CS M117
Computer Networks: The Physical Layer

June 26; SUMMER 2018

Instructor Revaz Dzhanidze

revazd@cs.ucla.edu

revazd@ee.ucla.edu

Ph: 4-4579; 3409 BH

TA

Arjun Lakshmipathy	3704 BH	Ph: 5-8659	arjun.lakshmipathy@cs.ucla.edu

Office Hours (tentative)

- **Professor:**

  11:00-11:50 am T/R, 3704 BH / 3409 BH
- **TA**

  1A, 1B. **2:00-2:50 am** Wednesdays 3704 BH

  Additional lab time may be scheduled by appointment with the TA.
- *The TA may announce additional lab time*
- **Newsgroup and Website**
- https://ccle.ucla.edu/course/view/18Su-COMSCIM117-1

Course Objectives

- To provide fundamental knowledge of the theory underlying **wireless** data communication systems.
- To provide hands-on experience by performing a series of **wireless laboratory experiments** with a number of important laboratory instruments.
- To gain experience in preparing formal **technical project** and **report** based upon series of laboratory experiments and special experiments using set of wireless communication network.

CS M117 course uses some knowledge of materials obtained in one of the following classes:

SCI 31, 33,118 or **EE 132B**

- CS M117 is a **4 unit course.**

Workload

Weekly

- **2 hours** lecture
- **1 hours** homework
- **2 hours** lab experiment
- **1 hours** report
- **2 hours** outside study
- **2 hours** project
- **No Midterms, No Finals**

Lab Experiments

- **Laboratory Experiments (Wednesdays 3704 BH):**
- **Lab 1 - 802.11b Wireless LAN**
- **Lab 2 – 802.15 Bluetooth communications**
- **PJ. Lab– Based on Special Wireless Experiments (SWE)**

Quiz Test Sketch

(The quiz is more conceptual than computational).

CS M117

Multiple-Choice

- **b) Ability to design and conduct experiments, as well as to analyze and interpret data;**

19. Before data can be transmitted, they must be transformed to _____.

a. Periodic signals b. Electromagnetic signals

c. Aperiodic signals d. Low-frequency sine waves

31. As frequency increases, the period _____.

a. Decreases b. Increases

c. Remains the same d. Doubles

Report Title Page Sample

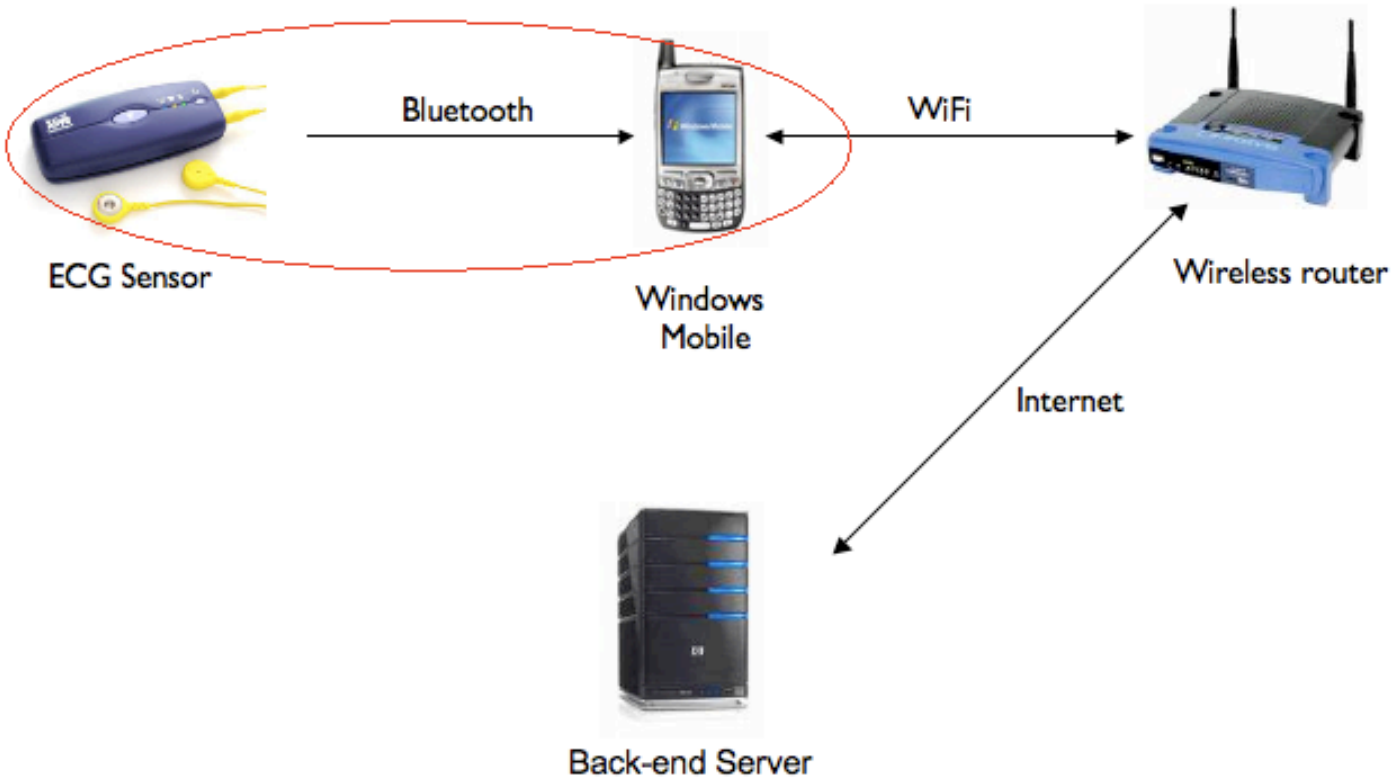
Report
“Wireless Data Transmission”
Chien _ _ _ _

