

**FIZ 476E: Solar Energy Physics &Tech. II**

2020-2021 SPRING

**Lecture Hours:**

Monday: 12:30-14:30 (online)

Tuesday: 16:30-17:30 online

**OUTLINE**

- 1. Introduction and Motivation**
- 2. Photons, Solar Energy**
- 3. Semiconductors**
- 4. Analysis of P-N Junction**
- 5. Principles of Solar Cell Operation and Basic Structure**
- 6. Photovoltaic Technology:**
  - **Crystalline Si solar cells**
  - **Thin Film Solar Cells:**
    - 1. CdTe**
    - 2. Cu(In, Ga)(Se, S)<sub>2</sub>**
    - 3. Cu<sub>2</sub>ZnSnS<sub>4</sub> (CZTS)**
- 7. Next Generation Solar Cells**
- 8. Multi-Junction Solar Cells**

**Evaluation of the Course:**

**Quizzes:** %10

**Midterm:** %25 (7<sup>th</sup> week)

**Presentation:** %25 (10<sup>th</sup> week)

**Final:** %40 (will be announced later)

**Attendance:**

*Attendance is not compulsory*

*VF condition: No*

**Main Reference:** *The Physics of Solar Cells*. J. Nelson. Imperial College Press, 2003.

