❖ ECE_Technical Elective (Optical Engineering toward Photonics)

Instructor : Jeungphill Hanne

❖ Agenda for today

1. SCUPI 2026 Spring Academic Calendar

- Academic Calendar : Midterms & Final etc.
- My Schedule : Office hours etc.

2. Course Introduction

- Course information
  - Subject, Text book, Lecture Hour, Office hour, Course website, etc.
- Course Objective & Scope, Course Learning Key Points
- Course Grading & Tentative Course Schedule

& After the break

3. Review on

"Electromagnetic wave and more"

1. SCUPI 2026 Spring Academic Calendar

- **Academic Calendar : Midterms & Final etc.**

SCUPI Academic Calendar for 2025-2026 Spring

	Mar.	Mar.				Apr.				May					Jun.				Jul.					Aug.			
Monday	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	13	20	27	3	10	17	24
Tuesday	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	14	21	28	4	11	18	25
Wednesday	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15	15	22	29	5	12	19	26
Thursday	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16	16	23	30	6	13	20	27
Friday	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	3	10	17	17	24	31	7	14	21	28
Saturday	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	18	25	1	8	15	22	29
Sunday	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	5	12	19	19	26	2	9	16	23	30
SCU Week	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**
SCU Term	2026 Spring Teaching Weeks													Final Week	Summer Recess				Summer Recess								

Midterm

Final

This schedule is preliminary!!

1. SCUPI 2026 Spring Academic Calendar

- **My Schedule : Office hours etc.**

2025-2026 Spring Semester Course Schedule					
Class time	Monday	Tuesday	Wednesday	Thursday	Friday
08:15-09:00			Optical Engineering N-209	Linear Control Systems S-506	
09:10-09:55			Optical Engineering N-209	Linear Control Systems S-506	
10:15-11:00			Optical Engineering N-209	Office Hour Linear Control N-412	
11:10-11:55			Optical Engineering N-209	Office Hour Power Engineering N-412	
Lunch Break					
13:50-14:35		Linear Control Systems S-506	Funamentals of Electric Power Engineering S-201	Office Hour Power Engineering N-412	
14:45-15:30		Linear Control Systems S-506	Funamentals of Electric Power EngineeringS-201	Office Hour Opttical Engineering N-412	
15:40-16:25		Office Hour Linear Control N-412	Funamentals of Electric Power Engineering S-201	Office Hour Opttical Engineering N-412	
16:45-17:30					

*But, you can come to my office anytime when I am in my office ^^*

2. Course Introduction

- Optical Engineering toward Photonics

- **Textbook**

  Fundamentals of Photonics, 3rd Edition
  B.E.A. Saleh and M.C. Teich
  ISBN 9781119506874, WILEY, 2019

