SYNOPSYS® | ACADEMIC & RESEARCH ALLIANCES

A Quick Guide to University Software Program

January 2025

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About SARA

What is Synopsys Academic & Research Alliances (SARA)?

Through innovative collaborations, shared programs, and access to advanced technologies, Synopsys Academic & Research Alliances (SARA) is dedicated to furthering university research and education in the field of electronic design.

By investing in science, technology, engineering, and mathematics (STEM) education, we aim to nurture the interests and skills that are needed to bring the next generation of engineers into the workforce and the research labs.

Website Link

WHO WE HELP

Student

Empower and educate the next generation of engineers to be ready to tackle the lates challenges, whether in research or in industry.

Educator

Provide learning opportunities and training material while lowering the barriers to access Synopsys technology for education and research.

Researchers

Address the ever-evolving challenges of the semiconductor industry, uncover new solutions, and pave the path toward future technologies.

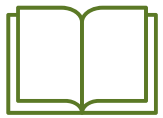
Entrepreneurs

Collaborate to discover new technologies and turn fresh ideas into market-ready products for our Smart Everything world.

UNIVERSITY SOFTWARE PROGRAM MEMBERSHIP BENEFITS

SolvNetPlus

A repository of self-help resources to resolve many support issues, provide access to training, and many educational materials.



Curriculum

A repository of self-help resources to resolve many support issues, provide access to training, and many educational materials.

Reference Methodology Retrieval System

RMgen provides an easy way to configure and download product-specific and release-specific reference methodology scripts. These scripts are a starting point for developing product-specific flow scripts. Customize the scripts to work in your design environment.

Synopsys Learning Center

Synopsys Learning Center offers a wide range of courses (short training, instructor led, quick tips) in different delivery modes and allows easier navigation and a more personalized learning experience, all while using your SolvNetPlus credentials.

Libraries, PDKS, and Memory Compiler

Teaching resources are offered to ensure students gain valuable experience using a complete design flow and to master advanced design methods such as low power and analog / mixed signal.

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SolvNetPlus

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SolvNetPlus provides Documentation, Training, and a comprehensive, searchable knowledge base that provides solutions to frequently encountered problems

SolvNetPlus Application

SolvNetPlus Application Steps:

These steps only apply to **Taiwan academia**

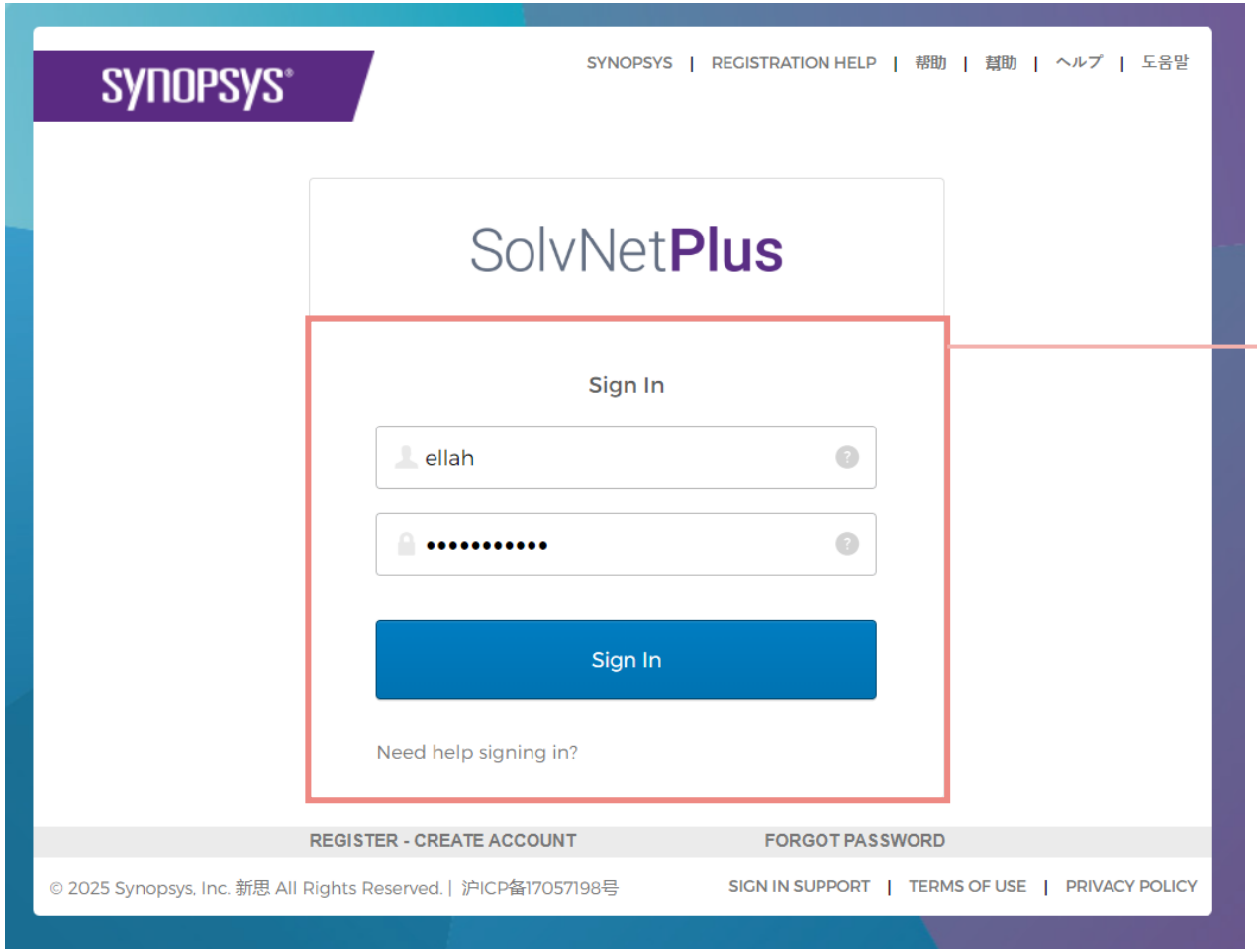
1. The professor must first apply for TSRI 2025 membership.
   →Request Synopsys software tools on TSRI website and sign the software usage agreement

2. Fill out the application form and have the professor sign at the Approval section at the bottom of the form.
   →Scan and email it back to sara-tw@synopsys.com along with any electronic files for reviewed and verification by Synopsys

3. Once approved by Synopsys University Program, a confirmation email will be sent to the applicant, providing SolvNetPlus account login instructions.

