

 OSTİM TECHNICAL UNIVERSITY

**2023-2024 SEMESTER**

**ELECTRICAL-ELECTRONIC ENGINEERING DEPARTMENT GRADUATION PROJECT PROPOSAL FORM**

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| **Lecture Code: EEE400/411** | **Lecture Name: Graduation Project** |
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| **Project Title / Number of Students:** | Basic optical transmitter design |
| **WORKS AND PROCEDURES TO BE DONE IN THE PROJECT****(Put the item number on the left and write it in order)** |
| **Item**1. **Transmitter**: We will use an LED or laser diode as the light source for data transmission.
2. **Modulation**: We will implement on-off keying (OOK) or pulse position modulation (PPM) to encode data.
3. **Data Handling**: We will interface the system with a microcontroller (e.g., Arduino, Raspberry Pi) for data processing, encoding, and decoding.
4. **Receiver**: We will use a photodiode to convert the received light back into an electrical signal.
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| PROJECT AIMS |
| **Item**The aim of this project is to design, implement, and test a basic optical transmitter for optical communication. The transmitter will be capable of modulating data onto a visible or infrared light source, such as an LED or laser diode, and transmitting it over a short distance to an optical receiver. The project will explore various modulation techniques, such as on-off keying (OOK) and pulse position modulation (PPM), while focusing on optimizing the transmission range, power efficiency, and signal clarity. The transmitter will interface with a microcontroller to enable flexible data input and system control. |

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| **THE STUDENT TO WORK ON THE PROJECT** |
| Number | Name Surname | Signature |
| 1.2.3. |  |  |

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| **SUPERVISOR** |
| TitleProf. Dr. | Name SurnameYalçın Ata | Signature |