

## Syllabus [2025Year 1 Term]

## Course Information

Course Title	Mobile System Programming	Credits	3
Course Code	556580-1	Required/Elective (For Undergraduate Courses)	Selective majors
Department or Major	Department of Mobile Systems Engineering	Language	English
Methods of Teaching		Lecture Room	화4,5,6/ 목13,14,15(국제210)
Time Allotment	Lecture(3) Experiments(0) Trainging & Practice(0) Performance(0) Designing & Planning(0)	Cyber Lectures	
Course Type	offline		

## Lecturer

Lecturer	Name	Yoo, Seehwan	Rank	Associate Professor	Final Academic Degree	이학박사
	Department & college	Open Source Software Center		Office	International Hall 615	
	Office Phone Number	031-8005-3240		e-mail	seehwan.yoo@dankook.ac.kr	
	Field of Interest					

## Course Summary

Course Description	<p>Programming in mobile systems is quite fun and challenging. With mobile devices, we can carry computing environment with the wireless network connection. Thus, we can use computers with the network at any time, any places. You can play games, browse the web, or do business work at the arbitrary place. Utilizing the wireless network, you can point out your location, your nearby information, your quickest way to the destination.</p> <p>At the same time, mobile devices have limited hardware resources you can carry; for example, CPU, ram have fixed-size, and the battery has limited capacity. Thus, we have to carefully optimize performance and energy-efficiency.</p> <p>In addition, mobile devices are more user-interactive. Because users always carry mobile devices, it has to be more user-friendly than traditional computers. To support such interaction, the devices have diverse user-interactive hardware devices.</p>
--------------------	--

	<p>Mobile programming needs to deal with all those issues and concerns. Fortunately, we have some pre-existing structure that supports mobile programming. Over the given hardware, and OS programming abstractions, we can build up a small application or service.</p> <p>This course will cover issues in mobile programming. We will focus on Android, rather than other OS, because you can build up the entire source from the scratch. Students will make an application or service that runs on their custom-built kernel, android. Some talks from Google I/O will be discussed in the course.</p>
Description Related Courses	<p>Generally, welcome students who have some knowledge of Android application programming and operating systems. It also requires basic understandings of computer systems architecture.</p> <p>Pre-requisites for the course: operating systems course java programming or mobile programming</p>
Course Goals	<p>Goals of the course are</p> <ul style="list-style-type: none"> <li>- to understand how a software inside a mobile system through basic concepts in the Android-based mobile system.</li> <li>- to develop a mobile application or services that uses some custom user-interaction hardware.</li> </ul>
Projected Results	<p>After taking the course, students will be able to</p> <ul style="list-style-type: none"> <li>- understand software and hardware interaction in mobile systems</li> <li>- practical hands-on skills in android application projects.</li> </ul>
Percentage of the original language classes(%)	

## Syllabus

Times	Lecture Topic	Lecture Goals	Lecture Methods	Assignments
1	Course overview	course logistics, evaluation policy.	Lecture Lecture	
2	Android Intro	Introduce Android OS	Lecture Lecture	Project 1: routing over the Internet
3	Google I/O and Android 101	Google I/O videos - Android anatomy - Android Application Framework	Lecture Lecture	
4	Review in OS	OS in the literature and real-world	Lecture Lecture	
5	Three easy pieces: the boot loader, the kernel, and the file system	Learn the development environment	Lecture Lecture	
6	Compiling the kernel & run with your kernel	Run through the custom kernel	Lecture Lecture	
7	Compiling the Android & Tasting a bit of Android source code	Compiling the Android & Tasting a bit of Android source code	Lecture Lecture	
8	mid-term exam			

Times	Lecture Topic	Lecture Goals	Lecture Methods	Assignments
9	Set-up your semester goal	Prepare for the semester-long project	Lecture Lecture	Project 2: android mobile devices development
10	Device driver in the kernel	Configure & re-build the kernel and kernel modules	Lecture	
11	working with hardware and device driver	hardware access in the computer devices, hardware abstraction layer	Lecture	
12	Java and the world of Android (JNI)	Stacking up software with java native interface	Lecture	
13	Java and the world of Android (JNI)	JNI programming, accessing data from Java	Lecture	
14	Application – devices linkages, stacked software	Linkage through entire stack	Project presentation	
15	Semester final		Project presentation	

## Methods of Grading

sequence	Description	Percentage	Details
1	Mid-tem Exam	20%	written exam
2	Final-exam	0%	
3	Pop Quizzes	0%	
4	Assignments	50%	project work & document
5	Reports	0%	
6	Presentations & Discussions	0%	
7	Attendance	10%	attendance
8		0%	
9	Others	20%	in-class participation, presentation (if required)
All		100%	

## Core of Value

핵심가치	전공역량	역량정의	역량구분	값(%)
혁신 (Discovery)	창의적문제해결 (Creative problem-solving)	주어진 상황과 문제를 창의적으로 해결할 수 있는 능력		0%

핵심가치	전공역량	역량정의	역량구분	값(%)
혁신 (Discovery)	도전 (Challenging)	전공 지식을 새로운 분야와 융합하고 아우를 수 있는 능력		0%
혁신 (Discovery)	지식융합 (Knowledge convergence)	새로운 분야를 개척하거나 도전적으로 임할 수 있는 능력		40%
헌신 (Dedication)	세계시민 (Universal value)	세계 공동체 구성원으로 전공자로서 국제적 이슈에 대응할 수 있는 능력		0%
헌신 (Dedication)	상호협력 (Cooperation)	공동의 목적 달성을 위해 타인과 상호협력을 할 수 있는 능력		0%
헌신 (Dedication)	공동체 (Sense of community)	공동체의 구성원으로서 필요한 태도와 윤리의식을 가질 수 있는 능력		0%
능동 (self-Determination)	자기주도 (Self-Managing)	주어진 상황과 문제를 주도적이고 능동적으로 해결할 수 있는 능력		0%
능동 (self-Determination)	지식활용 (Knowledge application)	주어진 상황과 문제에 대해 논리적으로 파악하고 분석할 수 있는 능력		30%
능동 (self-Determination)	논리적사고 (Logical thinking)	전공관련 지식을 필요에 따라 다양하게 적용하고 활용할 수 있는 능력		30%
능동 (self-Determination)	의사소통 (Articulation)	대화를 통해 다양한 의견을 조율하고 합의를 이끌어 낼 수 있는 능력		0%

## Textbook(s) &amp; References

Description	Title	Author	Publisher
Required Textbook	Embedded Android: Porting, Ext	Karim J. Yaghmour	O'reilly

## Memo

Please read the course overview and evaluation methods.  
 There are pre-requisite courses, project work, homework during the semester.  
 Participation is also accounted for in the evaluation.