Application Instruction

Application Form



Log-in with Synopsys SolvNetPlus credential

SolvNetPlus

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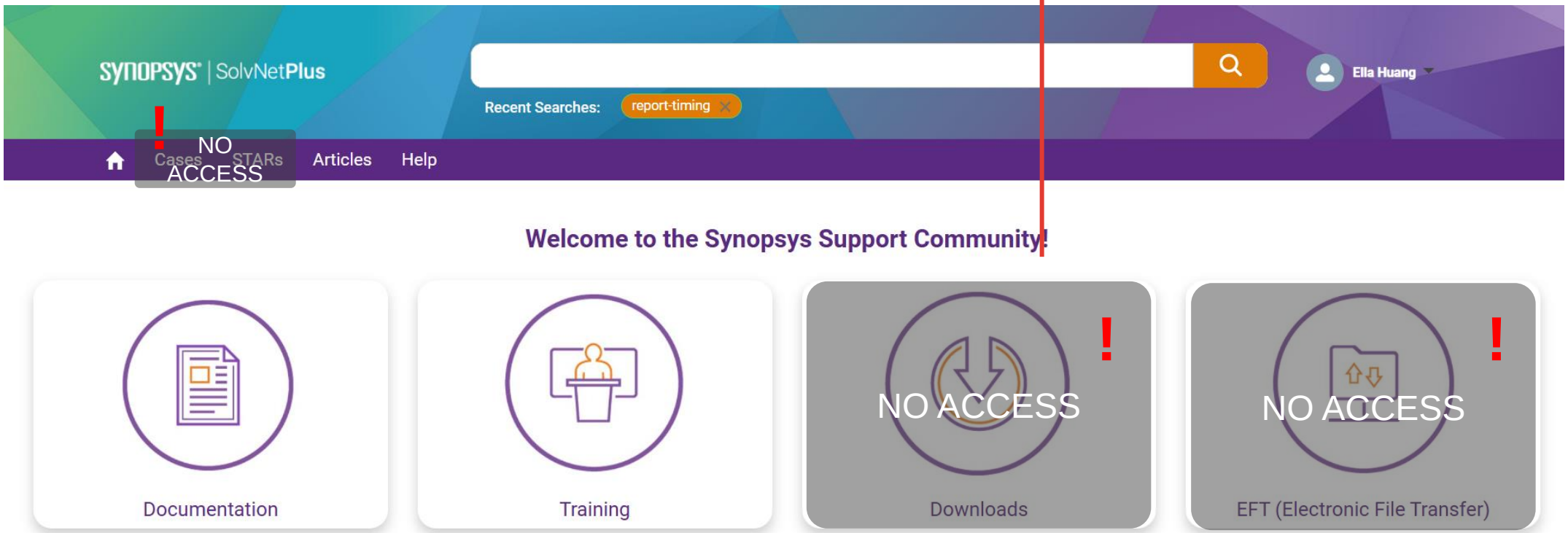
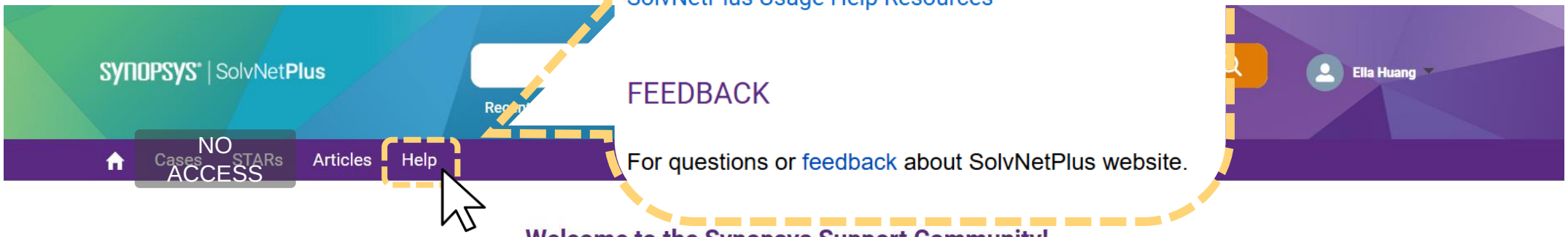
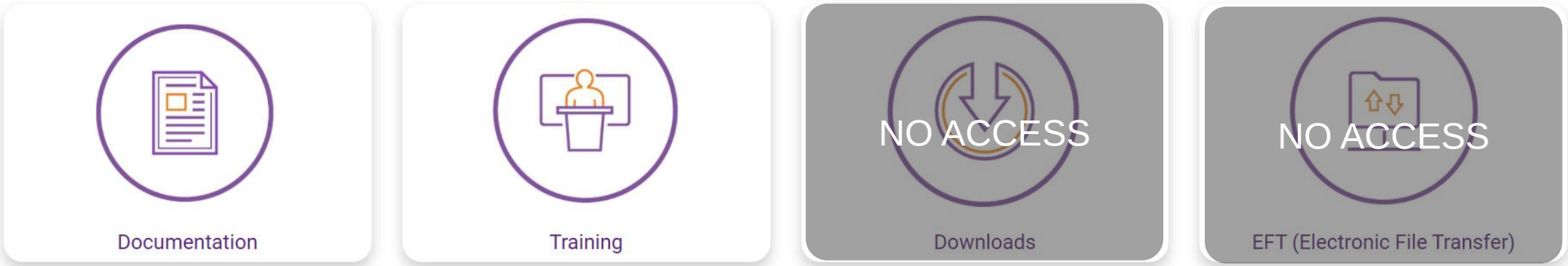
! Knowledge-based users can access Documentation Training & Search; but **CANNOT** access Download, EFT, Cases & STARs.





