Silicon Photonics and PIC Design Summer Course

Date: **June 22 – 26, 2026**

Participants: **15-20 Students**

Daily Schedule
Morning: **09:00 – 12:30**
Afternoon: **13:15 – 14:30**

Teaching Team

- **Prof. Shih-Hsiang Hsu (NTUST)**
- **Dr. Ming-Wei Lin (TSRI)**
- **Tung-Yu Su (Synopsys)**

Course Schedule (Software for this course: Synopsys Tools (can be supported by dr. Lin))

Day	Time	Topic	Instructor
Mon (6/22)	09:00 – 12:30	**Overview of Silicon Photonics** • Development of Silicon Photonics Technology • Key applications (AI, CPO, data center interconnect) • Key technical features of silicon photonics devices	**Prof. Shih-Hsiang Hsu (NTUST)**

	13:15 – 14:30	Introduction to Photonic Integrated Circuits (PICs) • Basic PIC architecture • Passive and active photonic components	Dr. Ming-Wei Lin (TSRI)
Tue (6/23)	09:00 – 12:30	System Requirements for PIC Systems • Optical link budget concept • Modulator / photodetector bandwidth considerations • PIC system architecture	Dr. Ming-Wei Lin (TSRI)
	13:15 – 14:30	PIC Design Flow Overview • Conceptual design flow • Library and schematic concepts	Tung-Yu Su (Synopsys)
Wed (6/24)	09:00 – 12:30	Photonic Circuit Design and Simulation • Schematic entry concepts • Optical circuit examples (MZM)	Dr. Ming-Wei Lin (TSRI)
	13:15 – 14:30	Simulation Demonstration • Simulation setup • Optical transmission and eye diagram analysis	Tung-Yu Su (Synopsys)
Thu (6/25)	09:00 – 12:30	PIC Layout Design Fundamentals • Waveguide layout rules • Device placement concepts	Dr. Ming-Wei Lin (TSRI)
	13:15 – 14:30	Hands-on Exercise 1 • Basic PIC layout construction	Tung-Yu Su (Synopsys)
Fri (6/26)	09:00 – 12:30	Advanced PIC Layout Concepts • Schematic-Driven Layout (SDL) concept • Electrical-optical integration considerations	Dr. Ming-Wei Lin (TSRI)
	13:15 – 14:30	Hands-on Exercise 2 • Layout debugging and design improvement	Tung-Yu Su (Synopsys)