

**Android  
Studio  
Mobile  
APPS  
programming**



**Department of Engineering**

**Higher Diploma in Computer and Electronic Engineering**

**Object-oriented and Mobile Device Programming (EEE3457)**

**PBL Assignment and Mini-Project Brief:**

**Object-oriented and Mobile Device Programming Assignment and Mini-Project**

## **1. PBL ASSIGNMENT AND MINI-PROJECT TITLE<sup>1</sup>**

### **Object-oriented and Mobile Device Programming Assignment and Mini-Project**

## **2. PROJECT OVERVIEW**

The project is designed to let students to design and develop a mobile apps by integrating techniques learnt in the module.

In this project, the students can use Android Studio to design and build an Android mobile apps which can be used by the users to help solve problem(s) met in their daily lives.

## **3. DRIVING QUESTION<sup>2</sup>**

How do we design an Android apps which can be beneficial to our daily lives and suit the needs of the user in the area such as utilities, education, commercial application (e-catalog), multimedia application and etc.?

## **4. TARGET USERS**

The owners of the Android smart phone who need tailor made apps for their uses in daily lives or to solve problem(s),

## **5. PROJECT STRUCTURE<sup>3</sup>**

Each team should involve 2 students participating in this PBL project. The distinguishable responsibilities for each of the students should be clearly specified in the Final Report of this project. Your team is recommended to work with the following framework to design and build an Android apps corresponding to the driving question:

- Search for interested application area of apps – Carry out searching for interested application area among categories such as utilities, education, commercial application (e-catalog), multimedia application, or any others as supported by teacher. Confirm the one in that all members are interested.
- Design the topic and function(s) of the apps – Based on the interested application area confirmed by all members, design a appropriate and feasible topic and the corresponding function(s) of the apps by peer discussion in the group, feedback from teacher, internet and reference book(s).

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<sup>1</sup> This project brief should comprise 5 concepts to facilitate students' learning in the PBL project or module. The 5 concepts include i) Real-world Problem-solving, i.e.: the Driving Question; ii) Interdisciplinary Learning, iii) Professional Ethics, iv) Safety Precaution and v) Assessment on the Student-led Learning. As regards the Essential Project Design Elements of PBL, please also refer to the Gold Standard PBL at <https://www.pblworks.org/blog/gold-standard-pbl-essential-project-design-elements>

<sup>2</sup> Components of driving question include 'Open challenge', 'Who or what role', 'What they will have to do', and 'Who or what it is for'. <PBL training by CLT 16/04/2021>

<sup>3</sup> This part should include the learning contents and / or the relevant MILO(s) when appropriate.

- Design the interface layout and components of the apps – Based on the confirmed topic and the function(s) of the apps, design at least three components that should be included in the interface layout such as graphical and textual data, multimedia, web services, location based services and etc.
- Apps build-up, test and debug – Review the technique already learnt in Andriod Studio and learn new technique in apps development by self-study, if required, to build up, test and debug the apps. If problem(s) is/are found, solve it/them by peer discussion, feedback from teacher, self learning and searching from different resources such as internet, reference books and etc.
- Research for proposal and report writing – Resarch for the general proposal and report format and what should be included in the proposal and report from peer discussion, feedback from teacher, internet and reference books.
- Check feedback from various parties and adjust.

## **6. INTER-DISCIPLINARY LEARNING AND MODULES SUPPORT THE PROJECT<sup>4</sup>**

This project comprises intended learning outcomes of the following modules:

Credit	Module Code	Name of Module	Mapping of Modules' Intended Learning Outcomes (MILOs)					Deliverable(s) from each module for the Project
			MILO 1	MILO 2	MILO 3	MILO 4	MILO 5	
13	EEE3457	Object-oriented and Mobile Device Programming	✓	✓	✓	✓		Students have to acquire Andriod apps build-up skills with Andriod Studio from classes to work for the mini-project by using Andriod Studio.
9	LAN4107	English and Communication: Reports	✓	✓	✓	✓	✓	Students have to formally present their work and demonstrate their communication skills through writing a report.

## **7. ROLES AND RESPONSIBILITIES<sup>5</sup>**

Students as active learners managing this student-led project, unlike traditional projects, students are expected to take greater responsibilities to initiate and develop a solution corresponding to the driving question.

In doing this project, the role of students is the software engineer to develop a tailor-made

<sup>4</sup> SDD, LC and IT are the major partners for inter-disciplinary. Project modules and IBSP may involve other VTC disciplines.

<sup>5</sup> Make reference to PBL Handbook Clause 5.1 for responsibilities. In the PBL training by CLT, roles can include 'Professional Role' and 'Project Role'

Android apps that is beneficial to our daily lives.

