

The Hong Kong University of Science and Technology

UG Course Syllabus (Fall 2026-27)

Course Title: Mobile Application Development

Course Code: COMP 4521

No. of Credits: 3

Pre-/co-requisites: (COMP 2611 OR ELEC 2350) AND COMP 3511

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Course Description

This course provides a comprehensive introduction to mobile application development. Students will learn the essential concepts, techniques, and tools required to design develop and deploy mobile applications for the Android platform. The course emphasizes hands-on learning and practical implementation, enabling students to build functional and user-friendly mobile applications. Including different aspects, e.g. Principles of application development for mobile and embedded devices. Mobile software development environments and software architectures. Features of typical mobile platforms: user-interface and user-experience design, multimedia, and data storage support, networking, location, mapping services, and mobile back-end support features. This course will also introduce you to the concepts and tools of cross-platform mobile development, providing a broader perspective on the mobile development landscape.

This course utilizes a blended approach of lectures, tutorials, assignments, lab sessions, and interactive discussions to guide students through the project-based curriculum. Students need to design and implement a full-fledged mobile application. No formal prerequisites, however, familiarity with programming logic and problem-solving approaches is beneficial that helps students learn Android development more efficiently.

List of core topics

- Introduction
- Android Overview
- User Interface Design
- Activities and Intents
- User Interaction
- Preferences and Settings
- Databases and Data Storage
- Multimedia Integration
- Location-based Services
- Background Processing and Services
- Advanced Features

Intended Learning Outcomes (ILOs)

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

1. Analyze the principles, constraints, and architectures of mobile application development.
2. Design and evaluate user interfaces and user experiences tailored for mobile devices, adhering to best practices and guidelines.
3. Develop, test, and deploy Android applications using appropriate programming languages, tools, and frameworks.
4. Implement and integrate core mobile application features, including multimedia, location-based services, data storage, and network communication.
5. Create a comprehensive mobile application project that demonstrates the application of learned concepts and techniques.

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 (%)	Tentative Due Date*#
Assignment	15%	30/11/2026
Lab	15%	02/10/2026, 16/10/2026, 30/10/2026
In-class quiz	10%	17/10/2026, 21/11/2026
Group project	60%	30/11/2026

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

Refer to the course homepage and announcements for any changes.

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Assignment	ILO1, ILO2	The assignment focuses on the foundational aspects of mobile application development, requiring students to analyze the principles and constraints specific to mobile app (ILO1) and to understand the user interfaces and experiences tailored for mobile app (ILO2). This task assesses students' understanding of the

		theoretical and design aspects of mobile development.
Lab	ILO2, ILO3, ILO4	The lab sessions are practical in nature, where students apply their knowledge to design and evaluate user interfaces (ILO2), develop and test Android applications (ILO3), and implement core features such as multimedia or data storage (ILO4). This task assesses students' hands-on skills in mobile development.
In-class quiz	ILO1, ILO2, ILO3, ILO4	The quiz covers a broad range of topics, testing students' knowledge on the principles of mobile development (ILO1), UI/UX design (ILO2), development and deployment processes (ILO3), and the implementation of core features (ILO4). This task assesses students' comprehensive understanding of the course material.
Group project	ILO1, ILO2, ILO3, ILO4, ILO5	The project is a culminating task where students must integrate all aspects of the course. They need to analyze development principles (ILO1), design and evaluate UI/UX (ILO2), develop and deploy the application (ILO3), implement various features (ILO4), and create a comprehensive application that demonstrates their overall learning (ILO5). This task assesses students' ability to apply and synthesize all learned concepts in a real-world scenario.

Grading Rubrics

Detailed rubrics for assignment and group project are provided. Refer to the course homepage for the details.