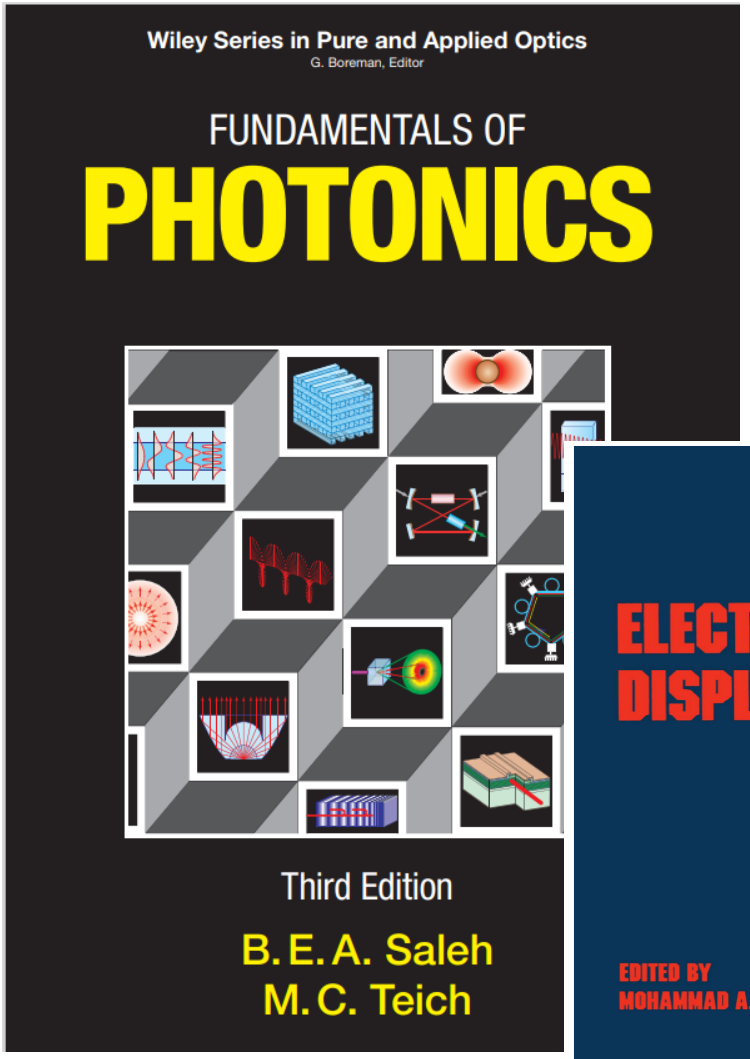
- Reference

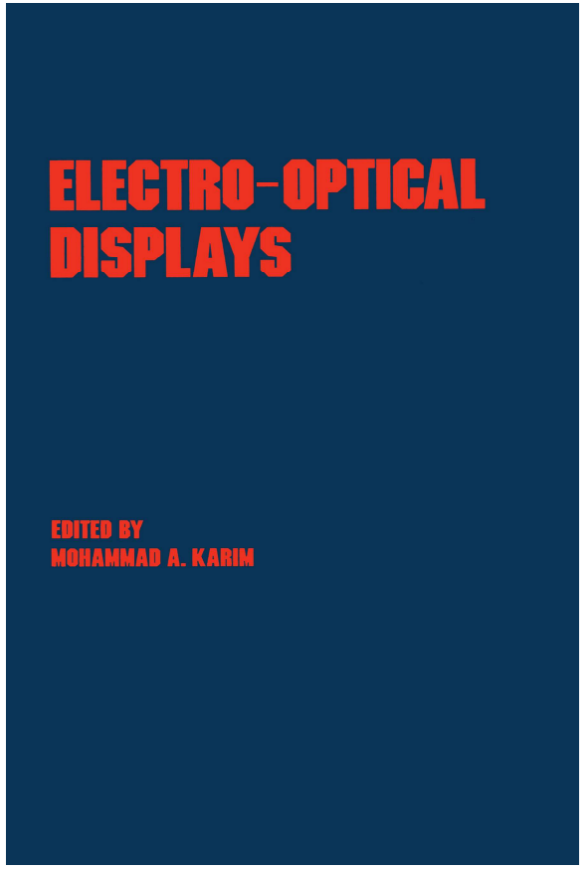
  ELECTRO OPTICAL DISPLAYS,
  NIHAMMAI A. KAIIM
  ISBN 9781003066910, **Marcel Dekker, Inc, Taylor & Francis**

- **Lecture**

  - Instructor : Jeungphill Hanne, PhD
    jeungphill.hanne@scupi.cn
  - Time : Tues. (08:15-11:55) @ N209
  - Office Hour: Thr.(12:45-16:25) @N412

- **Course Format :** Lecture & Presentation
- **Course Grading:** HW+Presentation+Quiz, Midterm, Final and Attitude etc.





2. Course Introduction

• Course Scope & Objective

- Scope & Objective

: This course is an introductory course of the optical engineering, which first teaches the basic knowledge of the optcis, intermediately covers the optical phenomena and devices, and finally is followed to its application merged with the other engineering technologies such as Optoelectronics, Photonics, Optical Display, Medical Imaging, etc. Accordingly, it is designed to assist the engineering students to make a choice for his/her further postgraduate study in the Optical engineering area.

- Topics (selected)

