



Sungkyunkwan University Winter International Student Experience (WISE) 2015
"Exploring Korea's hidden depths"

Course Syllabus

Smart Phones: The Great Leap towards Ubiquitous Computing

Prof. Navrati Saxena, Sungkyunkwan University

SHORT COURSE DESCRIPTION

Just as the Internet changed the world at the turn of the century, now smartphones are powering a new paradigm of mobile technology. Today, average users spend more time on their smartphones than computers. South Korea, the world's foremost adopter of cutting-edge technology, plays host to the technology ecosystem of the future. With its advanced communications infrastructure, the country is a playground for new electronic gadgets. What lessons can we learn from this technological environment, and how can they be applied to the smartphone industry? Where are we heading with this new smart device revolution, and how will it shape global society and the economy?

This course focuses on the technological side of smartphones, from the macro level of data networks all the way down to the micro level of smart phone applications. Senior researchers from Samsung Electronics and SKKU will share their insights and guide student projects for developing mobile applications. This course is intended for science and engineering students or students from other majors who have an interest in technology.

READING MATERIALS

Reading materials will be provided in advance during the course. All the PowerPoint slides and other course material will be provided in the class. The following are general background readings:

1. Smart Phone Basics: <http://en.wikipedia.org/wiki/Smartphone>
2. Smart Phone Concept: http://www.wikininvest.com/concept/Smart_phone
3. Smart Phone News: <http://smartphonenews.com/>
4. Smart Phone Reviews: <http://newsmartphonereviews.com/>

COURSE REQUIREMENTS AND GRADING

Attendance and **active participation** in class is very important for the completion of the course. Open discussions are encouraged and will be arranged on suitable topics. Students' group presentations and active workshop participation fetches more points to the students. Academic Dishonesty, plagiarism, poor team work and less than 80% attendance (without prior information and professor's consent) leads a student to fail.

Special talks/discussions/lecture by Dr. Abhishek Roy - Manager, Samsung Electronics are included in the detailed schedule below. However, it might change a bit according to Dr. Roy's availability.

COURSE SCHEDULE

– WEEK I –

Wednesday (7 January)

Introduction

- History of phones (landline, cordless)
- Cellular phones (1G, 2G, 3G etc.)
- From simple feature phone towards smart phone
- Evolution of Smart Phones – special focus on *Korea's depths/power – Samsung Electronics*

Thursday (8 January)

Introduction to the cellular technology

- Frequency Spectrum
- Cellular Architecture
- Mobility Management basics

Friday (9 January)

Smart Phones Impact on the Global Society & the Economy – I

- An introduction with Students' Open Discussions
- An insight to the Korean Society & Economy

Monday (12 January)

Ubiquitous Computing (UC)

- An Introduction
- UC – brief History
- UC - Applications
- UC - Technology
- UC - Present & Future Trends – Emphasis on Korean trends/depths

Tuesday (13 January)

Smart Sensors

- Sensors used in Smart Phones
- An introduction to Wireless Sensor Networks
- Sensor Networks – Technology, Application, Present & Future Trends (w.r.t. Smart Phones)
- *Special lecture by Dr. Abhishek Roy – Manager, Samsung Electronics*
 - *We will have an open discussion with Dr. Roy regarding Samsung's policy, global impact and the economic impacts of the smart phones.*

– WEEK II –

Wednesday (14 January)

Smart Phones Impact on the Global/Korean Society & the Economy – II

- Electronic Gadgets – influence on the society & the environment
- Smart Devices in e-Healthcare / m-Healthcare

Thursday (15 January)

Smart Phones Impact on the Global/Korean Society & the Economy – III

- Smart Phones – how “Green” are they?
- How can they “GO GREEN” & help in a Green Sustainable world?
- *Special session with Dr. Abhishek Roy – Manager, Samsung Electronics*

Friday (16 January)

Smart Phones Impact on the Global Society & the Economy – IV

- Rise of new Industries/jobs/market
- Fall of *Industrial Giants* due to Smart Phones

Monday (19 January)

Students Discussion/ presentations

- Killer Applications of Smartphones
- Smartphone Market Trends
 - Online Gaming
 - Mobile broadcast
 - Video conferencing
 - ...

Tuesday (20 January)

Students Discussion/ presentations

- Killer Applications of Smartphones
 - Special Emphasis on the Korean Apps
- Smartphone Market Trends
 - Online Gaming
 - Mobile broadcast
 - Video conferencing ...
- *Special session with Dr. Abhishek Roy – Manager, Samsung Electronics*

– WEEK III –

Wednesday (21 January)

Smart Phones Development Tools: A Tutorial & Workshop

- A complete Guide and live demo on developing Smart Phones Apps
- Introduction to various Tools/Tool Kits/Platforms available for developing Smart Phones App
- Step wise demonstration of an App development

All essential programming / technical skills will be taught – no pre-requisite required

Students of any major are welcome!

- *Special session with Dr. Abhishek Roy – Manager, Samsung Electronics*

Thursday (22 January)

Workshop: Making the Smart Phones App - I

Friday (23 January)

Workshop: Making the Smart Phones App - II

Monday (26 January)

Students' presentations on their developed Smart Phone Applications

Tuesday (27 January)

Wrap Up session

- Discussions
- Final Remarks