



28th Jan 2025, 13:00–14:00

Full Name : \_\_\_\_\_ Student ID: \_\_\_\_\_

Grade Table (for Lecturer use only)

| Question | Points | Score |
|----------|--------|-------|
| 1        | 20     |       |
| 2        | 20     |       |
| 3        | 20     |       |
| 4        | 20     |       |
| 5        | 20     |       |
| Total:   | 100    |       |

Instructions for Final Exam

Welcome to the final exam of EEE113 - Introduction to Electrical Engineering and good luck! Please read the following rules and confirm by signing that you have read and understood the rules before you receive your exam:

1. The final exam shall be conducted between 13:00 and 14:00. Exam duration is 60 minutes. Students must finalise the exam by delivering it before 14:00. Students are not allowed to leave the exam in the first 30 minutes.
2. Student ID cards shall visibly be on the edge of desks till the end of the exam. Students without the student ID cards or Turkish identity cards shall not be participated into the exam.
3. This is a closed-book exam which means that students are not allowed to take notes, books, or any other reference material into the exam. Throughout the exam, students shall not possess mobile phones and electronic devices that are capable of storing, receiving, or transmitting information or electronic signals, such as computerised watches.
4. Students are not allowed to take a glance at the exam questions until told to do so. Students shall not communicate with any other student under any circumstances during the exam period. A student, who cheats, tries to cheat during the exam, or is identified to be cheating after investigating exam documents, is given 0 (zero) for that exam and a disciplinary investigation is opened against the student.
5. All numerical values in the exam shall be calculated according to two decimal digits. Otherwise, there will be a penalty.
6. An incorrect answer to a question is awarded no marks with no consideration of any partial credit. Therefore, no partial credit will be given.

In recognition of and in the spirit of the above rules, I certify that I will neither give nor receive unpermitted aid on this examination.

Signature: \_\_\_\_\_

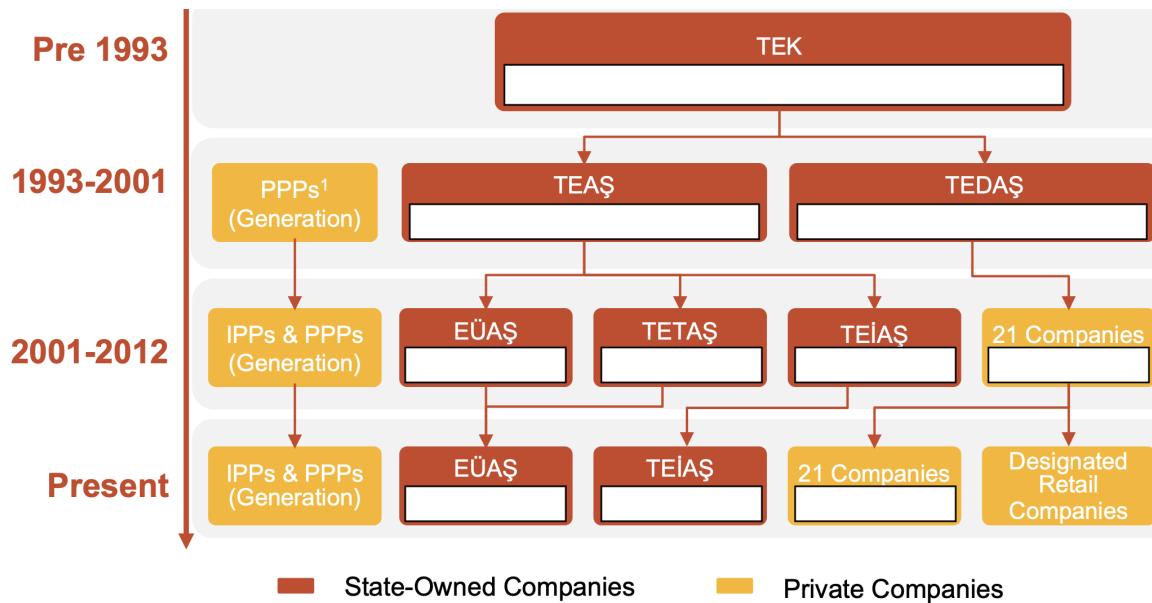


Figure 1: The evolution of Turkish electricity markets and actors

- (20 points)** In Figure 1, the evolution of Turkish electricity markets and actors is presented. Fill in the white blanks in the figure with *Generation (G)*, *Transmission (T)*, *Distribution (D)*, *Wholesale (W)*, or a combination of them.
- (20 points)** Mark the followings statements either T for true or F for false.
  - Low voltage (LV) is the voltage with an effective value of 1 kV or less than 1 kV. ( )
  - High voltage (HV) is the voltage with an effective value of 1 kV or greater than 1 kV. ( )
  - Dangerous voltage is the voltage whose effective value is above 50 V at LV. ( )
  - The main frequency of Turkish electric power system is 60 Hz. ( )
- Fill in the blanks with the appropriate words.
  - (12 points)** Jupyter is an acronym for programming languages which are at the forefront of the data science, namely \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
  - (8 points)** C programming language uses \_\_\_\_\_ for translating source codes to machine language, while Python utilises \_\_\_\_\_.
- (20 points)** Match the following machine learning applications with either C for classification or R for regression.
  - Identification of spam e-mails ( )
  - Electric load forecasting ( )
  - Electricity theft detection ( )
  - Diagnosis of benign or malignant cancerous cells ( )
- (20 points)** An ideal nuclear power plant has a capacity factor (CF) of around 90%, while the CF for a solar PV power plant is around 20%. Why is the difference in CF between these two types of energy so large?