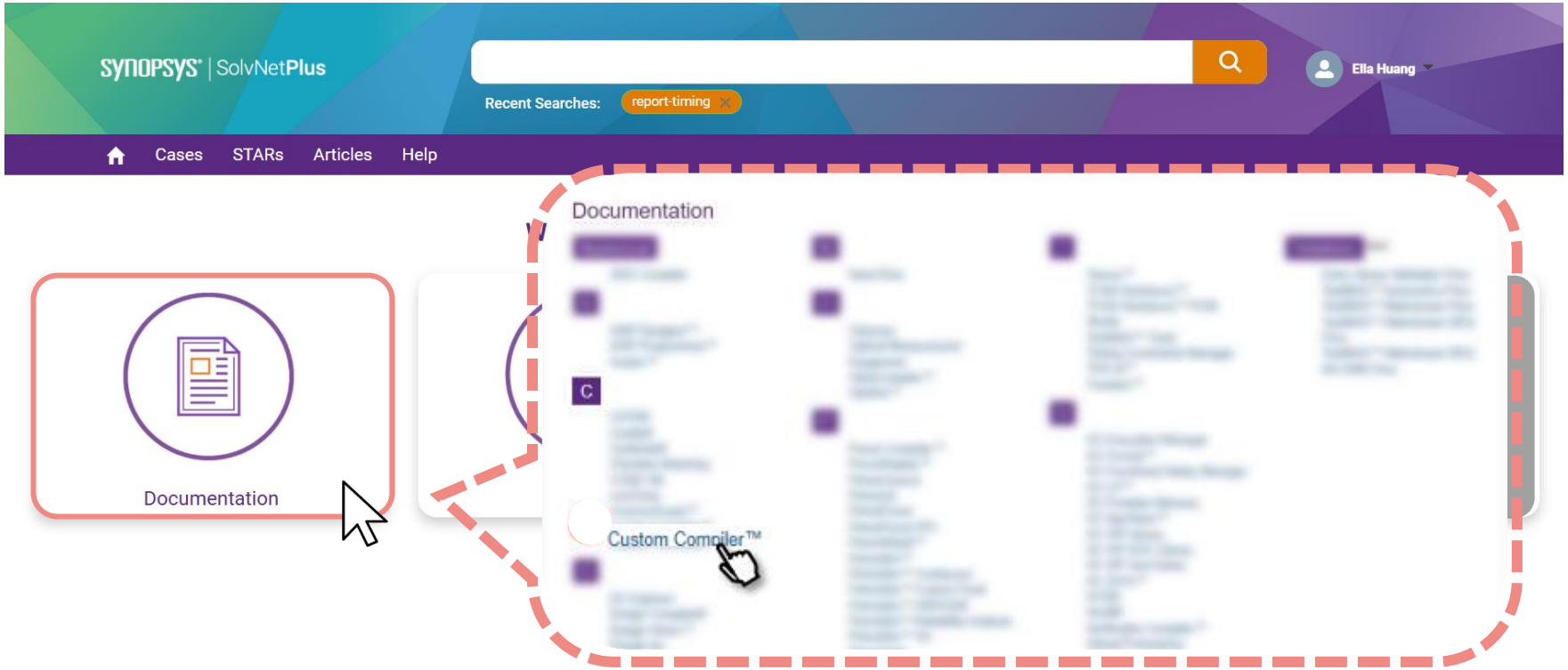
By clicking on the help interface, you can access tutorials for using SolvNetPlus and various assistance needed during usage.

Welcome to the Synopsys Support Community!



Documentation

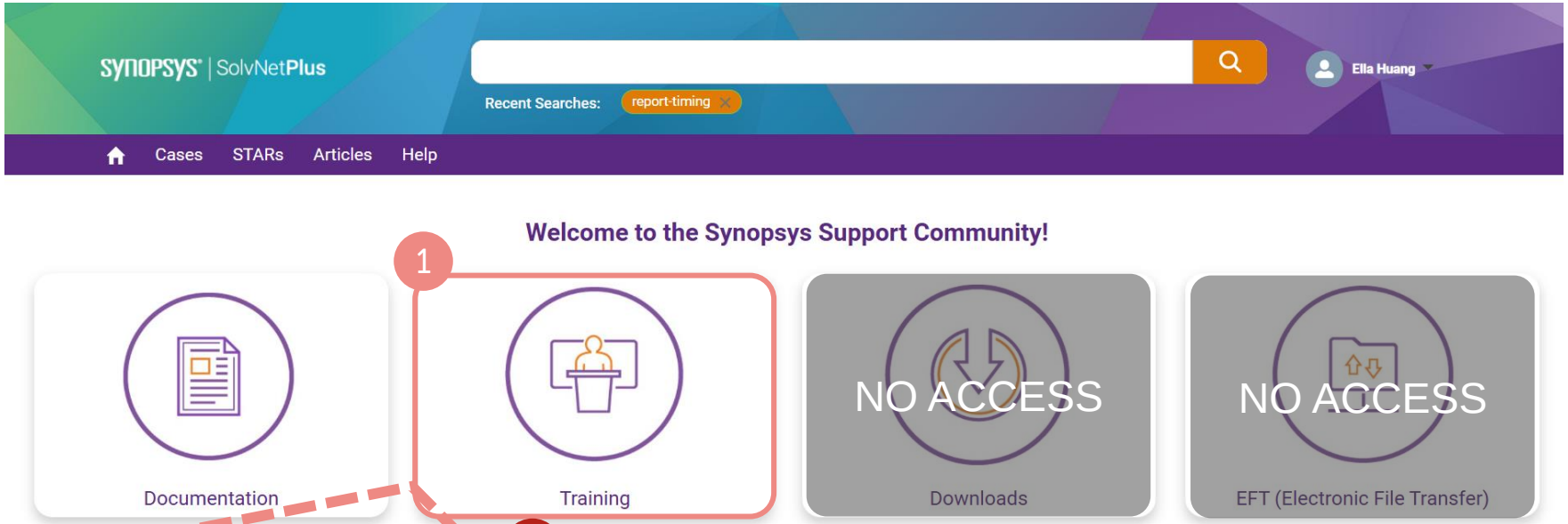
Contains product release note, installation guide, user guide & reference manual

