture, weeks 3–13 *
Post-lecture online quizzes (best 8 × 1 point, Lectures 2–11)	8%	One week after each lecture *
Coding quiz	2%	Two weeks after release *
Coding project (individual)	20%	30/11/2026 *
Paper study (2-person group)	26%	Presentations 16/10, 23/10, 06/11, 13/11 and 20/11/2026; slides, summary and peer reviews 30/11/2026 *

Assessment Task	Contribution to Overall Course grade (%)	Due date
Final examination	36%	December 2026 (date to be announced)
Total	100%	

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

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Quizzes (in-class, post-lecture, coding)	ILO1, ILO2	Weekly check that students can identify the advances covered and describe where they are applied.
Coding project	ILO1, ILO2	Turns the account of computation and digital representation into working code applied to a concrete problem.
Paper study	ILO2, ILO3, ILO4	Students explain a technology and its applications, assess its benefits and limitations, and situate it in a wider trend.
Final examination	ILO1, ILO2, ILO3, ILO4	Covers the whole syllabus across all four outcomes.

Grading Rubrics

Detailed rubrics for the coding project and for each component of the paper study are provided on Canvas with the task description, outlining the criteria used for evaluation.

Final Grade Descriptors:

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Comprehensive grasp of the material, accurate explanation of the underlying principles, and independent, well-supported evaluation of technological and social consequences.
B	Good Performance	Good knowledge of the main subject matter, correct explanation of the key advances and their applications, competent analysis of benefits and drawbacks.
C	Satisfactory Performance	Adequate knowledge of the core subject matter and some capacity for analysis and critical thinking.
D	Marginal Pass	Threshold knowledge only; able to outline the major milestones but work is incomplete or superficial in places.
F	Fail	Insufficient understanding of the subject matter; does not meet the threshold requirements.

Course AI Policy

For the coding project, generative AI tools may be used to explain concepts, debug and suggest improvements; students must be able to explain every line they submit and must state which tools were used. For the paper study, AI may be used for background reading and language polishing only — the analysis, slides and critique must be the student's own work. Quizzes and the examination are to be completed without AI assistance. Students remain responsible for the accuracy of anything they submit.

Communication and Feedback

Assessment marks are communicated via Canvas within two weeks of submission, with feedback on strengths, areas for improvement, and the rubric criteria on which marks were lost. Students with further questions about the feedback including marks should consult the instructor within five working days after it is received.

Resubmission Policy

There is no general resubmission of assessed work; a corrupted or unreadable file may be resubmitted once, with the original submission time applying. Late work loses up to 10% of the task grade per day, weekends included, and receives zero after five days. Reassessment on medical or compassionate grounds follows University policy and requires documentation.

Required Texts and Materials

Lecture slides, tutorial notes and assignment specifications on Canvas are the primary study material; no textbook purchase is required. Recommended text: Hey, T. and Pápay, G. (2015). *The Computing Universe: A Journey through a Revolution*. New York, USA: Cambridge University Press. Available at HKUST Library e-resources.

Academic Integrity

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.