

108 年度 Silicon photonics design and PDK development using python and Luceda-Tanner flow

教育訓練課程簡章

- **課程名稱：**

Silicon photonics design and PDK development using python and Luceda-Tanner flow

- **講師：**

曹如平(Luceda)、Pieter Dumon (Luceda)、林銘偉(CIC)。

- **上課時間：**

(1) 新竹 CIC：2019/1/16 9:00 ~ 2019/1/18 17:00。

- **上課地點：**

(1) 新竹 CIC：新竹 CIC-訓練教室(新竹市科學園區展業一路 26 號 8 樓)。

- **課程說明：**

The Course on Silicon photonics design offers a focused, hands-on design course. It is aimed at students, researchers and engineers who have development needs for silicon photonic integrated circuits. Training will use Luceda software and the Tanner Tools. The instructor will be technical department CTO and researcher at Luceda, who has a close relationship with imec and Ghent University, includes joint design and PDK development work. In the course, design execution will mostly use the language python, which is now considered the usual language for silicon photonic foundry to build PDK. Course content will include design creation and layout process. Design will use the simulation software for specification confirmation. It also teaches students how to export the design to the commonly used, gdsii, openaccess, PCell format and make PDK information. This course will present the complete process from design concept execution to layout to further PDK production.

Silicon photonics design 課程提供專注的實踐設計課程。它針對的是對矽光子積體電路有開發需求的學生、研究人員和工程師。培訓將使用 Luceda 軟體和 Tanner 工具。該課程講師將是 Luceda 的技術部門 CTO 和研究員，與 imec 和 Ghent 大學在矽光子相關開發有著密切的關係，包含共同進行設計和 PDK 開發工作。在課程中，設計執行將主要使用語言 python，現在被認為是矽光子代工廠構建 PDK 的常用語言。課程內容將包括設計創建和佈局過程。設計將使用模擬軟體進行規格確認。它還教學生如何將設計輸出成常用的 gdsii、openaccess、PCell 格式和製作 PDK 文件。本課程將介紹從設計概念執行到佈局再到 PDK 製作的完整過程。

● 課程大綱：

Day 1:

- General introduction to the software using and key concepts.
- Hands-on session: Getting-started and explore Process Design Kit (PDK).
- Hands-on session: Create and optimize a component design using python language.
- Hands-on session: Create a circuit layout and perform circuit simulation using python language

Day 2:

- Hands-on session: Design output: gdsii, openaccess, PCell.
- Hands-on session: Using IPKISS.eda + Tanner tools for circuit design: layout + simulation.
- Hands-on session: Best practices in design and library management and builds user pdk.
- Hands-on session: IPKISS Filter Toolbox for AWG design.

Day 3:

- Design with experts: Create your own photonic design.
- Demo: Photonic IC design with Mentor and VPIphotonics: from layout to electronic-photonic co-simulation
- Q&A

● 修課條件：

CIC 學術界會員與業界對象。

● 招生名額：

每堂課 40 人。

● 建議先修課程：

無

● 課程使用軟體：

- Luceda: IPKISS.flow, IPKISS.eda, Filter Toolbox-AWG
- Mentor: Tanner L-Edit
- Others: Vpiphotonics, Windows, a web browser, PyCharm