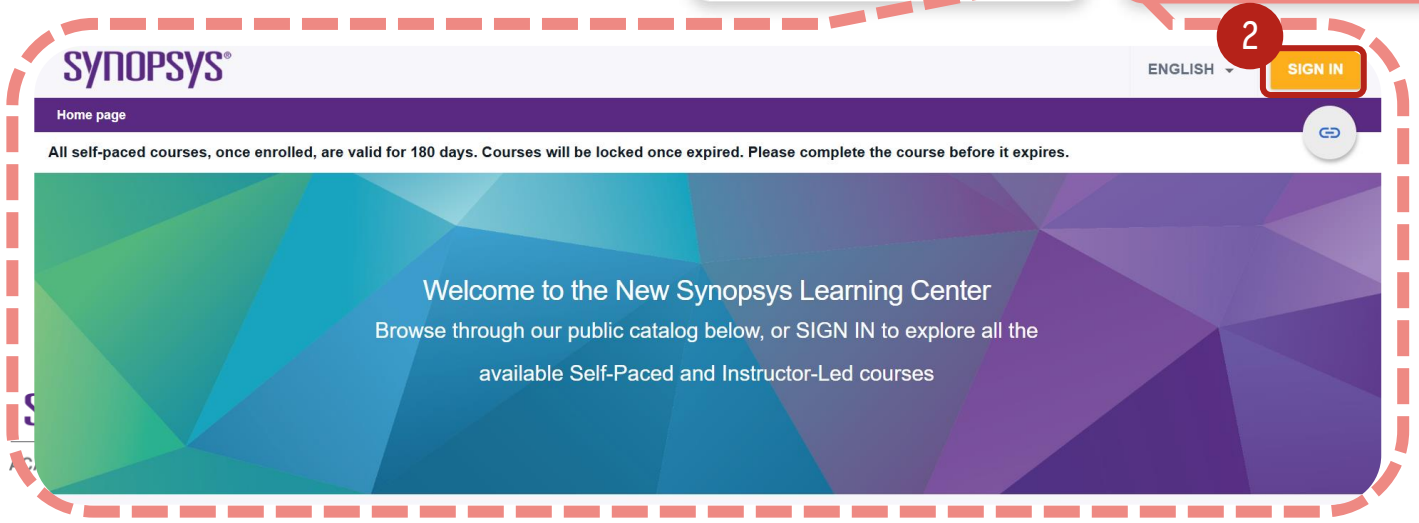


Search by product name to get tool documents.
You can download release notes, installation guides & user guides and reference manuals from this section.

Training

Access Synopsys Learning Center for free self-paced training resources

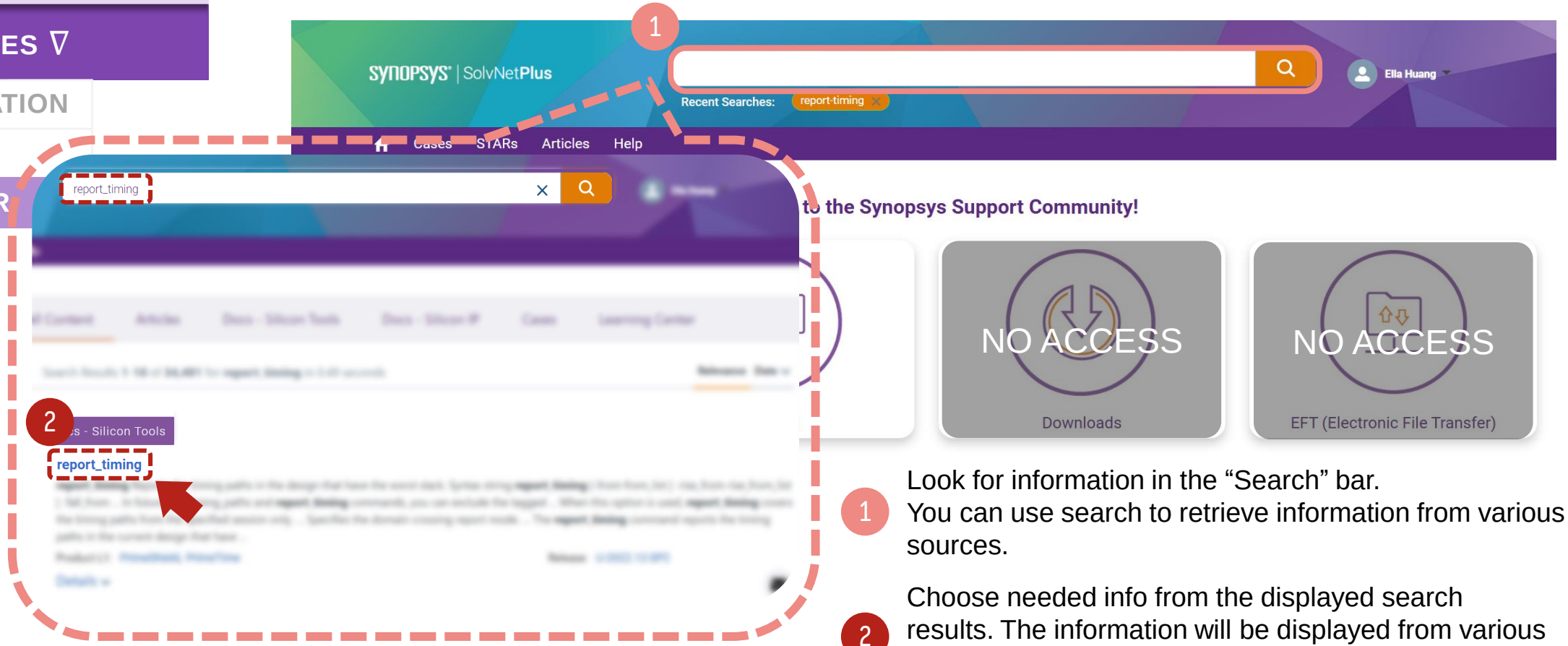




1. Login SolvNetPlus then click “Training”, **you will be directly to Synopsys Learning Center**
2. Click the “SIGN IN” at the right top corner
3. SSO Login Via **SolvNet Account**

Search Bar

Provides an advanced search engine to retrieve information from various sources, such as documentation, articles, training, and so on.