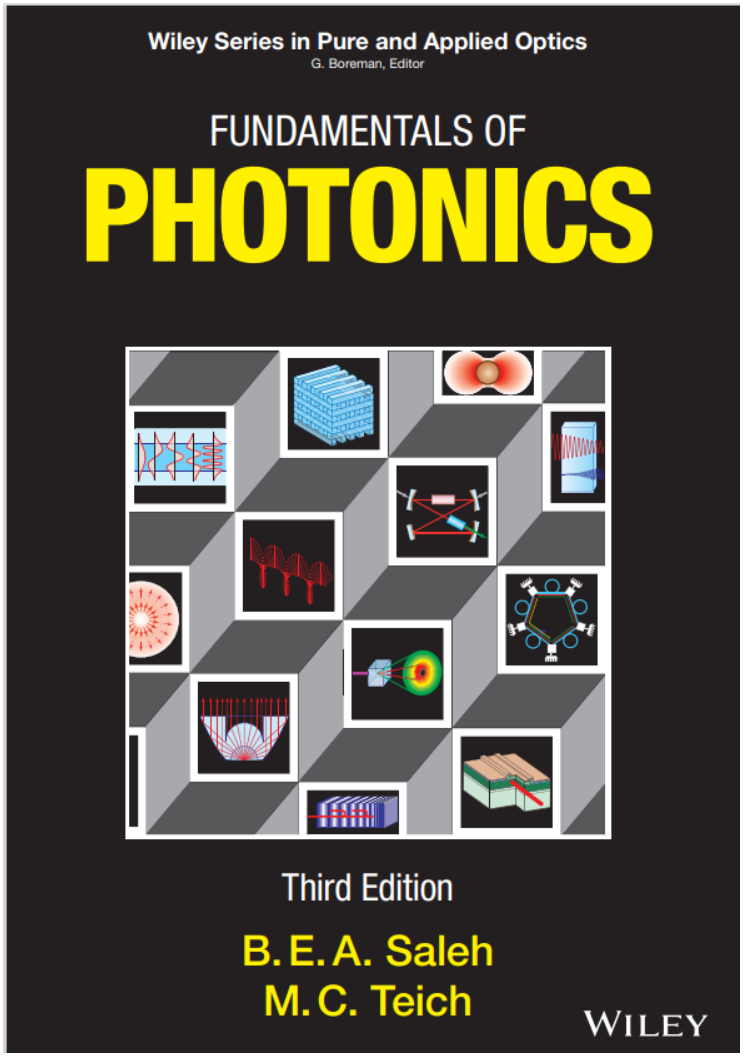
: More specifically, the course will start by looking at the fundatmental of the Optics such as Maxwell's electromagnetic waves, Wave Optics, Quantum theory of light, matter and its interaction, and then covers the Oprical devices or Phenomena : laser, photons in semiconductors, semiconductor photon sources and detectors, electro-optics and acousto-optics.etc, Finally it will introduce the Modern Optical engineering products in Optoelectronics, Photonics, Optical Display, Medical Imaging, etc.

• Course Grading :

- Grading : HW + Quiz (20%), Midterm (25%), Presentation(25%), Final (25%) and Attitude(5% : Attendance, Focus, Engagement, Punctuality for HW, etc.)

→ Less than 60% attendance might be failed for the course!

Can be flexible!



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ELECTRO-OPTICAL DISPLAYS

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- **Example for “Topics”**

1. Photonic Crystal and Photonic Crystal laser
2. Connect Wave Optics to Geometrical Optics
3. EMCCD camera
4. Scientific CMOS camera
5. Photodetectors
6. Semiconductor Laser
7. LCD
8. LED and OLED
9. Acousto-Optics
10. Super resolution
11. Quantum Optics
12. Laser
13. Photon
14. Nonlinear Optics
15. AR/VR/XR Optics
16. Holographic Displays
17. 3D Displays
18. Optical Communication/Switch Interconnect
19. Quantum Computing by Optics
20. Gaussian/Bessel/Airy Beams
21. Spatial Light Modulator(SLM)
22. Fourier Optics
23. Optical Communication/Fiber

• Tentative Course Schedule

Week	Optical Engineering	Topics	Assignment
Week 1 (3/9-3/15)	Syllabus & Introduction	**Overview on EM Wave and Optics**	
Week 2 (3/16-3/22)	Chap 1 & Chap 5 (Saleh)	**Wave Optics & Electromagnetic Optics**	HW1
Week 3 (3/23-3/29)	Chap 4 (Saleh)	**Fourier Optics**	
Week 4 (3/30-4/5)	Chap 13 & Chap 14 (Saleh)	**Photon Optics & Light and Matter**	HW2
Week 5 (4/6-4/12)	Chap 17 (Saleh) & **Mid Term**	**Semiconductor Optics**	
Week 6 (4/13-4/19)	Chap 18 (Saleh) & **Presentation**	**LED and Laser Diode**	HW3
Week 7 (4/20-4/26)	Chap 21 (Saleh) & **Presentation**	**Electro-Optics**	
Week 8 (4/27-5/3)	Chap 22 (Saleh) & **Presentation**	**Nonlinear Optics**	HW4
Week 9 (5/4-5/10)	Chap 23 (Saleh) & **Presentation**	**Ultrafast Optics**	
Week 10 (5/11-5/17)	Chap 24 (Saleh) & **Presentation**	**Optical Interconnect and Switches**	HW5
Week 11 (5/18-5/24)	Special Topics & **Presentation**	**3D Display and Holographic Display**	
Week 12 (5/25-5/31)	Special Topics & **Presentation**	**Super resolution**	
Week 13 (6/1-6/7)	**Final**		
Week 14 (6/8-6/14)			
Week 15 (6/15-6/21)			
Week 16 (6/22-6/28)			
Week 17 (6/29-7/5)			
Week 18 (7/6-7/12)			
Week 19 (7/13-7/19)			

Any question so far?

And let's be "Brainstorming" on "Electromagnetic wave and more"