A Short Course on Android Application Development for Technology Entrepreneurs

The Industry Liaison Center of the OUSL wishes to introduce a short course on **Android Application Development for Tech Entrepreneurs** under CERC. Details of the Course are as follows:

Name of the Course	**Short Course on Android Application Development for Technology Entrepreneurs**
Course offered and delivered by	Industry Liaison Center
Prerequisites	Applicants should be over 17 years of age
Target Group	Those who are interested in using android apps to create startup ventures
Expected number of participants per batch	20
Course duration	30 hours (5 sessions of 6 hours each)
Course Fee	Rs. 30,000
Medium of Instruction	English
Rationale	Many startup ventures depend on technological tools such as Android Apps to deliver their services, mainly through smart phones. Knowledge on how to develop android based apps for smart phones gives budding entrepreneurs a definite advantage as they will be able to build rapid prototypes to test their business ideas. Entrepreneurs are risk-takers who build and run their own businesses. They solve common problems in the society, encouraged, at first, by the opportunities presented to them. These opportunity-driven people come up with ideas for solving problems in the best way possible. Thus, a short course that imparts knowledge in building android based apps for smartphones will be valuable to those who seek to build startup ventures. Kotlin is Google's preferred language for Android app development. it is a cross-platform, statically typed, general-purpose programming language with type inference. Code is written in Kotlin often means much less code, less code to type, test, and maintain. This course encourages students to learn the basics of Kotlin to create mobile apps and embedded systems in a very efficient manner using Kotlin rather than Java. Through this course participants will learn how to design and build effective applications that are aligned with the business objectives of their start-up. By the end of the course the participants will be able to 1 Design, develop, and deploy mobile apps on Android devices to support your start-up 2 Develop responsive user interfaces that take into different aspects of mobile devices into account 3. Choose and use the most suitable technologies to support entrepreneurial activities.
Course Objectives	Empower entrepreneurs with the knowledge and skills in using Android applications to support their entrepreneurial Ventures

Course Structure and Content	The short course will comprise of class room theoretical sessions and Practicals. Program details are given below. **Unit 1: Introduction to Kotlin** · **Why Kotlin?** · **Basic differences between Kotlin and Java** · **The Kotlin standard library** · **Variable declaration in Kotlin** · **How to create type aliases in Kotlin** · **Binary Operators and smart casting in Kotlin** · **Handling Strings in Kotlin** **Unit 2: Null References and Data Types Handling in Kotlin** · **The built-in data types on Kotlin** · **Arrays in Kotlin** · **Null references in Kotlin** · **Arrays and Null References** **Unit 3: OOP and Kotlin** · **Kotlin access modifiers** · **Kotlin Classes declaration and contractors** · **Backing fields and properties in Kotlin** · **Constants and Data Classes in Kotlin** · **Function Basics in Kotlin** · **Extension Functions** · **Inline Functions** · **Inheritance in Kotlin** · **Kotlin Interfaces** · **Singleton classes in Kotlin** · **Kotlin Companion Objects** · **Anonymous Objects** · **Enums in Kotlin** · **Kotlin imports** · **Internal access modifier** **Unit 4: Conditional Operates and Loops in Kotlin** · **The If expression** · **The When expression** · **The Try/Catch expression** · **The For Loop** · **The When Expression** **Unit 5: Lambda Expressions, Collections, and Generics** · **Lambda expression basics** · **Lambda with receivers** · **Kotlin Lists** · **Kotlin Collection functions** · **Maps in Kotlin** · **Sets in Kotlin** · **Sequences in Kotlin** · **Generics in Kotlin**

	Unit 6: File I/O · **Reading text files** · **Reading binary files and try with resources** · **Going through the file tree** **Unit 7: Java Interoperability** · **Nullability when using Java from Kotlin** · **Calling Java from Kotlin** · **Calling Kotlin functions from Java** · **Annotations when calling Kotlin from Java** **Unit 8: Kotlin in Practice** · **Create an Android application Using Kotlin** · **Installing Android application on Raspberry Pi** · **Controlling LED bulb from Raspberry Pi** · **Control LED bulb remotely from Raspberry Pi** **Final Project**
Course Delivery	The course will be conducted through classroom activities, independent studies and practical work. Students will be guided throughout the course to design and build android based applications to support new ventures
Mode of Financing	The course will be self-funded. It will be offered under CERC guidelines.
Entity responsible for delivery and assessment	Industry Liaison Center
Person responsible for coordination	Eng. Nadeeshani Pragnaratne, Manager Industry Liaison Center
Persons responsible for course delivery and assessment	Resource persons: **(1) Mr. Chatura Dilan Perera** (CV Attached) Bachelor of ICT, University of Colombo, MSc in IT, University of Colombo Chief Technology Office, Ceyleon, Visiting Lecturer, University of Colombo (2) **Dr. A.P. Madurapperuma**, Senior Lecturer. Open University of Sri Lanka **(3) Eng. Nadeeshani Pragnaratne,** (CV Attached) Manager, Industry Liaison Center, Bachelor of Software Engineering, Open University of Sri Lanka Evaluations to be carried out by a panel of experts consisting of the resource persons, academics of the Open University of Sri Lanka and/or external resource persons.
Certificate to be Awarded	**Certificate of Completion** will be issued to those who pass the course as specified under Assessment
Assessment	**Evaluation Criteria:** Participants will be assessed through a Continuous Assessment Component and a Final Evaluation and Demonstration.. ● Continuous assessment will be evaluated through 3 interim progress presentations ● Final Evaluation will be carried out during the Final Presentation and Demonstration. **Continuous assessment:**

	X = Average marks of interim progress presentations considering best two out of 3 presentations. **Final Presentation:** Y = Marks for the Final Presentation Final Mark (Z) = X * 40% + Y * 60% **Pass: Z >= 50, Y >= 40 and X >= 40** Note: Those who are not successful in the final-project in the first attempt will be given one more opportunity to complete the project and present the work within 8 weeks of the date of the first presentation.