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Exercise for the lecture
Wireless Sensor Networks
Summer 2016

Sheet 1

In order to discuss all possible parts of this exercise, the exercise is partitioned into 4 groups. Please answer the questions of your group.

Group A	students born in January, May, September
Group B	students born in February, June, October
Group C	students born in March, July, November
Group D	students born in April, August, December

EXERCISE 1:
Physical Layer

1. Discuss the wireless technologies (GSM, WiFi, Zigbee, Bluetooth LE and LORA) according to frequency, modulation technique, communication range, data rates.

	GSM	WiFi	Zigbee	Bluetooth LE	LORA
Frequency	A	B	C	D	A
Modulation Technique	B	C	D	A	B
Distance Coverage	C	D	A	B	C
Data Rates (Speed)	D	A	B	C	D

2. What is the difference between GSM and LTE? (Group A, B)

3. What are the factors affecting the performance of wireless networks? (Group C, D)

EXERCISE 2:
Wireless Applications
Wireless sensors are integrated in several communication devices to improve life and ease the industrial process. Propose and discuss the possible applications for wireless sensor network applications in:

- Smart Homes (A)

- Smart Cities (B)

- Medical technology (C)

- Industrial areas (D)