COMP4521_Grading Rubrics - Individual Assignment
COMP4521_Grading Rubrics - Proposal
COMP4521_Grading Rubrics - Oral Presentation
COMP4521_Grading Rubrics - Final Project

Final Grade Descriptors:

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of mobile application development, expertise in problem-solving, and significant creativity in thinking. Exhibits a high capacity for scholarship and collaboration, exceeding core requirements.
B	Good Performance	Shows good knowledge and understanding of mobile application development, competence in problem-solving, and the ability to analyze and evaluate issues. Displays high motivation to learn and works effectively with others.
C	Satisfactory Performance	Possesses adequate knowledge of core mobile application development concepts, competence in dealing with familiar problems, and some capacity for analysis and critical thinking. Shows persistence and effort to achieve broadly defined learning goals.
D	Marginal Pass	Has threshold knowledge of mobile application development, potential to achieve key professional skills, and the ability to make basic judgments. Benefits from the course and has the potential to develop in the discipline.
F	Fail	Demonstrates insufficient understanding of mobile application development and lacks necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort toward achieving learning goals. Does not meet the threshold requirements for professional practice or development in the discipline.

Course AI Policy

Students are allowed to use generative AI to aid you in any manner. However, you must give proper credit for any use of generative AI.

Communication and Feedback

Assessment marks for individual assessed tasks will be communicated via Canvas within two weeks of submission in general. Feedback will include overall comment with strengths and areas for improvement, if applicable. Students who have further questions about the feedback including marks should consult the teaching team within three working days after the feedback is received.

Resubmission Policy

No resubmission is allowed for all assessed tasks. Marks will be deducted 10% for every 24-hour late submission. No submission is allowed after three days of the deadline.

Required Texts and Materials

N/A

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.

Additional Resources

N/A

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Final Report						
	Results obtained	60%	Perform competently and in addition notice improvements that can be made to the design spec. Deliver code of exceptional quality. Plan and execute thorough list of test cases.	Develop code that follows the design spec. Develop structured code. Plan and execute list of test cases with expected result specified.	Develop code that follows the design spec, but can be further improved. Plan and execute some test cases, but not covering all possible scenarios.	Fail to develop code following the design spec and/or without using structure programming techniques. Perform minimal testing of own code, concentrating exclusively on the simplest, most obvious cases.
	Clarity and presentation of the report (organization, use of English)	30%	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report is organized via topic/flow, but in some areas it is difficult to follow the flow of ideas. Words can be further improved. Some diagrams are not well explained. Grammar errors that impede the flow of communication.	Report lacks an overall organization. Reader has to make considerable effort to understand the underlying logic and flow of ideas. Diagrams are absent or inconsistent with the text. Grammatical and spelling errors make it difficult for the reader to interpret the text in places.
	Use of software engineering techniques (concepts of system design specification and implementation are included here)	10%	Employ appropriate analytical tools and/or software engineering techniques. Clearly demonstrates mastery of several areas of the curriculum and is able to propose innovative solutions to the technical challenges posed by the project.	Employ appropriate analytical tools and/or software engineering techniques acquired in his course of study to the project at hand. Clearly demonstrate mastery of many areas of the curriculum and is able to successfully complete the proposed project.	Employ some analytical tools and/or software engineering techniques acquired. Make progress towards addressing the technical challenges of the project. Complete most of the major tasks in the proposed project.	Does not make use of analytical tools and/or software engineering techniques relevant to the project. Does not demonstrate requisite command of the material covered in the curriculum. Unable to finish the proposed project.

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Final Report						
	Analysis of User Interface	20%	Insightful, in-depth evaluation of UI design and navigation. Clearly identifies menus, buttons, search-bar strengths/weaknesses with concrete examples and user-flow commentary.	Covers main UI components with sound critique. Minor omissions but overall clear understanding of design choices.	Describes UI superficially. Little to no critical analysis or supporting examples of how UI choices affect usability.	Little or no UI evaluation; misses key components or provides irrelevant commentary.
	Analysis of Features	20%	Thorough comparison of all unique functionalities (e.g. GPS, notifications, offline). Highlights nuanced differences, supported by realistic usage scenarios and edge-case discussion.	Discusses core features of each app with a clear comparative lens. May omit minor functionalities or lack depth in scenario examples.	Lists features with minimal or no comparative insight. Lacks clarity on distinctions between apps or on why certain features matter to users.	Fails to address feature sets or provides incorrect/incomplete feature descriptions.
	Other Analysis (Performance, Customer Support, Pricing, Accessibility)	10%	Comprehensive, balanced review covering all other areas. For each: presents clear metrics or examples.	Covers all other areas with reasonable detail. Some minor gaps but gives solid overview and basic comparison.	Touches on each area but only in passing. Analysis is superficial and lacks any supporting data or examples.	Omits one or more areas entirely or gives incorrect/incomplete information for most aspects.
	Comparative Synthesis & Recommendations	20%	Seamlessly integrates insights across UI, features, and other analysis. Offers well-justified, innovative recommendations for improvement or best practices grounded in the preceding critique.	Coherently brings together analysis into clear conclusions. Recommendations are practical though may lack full justification or breadth.	Limited synthesis; conclusions are generic and loosely tied to the analysis. Recommendations are vague and not strongly supported by prior findings.	No synthesis of findings; missing or irrelevant recommendations.
	Clarity and presentation of the report (organization, use of English)	30%	Exceptionally well organized. Language is precise and engaging; flow is seamless. Diagrams/data visualizations enhance comprehension. Error-free.	Generally well organized and written. Minor logical or language issues; diagrams support text. Few grammatical/spelling errors.	Organization is basic; some sections hard to follow. Multiple grammar or spelling errors that impede understanding; diagrams under-explained or missing.	Disorganized structure makes logical flow unclear. Frequent errors severely hinder comprehension; diagrams absent or inconsistent.

