Engineering Design Project (EE401 – EE402)

Rules and Regulations for Choosing a Project:

- The list of projects and tasks for each team member (student) is listed at the bottom of this page.

- Each student should choose and signup to be a team member of a project.

- Students can form their own group. Or a student that couldn't find a group should signup individually to be a team member of the project that he/she wants. The Engineering Design Project Committee will form the groups for individually signed students.

- A project can be assigned to up to two different groups.

- The occupancy of each project and team member role follows **FIRST-COME FIRST-SERVE** policy.

- Once a student signs up for a team member role there **CANNOT** be any changes.

- The dates for signing up are **28th November** (Students who already formed their group) and **29th November** (Both individual students and students who already formed their group)

- To sign up for a team member role the student should see

    - Tuesday, 28th November:
        - 14:00 – 17:00 Assist. Prof. Dr. Huseyin Haci and Assist. Prof. Dr. Ali Serener
    - Wednesday, 29th November:
        - 09:00 – 11:00 Assist. Prof. Dr. Ali Serener
        - 13:00 – 15:00 Assist. Prof. Dr. Huseyin Haci

- For the students who **FAIL** to sign up by **29th November;** the student's mark will be **deducted by 10%** and the Engineering Design Project Committee will assign the student a team member role of a project.

Rules and Regulations for Writing the Project Proposal (EE401):

- Each student should individually write and submit a project proposal as per the team member of the project he/she has chosen.

- The project proposal should be related to the part of the project he/she will undertake.

- The project proposal should be about (and no less than) 3000 words.

- The project proposal will be submitted through plagiarism prevention software – Turnitin. Similarity score for the overall proposal should be less than 20% and each source should be less than 2%.

- The deadline for project proposal submission is **29th December**.

Engineering Design Projects:

Project 1: Uninterrupted Power Supply

The aim of the project is to design a circuit that automatically supplies uninterrupted power (500 VA, 230 Vac with 50 Hz frequency) to a load through one of the three available sources. The power sources are – solar panels, mains, and battery+inverter. In case one or more of the supplies fail, the circuit should switch to an available source without any power interruption.

Members of the Team and their tasks are:

Member 1: Overall circuit design and analysis.

Member 2: Power supply and rectification.

Member 3: Control circuits for power synchronization and other required operations.

Member 4: Relay (changeover) arrangement

Member 5: Display power readings (voltage, ampere, frequency) generated from each source separately.

Project 2: Ultrasonic Radar

The purpose of this project is to detect and report unauthorized access (of human/animal or objects) to a surveillance area. The sensors should have 180 degree coverage (i.e. surveillance angle). When an intrusion is detected, a photo of the intruder as well as the angle and distance of the intruder to the reference point should be send to the smart phone of the corresponding person.

Members of the Team and their tasks are:

Member 1: Overall circuit design and analysis.

Member 2: Servo motor and ultrasonic module control.

Member 3: Camera control for taking a snapshot of the intruder and video streaming to a screen.

Member 4: Power supply to the system. Primary source of power supply will be the mains. In case of mains failure, the system should continue its operation from the Solar panels for a backup time of 2 hours.

Member 5: Sending photo and location information of the intruder to a mobile phone.

Member 6: Online event log (e.g. time, date, coordinates, photo) of intrusion history. The log should be able to show the last 200 intrusions.

Project 3: Mobile Jammer

The aim of this project is to design and implement a mobile phone jammer circuit. The members of the Team and their tasks are:

Member 1: Overall circuit design and analysis.

Member 2: RF amplifier.

Member 3: Voltage controlled oscillator.

Member 4: Tuning circuit.

Member 5: Antenna design and display of the input and jamming signal parameters (voltage, frequency) on a screen.