1. Look for information in the “Search” bar.
   You can use search to retrieve information from various sources.

2. Choose needed info from the displayed search results. The information will be displayed from various sources, such as documentation, articles, training, YouTube, and so on (**but NOT in cases & STARS**)

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Synopsys Learning Center

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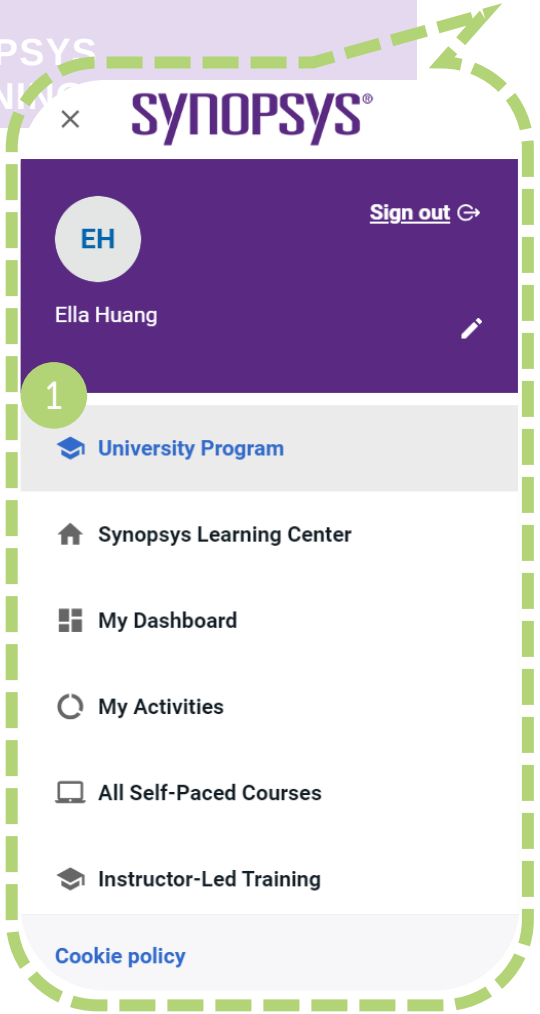
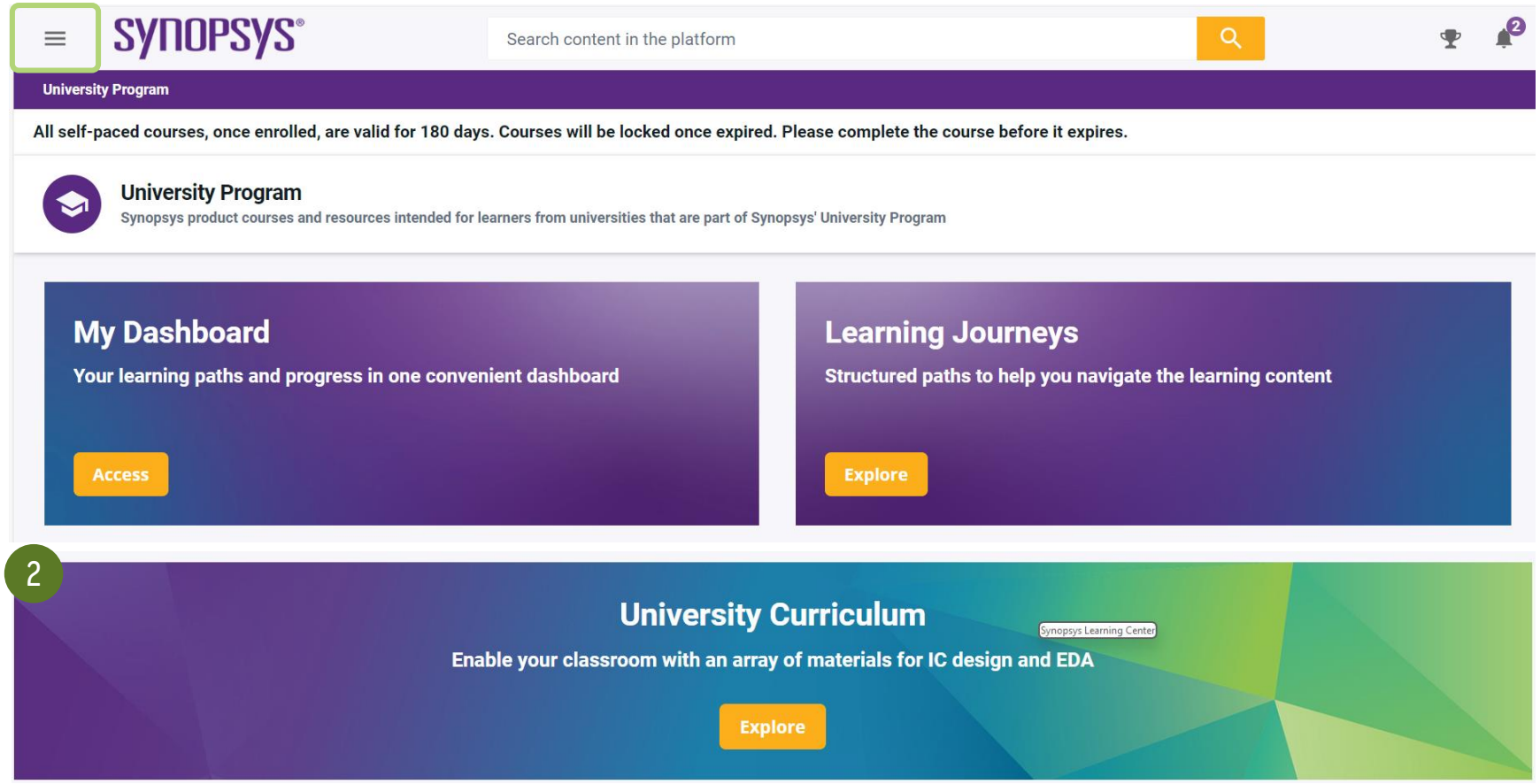
Access Synopsys Learning Center





