INTERNET OF THINGS COURSE INFORMATION

Instructor: Assoc. Prof. Dr. Orhan Dagdeviren (www.orhandagdeviren.com)
Course Web Page: http://akademik.ube.ege.edu.tr/netos/courses.php
Time: Tuesday, 13:30-16:00 (Evening course: Thursday, 18:00-20:30)
Policy for the Evening/Afternoon courses: Each course is for its registered students. Course contents may vary.
Assistant: Res. Ass. Mustafa Tosun, e-mails: ce.mustafatosun@gmail.com,mustafa.tosun@ege.edu.tr
Office hours: By appointment through e-mail.

Aim and Content:

- The course provides a comprehensive look at IoT concepts.
- Important definitions, key market forces, fundamental building blocks, IoT specific network challenges will be studied.
- Broader topics like fog computing, blockchain and security considerations will be reviewed.
- As for the implementation, Contiki IoT operating system with its simulator Cooja will be presented.
- Business-related aspects of IoT will be outlined.

Course Book: Internet of Things From Hype to Reality, 2nd edition, Ammar Rayes, Samer Salam, Springer, 2019.

List of Topics:

1. Internet of Things (IoT) Overview
2. The Internet in IoT
3. The Things in IoT: Sensors and Actuators
4. IoT Requirements for Networking Protocols
5. IoT Protocol Stack: A Layered View
6. Fog Computing
7. IoT Services Platform: Functions and Requirements
8. Internet of Things Security and Privacy
9. IoT Vertical Markets and Connected Ecosystems
10. The Blockchain in IoT
11. Industry Organizations and Standards Landscape
12. The Role of Open Source in IoT

Tentative Grading:

Programming Homeworks: 20 % (2-3 homeworks)

- will be Cooja based simulations.
- will be announced on website and through e-mail.
- can be submitted through e-mail.
- a course related to Cooja/Contiki will be provided by the assistant. The date of the course will be announced through e-mail.

Written Homeworks: 20 % (5-6 homeworks)

- will be from course book.
- can be submitted through e-mail/by-hand.
- will be announced on website and through e-mail.

Projects: 30 %

- Students can from groups consisting of 2 people.
- Each project has 2 milestones. In milestone dates, the presentations should be provided by the students.
- Topics for the projects will be announced by the instructor. Topic selection date will be announced through e-mail.
- Types of projects:
    - Standard project:
        - A topic (such as an application type, protocol type) should be selected.
        - A survey of this topic and state-of-art should be presented in course.
        - An example implementation of this topic should be demonstrated in course.
        - Schedule (2 Presentations)
            - Presentation 1: Survey presentation and overview for the example implementation.
            - Presentation 2: Demonstration of the example implementation with a detailed report including 2 presentations.

    - Survey project (This selection will include bonus grades):
        - A topic (such as an application type, protocol type) should be selected.
        - A literature review of this topic and state-of-art should be presented in course.
        - Lack of literature should be pointed carefully.
        - A survey paper should be written.
        - Schedule (2 Presentations)
            - Presentation 1: Literature review and lack of literature.
            - Presentation 2: Presentation of the proposed paper.

    - New protocol/application project (This selection will include bonus grades):
        - A topic (such as an application type, protocol type) should be selected.
        - A literature review of this topic and state-of-art should be presented in course.
        - Lack of literature should be pointed carefully.
        - A paper including new ideas should be written.
        - Schedule (2 Presentations)
            - Presentation 1: Literature review and lack of literature.
            - Presentation 2: Presentation of the proposed paper.

Final: 30 %

- A written exam based on concepts on Textbook and Homeworks.

Attendance.