CS M117
Winter 14

Partners:
Alexander _ _ _ _
Xiaohang _ _ _ _

Abstract

- Report is implementing a mobile application that receiver medical data (electrocardiogram/ECG) from the Alive heart-monitoring sensor through Bluetooth and send the data to a server through TCP/IP.
- Our Team is responsible for retrieving medical data from the ECG sensor.



Grading

- **Grading:**
- **Homework (HW) (2)** **= 10%**
- **Lab Report (1)** **= 15%**
- **Project (1)** **= 60%**
- **Quiz Test (1)** **= 15%**
- **RDS (2)** **P., No P.**
- **Final Grade (FG)** **100%**

Conversion of a numerical scores to the letter grades

A+	A	A-	B+	B	B-
[100-96]	(96-93]	(93-90]	(90-86]	(86-83]	(83-80]

Recommended References

- **M. Gerla, R. Dzhanidze: Course Notes for CS 117 Summer. 2018.**

  1081 Westwood Blvd.- Special needs Entrance / 1080 Broxton Av.-Main Entrance; (310) 443-3303

- **A.S. Tanenbaum, "Computer Networks", Prentice Hall, 2002, Fourth Edition, ISBN 0-13-066102-3**
- **B.A. Forouzan, "Data Communications and Networking", Mc-Graw Hill Higher Education, 2004, Third Edition, ISBN 0-07-292005-X.**

Materials on CS M117 course Web Site

CS 117: Project List

Proposed project:
by choice:

Project #1 "Health. Net Connecting Patients & Doctors",

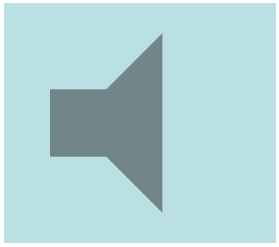
Project #2 "Gateway System Implementation"

(These projects are developed as a part of Special Wireless Lab Experiments)

CS 117 Project Grading Policy

- Project proposal Presentation – **15%**
- Attendance – **10%**
  - You can absent up to two times.
- Final Presentation – **35%**
  - Group presentation; all member will participate; up to 15 minutes
- Final Report – **40%**

	Lectures **Tuesday**. 12:00-1:50 pm **9436 BH**	**DIS** **A1: Wed. 10:00-11:50 pm** **B1: Wed. 12:00-1:50 pm** **3704 BH**	Lectures **Thursday**. 12:00-1:50 pm **9436 BH**
1	**Introduction to CS M117 class** Lec.1. Modulation (Instr.) Computer networks, (Read. 1) June 26th	No Meetings June **27th**	Lec.2. Wireless Channels. (Data Encoding, Analog to Digital Conversion). Read. 2 **Intro to the projects** **June 28th**
2	Lec.3. Wireless LAN (Instr.) (Prelab HW1, due 07/11) **Project proposed by the TA** **July 3rd**	HOLLYDAY July **4th**	L.4. BT PAN. (Instr.) (Prelab HW2 due 07/18) **Project proposed by students** **July 5th**
3	**L.5. Cellular Communications** **Project Assignments. Teams formed** **July 10th**	**Lab # 1 (W. LAN)** **RDS* 1 due on 07/18** **July 11th**	**L.6. Ad-Hoc Communications** **L.7. ZigBee Communications** **Final Projects Clinic** **July 12th**
4	**Equipment order** **July 17th**	**Lab # 2 BT PAN** **REPORT due on 07/25** **July 18th**	**Discussion of the projects** **July 19th**
5	**SWE Discussion** **July 24th**	**Equipment handed out,** **July 25th**	**SWE*** **July 26th**
6	**SWE*** **For Project With tutor supervision PROJECTS** **Due 08/21--22-23**	**SWE*** **July 31st**	**SWE*** **August 1st**	**SWE*** August 2nd
7		**SWE*** **August 7th**	**SWE*** **August 8th**	**SWE*** **August 9th**
8		L.8.Concluding August 14th	**SWE*** **August 15th**	**Quiz Test** **August 16th**
9		**Project Presentation** **August 21st**	**Project Presentation** **August 22nd**	**Project Presentation** **August 23rd**



THANK YOU!