1 Click on ☰, and select the page which you want to visit based on the categories

2 Choose the “University Curriculum”

Synopsys Learning Center

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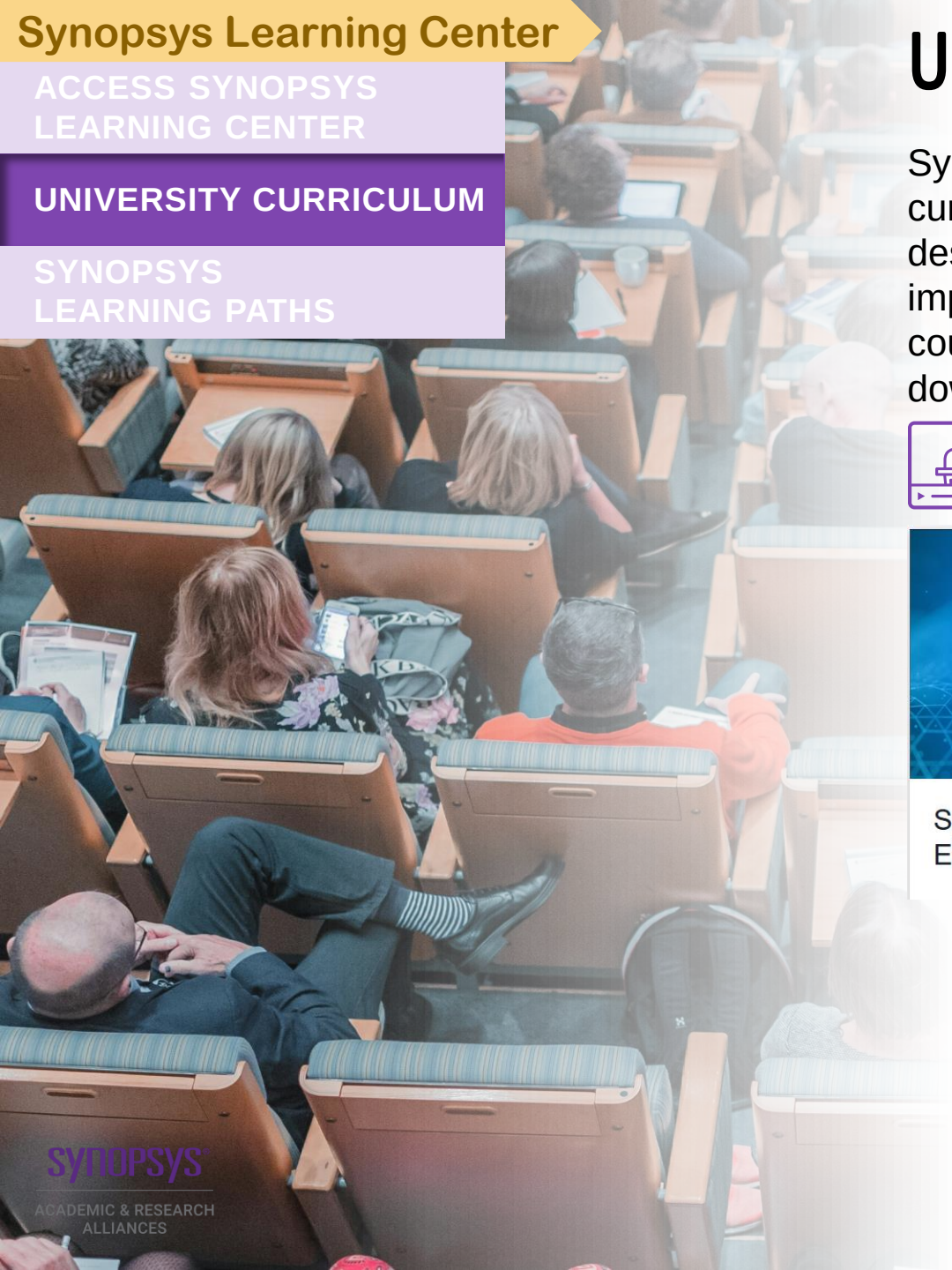


University Curriculum

Synopsys provides universities with access to a comprehensive curriculum for Bachelor and Master Programs in microelectronic design and EDA development. Course materials can be used to implement a new course or to supplement content in an existing course. Search courses by keyword or course type to find and download courses quickly and easily.

Types of Learning: E-Learning

Synopsys EDA Tool Flow for Front-End Digital IC Design

Course description

ABSTRACT AND OBJECTIVES

The goal of the course is to study details of Front-End EDA Tools for digital IC design. It covers steps from logic simulation to static timing analysis.

AUDIENCE PROFILE

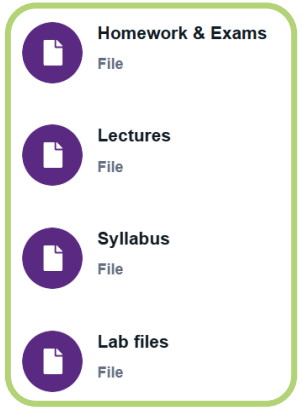
The course program on Front-End EDA Tools is assigned for postgraduate education of IC Design specialization.