Students' responsibilities include but not limited to:

- Set work schedule and work allocation among group members.
- Find interested application area of the Android apps.
- Design the topic and function(s) of the Android apps.
- Design the interface layout and components of the apps with Android Studio.
- Research for proposal writing format and requirements.
- Write project proposal.
- Make the interface and operation of the Android apps user friendly.
- Build up, test and debug the Android apps.
- Research for general report writing format and requirements.
- Write project report.
- Demonstrate the Android apps to show your engineering competence and professional competence.
- Present your deliverable in a logical and easy understanding format and prepare to show it by poster publicly.
- Apply 21st Century skills<sup>6</sup>, particularly critical thinking, communication, literacy skills, flexibility, initiative, productivity, and social skills for this project.
- Keep your classroom behavior so that the classroom norms can maximize the productivity of every student.
- Collaborate with internal and external members of the project team.
- Regularly self-assess your progress and the progress of your group.
- Proactively seek for and apply feedback from self-assessment, peer and teacher, etc.. Instructional supports are available but these supports are removed when no longer needed. Note that teachers will not “front-load” too much information at the start of the project, but waits until it is needed or requested by students.
- Keep enthusiasm and sense of ownership of the project, commit to the project calendar and make improvements on the products of the project.
- Communicate thoroughly with teachers and stakeholders using digital communication method.

## **8. PROJECT PATH AND MILESTONES<sup>7</sup>**

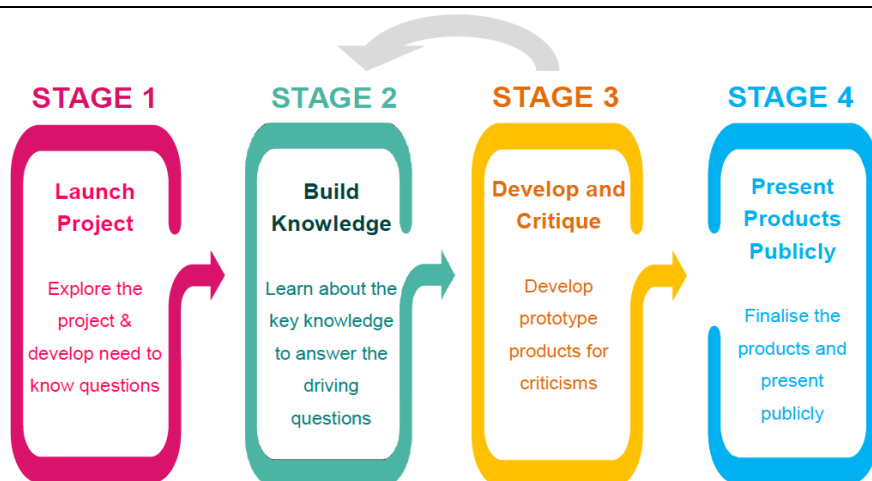
The mini-project will be carried out in semester-2 for the module, Object-oriented and Mobile

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<sup>6</sup> 21<sup>st</sup> Century skills include, critical thinking, creativity, collaboration, communication, information literacy, media literacy, technology literacy, flexibility, leadership, initiative, productivity, and social skills

<sup>7</sup> Teaching and assessment schedule should be included in this part. It is similar to the main table of the Engineering Discipline teaching plan.

Device Programming (EEE3457).The mini-project development is divided into four stages as shown below:



Project Path for PBL (PBLWorks (n.d.))

Week No.	Stage No.	Learning activities <sup>8</sup>	Submission
Week 25 OR At the time start the topic	Stage 1: Launch Project	<ul style="list-style-type: none"> <li>Initiate the inquiry process through participating in a project briefing.</li> <li>Preliminary study the the driving question in a group of 2 students. Search for the interested area of apps application. Then, design the topic and function(s) that should be involved in the apps. Outline of the proposed solution, initial project plan, and responsibilities of each member.</li> <li>Plan the sources; resources include but not limited to the key knowledge, available time, available knowledge and skill sources such as websites, books, ebooks in library.</li> </ul>	A mini-project proposal by two or three weeks after the project briefing
Week 27 – 30	Stage 2: Build Knowledge	<ul style="list-style-type: none"> <li>Students carry out the design and buld up the Andriod apps by applying skills learnt in Andriod Studio.</li> <li>Solve problems if any through peer discussion, feedback from teacher, internet, books and etc.</li> </ul>	Viva by week 29 to 30
Week 31 – 33	Stage 3: Develop and Critique	<ul style="list-style-type: none"> <li>Test and debug the apps to prepare for demonstration.</li> <li>If necessary, modify the interface layout and/or enhance the function(s) of the apps.</li> </ul>	---
Week 34 – 35	Stage 4: Present Products <sup>9</sup> Publicly	<ul style="list-style-type: none"> <li>Conduct a demonstration of apps to teacher.</li> <li>Submit a final report to present and demonstrate the works to teacher.</li> <li>Submit a poster to present the apps publicly.</li> <li>Conduct self-evaluation of the work and performance, and reflection on what have learned in the project.</li> </ul>	Demonstration by week 34 to 35  A poster and a final report by week 35

