

 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 receiver design |
| **WORKS AND PROCEDURES TO BE DONE IN THE PROJECT****(Put the item number on the left and write it in order)** |
| **Item**1. **Photodiode**: It will convert incoming light (from the optical transmitter) into a small current.
2. **Amplifier**: The small current generated by the photodiode is typically weak, so the amplifier converts it into a usable voltage signal.
3. **Microcontroller Interface**: We will interface the system with a microcontroller (e.g., Arduino, Raspberry Pi) for data processing, encoding, and decoding. If the output is analog, we can use the ADC of the microcontroller to digitize it.
4. **Power supply**: Use a simple regulated 5V or 12V power supply, depending on the components.
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| PROJECT AIMS |
| **Item**The aim of this project is to design, build, and test a basic optical receiver for optical communication. The receiver will detect optical signals transmitted over a short distance using a photodiode and convert them into electrical signals. The project will include implementing a transimpedance amplifier (TIA) to amplify the received signal, followed by signal conditioning techniques to reduce noise. The receiver will be capable of interfacing with a microcontroller for digital data processing and analysis. The project will focus on achieving reliable detection. |

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| **THE STUDENT TO WORK ON THE PROJECT** |
| Number | Name Surname | Signature |
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| **SUPERVISOR** |
| TitleProf. Dr. | Name SurnameYalçın Ata | Signature |