



**INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)**  
**FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS**  
**DEPARTEMEN TEKNIK ELEKTRO**  
**Program Studi Sarjana (S1) Teknik Elektro**

**INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)**  
**FACULTY OF INTELLIGENT ELECTRICAL & INFORMATICS TECHNOLOGY**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**Bachelor Degree Program in Electrical Engineering**

<b>1</b>	<b>Nama Mata Kuliah / Course Name</b> : Divais Optoelektronika / <i>Optoelectronic Devices</i>
<b>2</b>	<b>Kode Mata Kuliah / Course Code</b> : EE234752
<b>3</b>	<b>Kredit / Credits</b> : 2 SKS
<b>4</b>	<b>Semester / Semester</b> : 0

#### **Deskripsi Mata Kuliah / Course Description**

Mata kuliah ini membahas tentang Sifat Cahaya, Modulasi Cahaya, Display Device, Laser, Photodetector, Fiber Optics, Integrated Optics, Optical Communication System, Aplikasi Devais Optoelektronika dan Teknologi Laser / *The course covers topics related to the properties of light, light modulation, display devices, lasers, photodetectors, fiber optics, integrated optics, optical communication systems, applications of optoelectronic devices, and laser technology.*

#### **Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah / Program Learning Outcomes Charged to The Course**

- CPL 5 Mampu mendesain komponen, sistem, dan proses yang logis dan realistis sesuai dengan spesifikasi yang ditentukan dengan mempertimbangkan aspek keselamatan, sosial, budaya, lingkungan, dan ekonomi / *Able to design components, systems, and processes that are logical and realistic in accordance with specified specifications, while considering safety, social, cultural, environmental, and economic aspects.*
- CPL 6 Mampu mengkaji dan memanfaatkan matematika, ilmu pengetahuan alam dan teknologi serta mengidentifikasi, memformulasikan dan menyelesaikan permasalahan di bidang teknik elektro / *Able to evaluate and utilize mathematics, natural sciences, and technology, as well as identify, formulate, and solve problems in the field of electrical engineering.*

#### **Capaian Pembelajaran Mata Kuliah / Course Learning Outcomes**

1. Mampu menganalisa dan mendesain Modulasi Cahaya, dan Display Device / *Able to analyze and design Light Modulation and Display Devices.*
2. Mampu menganalisa dan mendesain Laser, dan Photodetector / *Able to analyze and design Lasers and Photodetectors.*
3. Mampu menganalisa dan mendesain Fiber Optics, Integrated Optics, dan Optical Communication System / *Able to analyze and design Fiber Optics, Integrated Optics, and Optical Communication Systems.*
4. Mampu mendesain penerapan Devais Optoelektronika dan Teknologi Laser / *Able to design applications of Optoelectronic Devices and Laser Technology.*

#### **Pokok Bahasan / Contents**

1. Sifat Cahaya / *Properties of Light*
2. Modulasi Cahaya / *Light Modulation*
3. Display Device / *Display Device*
4. Laser
5. Photodetector
6. Fiber Optics
7. Integrated Optics
8. Optical Communication System
9. Aplikasi Devais Optoelektronika dan Teknologi Laser / *Applications of Optoelectronic Devices and Laser Technology*

#### **Prasyarat / Pre-requisite**

Elektromagnetika / *Electromagnetics*

#### **Pustaka / Reference**

1. S.O. Kasap, "Optoelectronics and Photonics: Principles and Practices", Prentice Hall, 2012
2. Muhammad Rivai, "Diktat: Devais Optoelektronika", 2023