## 9. PROFESSIONAL ETHICS<sup>10</sup>

<sup>8</sup> The activities shall be student centered.

<sup>9</sup> A product may be a constructed object, proposal, presentation, solution to a problem, service, system, work of art or piece of writing, an invention, event, an improvement to an existing product, etc. <Appendix 6, PBL Handbook>

<sup>10</sup> There are some universal ethical principles such as Confidentiality, Intellectual Property, and Plagiarism,

## **Non-disclosure Agreement/ Confidentiality**

Students should observe absolute confidentiality in all matters concerning a proprietary technology and/or any other matter which is defined as confidential unless permitted to disclose such information by the owner, particularly the code, information and technical data in the product catalogue or service manual.

## **Intellectual Property**

Whilst a student will maintain ownership of the Intellectual Property in the materials he/she created, each student irrevocably grants VTC a perpetual, royalty-free, worldwide, and non-exclusive right to reproduce or use any Intellectual Property materials created by the student during his / her course of study. Such right to use will include but not limited to i) sub-license the Intellectual Property, ii) showcase the award-winning works for publicity or display purpose; and iii) refer to and use the works created by the student in seminars, symposia, lectures, and professional meetings while VTC will acknowledge the materials as the student's Intellectual Property.

## **Plagiarism**

Plagiarism is strictly prohibited in this PBL project. It is broadly defined as intentionally or unintentionally failing to acknowledge the source of ideas or quoted text in creative work. It can take many forms, from deliberate cheating to accidentally copying from a source without proper acknowledgment. Plagiarism is an academic offense, but also being recognized as a violation of copyright law when the act of plagiarism involves others' Intellectual Property.

## **Professional Rules of Conduct**

Engineering students shall order his conduct so as to uphold the dignity, standing, and reputation of the Profession; shall not maliciously or recklessly injure nor attempt to injure whether directly or indirectly the professional reputation of another engineer, and shall foster the mutual advancement of the profession; shall discharge his duties to his employer or client with integrity and in accordance with the highest standards of business ethics; shall at all times be governed by the overriding interest of the general public, in particular their environment, health, and safety.

## **Cyber Ethics**

The law governs the Internet and you may attract legal liabilities if you perform the following activities:

- posting obscene and indecent content on the Internet;
- obtaining property or services online by deception;
- spreading viruses or malicious codes;
- gaining unauthorized access to computers, etc.;
- Emails shall not be forwarded to personal email accounts;
- Students shall take note of the "Terms of Use", "Cookie Policy" and "Privacy Policy"; and
- Other references: GovHK, March, 2021. Cyber Ethics. Available at:  
<https://www.gov.hk/en/residents/communication/infosec/cyberethics.htm>

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though ethical principles may sometimes differ depending on the professions involved in the Project. General description of the said 3 ethical principles can be found from the handbook.

## **10. DIGITAL SKILLS<sup>6</sup>**

### Communication through Digital Technology

- You are advised to pay attention when this project (assignment) brief is introduced. For any further questions, you may send your question to your module lecturer through email before the next class meeting.

### Information and Digital Literacy

- E-learning resources are available on Moodle and the e-databases of the VTC library website <<https://library.vtc.edu.hk/web/>>. You are advised to visit the websites.

### Problem-solving in Digital World

- You may use digital resources online but you have to verify the correctness and appropriateness of the online resources. The verification has been included in the submission.

## **11. SAFETY PRECAUTION<sup>11</sup>**

### Psychological and Emotional:

- Be conscious as to what others are doing around you.
- Always keep the communication with your lecturer and team members if you encountered any problems with the project.

### Equipment:

- Be alert and awake on the job and ensure to aware of the emergency exits and equipment.

### Physical and Environmental:

- Everyone has a role to play in creating a safe and healthy workplace.

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<sup>11</sup> Safety Precaution may differ depending on the skills and learning activities involved in the Project. The following areas of safety precaution can be considered: Physical, Psychological, Emotional, Equipment, Environmental, and Financial.