REREQUISITES

To benefit the most from the material presented in this course, be sure that the following courses had been studied in advance:

- Digital Integrated Circuits
- Logic Design.

Understanding of the course is the basis for further specialized subjects destined by the educational plan of IC Design specialization.



The semester-length course contains material

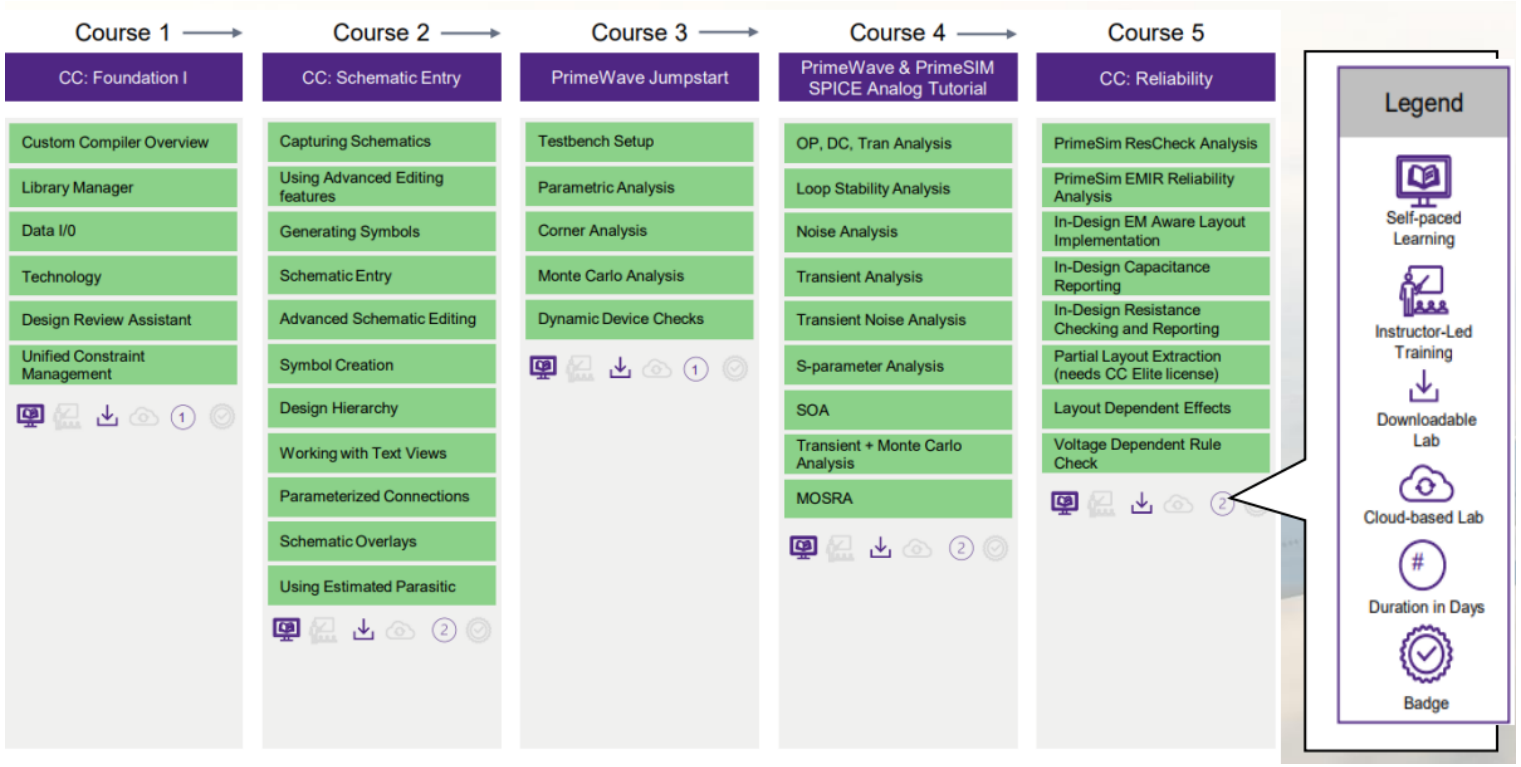
ACCESS SYNOPSYS LEARNING CENTER

UNIVERSITY CURRICULUM

SYNOPSYS LEARNING PATHS

Synopsys Learning Paths

▼ Recommended for an Analog Designer



Learning Paths are available on Synopsys Learning Center
→Learning Journeys

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Curriculum

IC Design Curriculum / EDA Curriculum

IC Design Curriculum	
Bachelor Degree Courses	• Introduction to Semiconductor Devices • Introduction to Circuits • IC Design Introduction • Digital Integrated Circuits • Semiconductor Technology • Analog Integrated Circuits • Microprocessor Systems • IC Simulation Theory • Logic Design • IC Synthesis and Optimization • IC Physical Design • IC Testing
Master Degree Courses	• Mixed-Signal IC Design • FPGA Prototyping • I/O Design • Design for Test • Low Power Design • Design of Embedded Systems • Rad-hard IC Design • RF IC Design • Crosstalk and Noise • Modeling and Optimization of IC Interconnects • IC Reliability • IC Physical Design Algorithms

EDA Curriculum	
Bachelor Degree Courses	• EDA Introduction • Discrete Mathematics and Probability • EDA Mathematical Methods • Programming C++ • Hardware Description Languages • Theory of Algorithms • Object-Oriented Programming • Operating Systems and System Programming • Scripting Languages • Software Development Technology Computational • Data Structures • Unix System Administration • Technical Writing
Master Degree Courses	• Linear Algebra • Big Data • Contemporary Software Development Kits • EDA Tools • IC Physical Design Algorithms • Compilers Design • Digital Signal Processing • Numerical Methods • Probability theory and Mathematical Statistics • Databases • Operational Research • IC Verification Algorithms