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Oral Presentation						
	Project demonstration	50%	Present a fully-functioning working product with several original/inventive elements. Show strong effort was made in breaking new ground and building excitement about the application. The demonstration techniques are imaginative and effective in conveying ideas to the audience.	Present a working product with support to all desired functions. Offer some new information or approach about the application. The demonstration techniques are effective in conveying main ideas.	Present a working product but some desired functions are not supported or malfunctioned. Simply shows how the application works. The demonstration only conveys main ideas.	The product is incomplete or does not work. Show little effort in building the application. The demonstration failed to capture the interest of the audience and/or is confusing in what was communicated.
	Delivery: Oral delivery, contact with audience, slides, timing	50%	Slides cover complete, accurate description of important outcomes. Effective use of charts, graphs, figures etc. Use of fluent English and confident. Hold attention by direct eye contact and nature hand gestures. Excellent timing and smooth transition among different parts.	Slides cover accurate description of most of important outcomes. Use of charts, graphs, figures etc. Fair use of English. Hold attention by consistent use of direct eye contact. Presentation runs with desired pace and finishes within allocated time.	Slides cover some of the outcomes. Limited use of charts, graphs, figures etc. Use of English with noticeable errors. A few eye contacts only. Presentation pace is not well planned but finished within allocated time.	Information is arranged in confused and unstructured way. Student lacks of confidence. Poor use of English. Does not attempt to look at audience at all. Read notes or looks at computer screen only. Presentation is too short or too long for the allocated time.

Program Outcome	Component	Percentage	Exemplary (A- to A+)	Competent (B- to B+)	Needs Work (C- to C+)	Unsatisfactory (D, F)
Proposal Report						
	Project objective formulation, methodology to be followed, background	60%	The objectives are well defined and prioritized. All relevant information and constraints are obtained and accurately analyzed. Decision and design recommendation are well supported by the information.	All major objectives are identified. Sufficient information is obtained. Appropriate analyses are selected. Decision and design recommendation are reasonable and mostly supported by the information.	Most major objectives are identified but one or two minor ones are missing or priorities are not established. Most constraints are identified; some are not adequately addressed or accurately analyzed. Decision and design recommendation is reasonable.	Many major objectives are not identified. Information is collected but without any analysis. Only one solution is considered or other solutions were ignored or incompletely analyzed. Many constraints and criteria were ignored.
	Clarity and presentation of the report (organization, use of English)	30%	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report is organized via topic/flow, but in some areas it is difficult to follow the flow of ideas. Words can be further improved. Some diagrams are not well explained. Grammar errors that impede the flow of communication.	Report lacks an overall organization. Reader has to make considerable effort to understand the underlying logic and flow of ideas. Diagrams are absent or inconsistent with the text. Grammatical and spelling errors make it difficult for the reader to interpret the text in places.
	Planning of future work	10%	Complete and well-analyzed task list. Detailed well-around plan of future work. Reasonable timing and labor allocation.	Well-defined task list. Good plan of future work. Practical timing and labor allocation.	A possibly incomplete task list without priority. Plan of future work but not well justified. Time and labor allocation is not well thought.	No clear task list. Future work is not well considered. No time and labor allocation.