Advanced Courses / General Courses

Advanced Courses

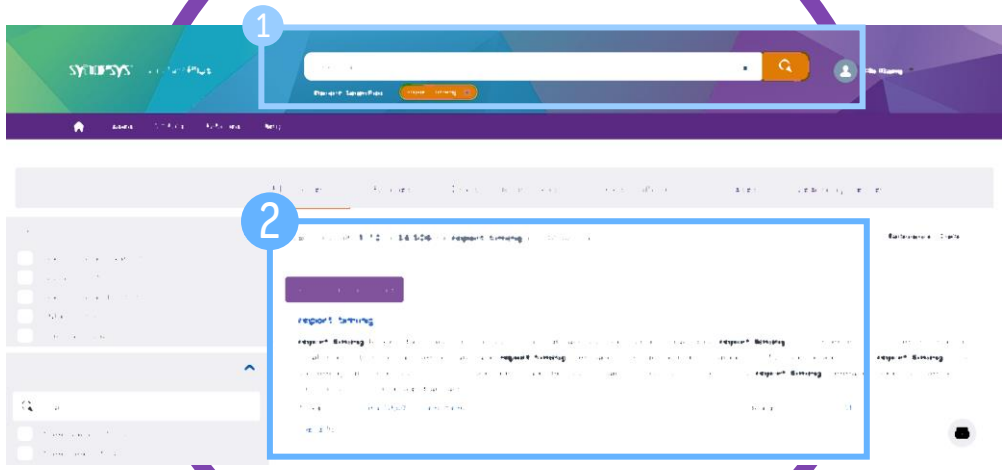
Bachelor Degree Courses	• Analog and Mixed-Signal IC Physical Design • Custom Analog Design Flow Tutorial • Statistical Techniques for Timing Analysis: Current State and Trends • Thermal and Electro-Thermal Simulation: Achievements and Trends • Signal and Power Integrity: Current State and New Approaches • Verification Methodologies for Low Power • Characterization with SiliconSmart • Signal Processing and Systems Theory
Master Degree Courses	• High Speed SerDes Design • Synopsys EDA Tool Flow for Back-End Digital IC Design • Synopsys EDA Tool Flow for Front-End Digital IC Design • IC Synthesis and Optimization with Fusion Compiler • Advanced Methods in Logic Synthesis and Equivalence Checking • Low Power Design with SAED 14nm EDK • Low Power Methodology Manual for 14nm • Memory PHY and DRAM • Soft IP Development • Universal Verification Methodology • Analog Modeling with Verilog-A

General Courses

Bachelor Degree Courses	• Numerical and Logic Bases of Digital Circuits • Electrotechnical Bases of Electronic Circuits • Chip Design • Static Timing Analysis • IC Fabrication • Fundamentals of Telecommunications • Introduction to RF Communication • RF Circuits • Applied Probability • Python • Tool Command Language (TCL) • Scripting Languages for Beginners • Programming Languages and Compilers Verilog • Computer Networks • Fuzzy Logic • LINUX System and Network Administration	• Computer Architecture and Engineering • Algorithms and Structural Programming • Database Management System • IC Schematic Design Algorithms • Introduction to Algorithms • User Interface Design • ARC Processor-Based Embedded Programming • How to Create an Interoperable PDK • Physical Verification Runset Development
Master Degree Courses	• IC Design Flow • Synopsys Design Flow Tutorial • IC Design for Thermal Issues • SystemVerilog • Operational Calculus • Optimization Methods • Complex Functions • Fourier Transformations • Computer Language Engineering • Design of Programming Languages • IC Design Algorithms • Compiler Optimization and Code Generation	

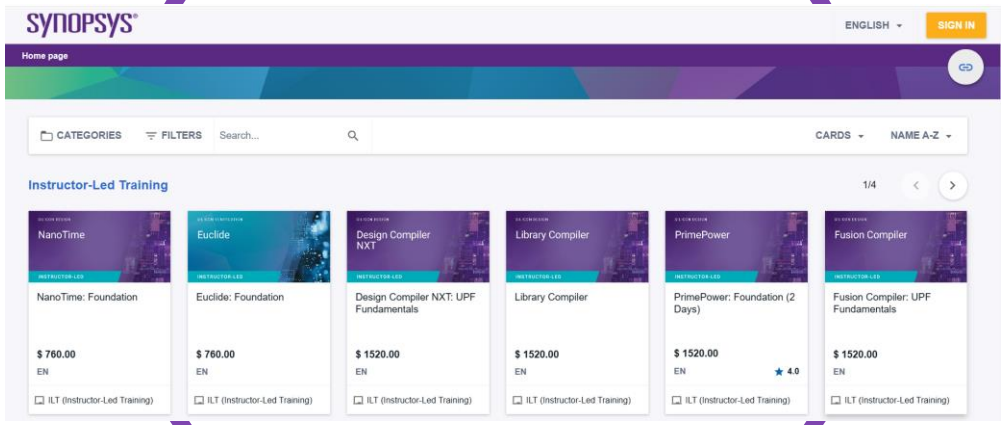
How to Find the Courses?

1 From SolvNetPlus



1. Type the name of the course you want to search for in the search bar
2. Get the search results

2 From Learning Center



Directly access Synopsys Learning Center to find the courses

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Libraries, PDKs, and Memory Compiler

Generic Libraries (EDK)

Enable students to master advanced design methods for low power, IoT, and automotive applications using the latest Synopsys EDA tools.

Interoperable PDKs

Enable students to master the design of analog and mixed-signal ICs and Ips using the latest Synopsys Custom Implementation tools. Each PDK includes documentation and design infrastructure elements.

Generic Memory Compiler

Available for academic use when custom tailoring memory circuits for specific design needs.

Reference Methodology Retrieval System

Rmgen provides an easy way to configure and download product-specific and release-specific reference methodology scripts. These are a starting point for developing product-specific flow scripts. Customize the scripts to work in your design environment.

! These resources are accessible only to **authorized users**.
For further inquiries, please contact sara-tw@synopsys.com

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THANK YOU

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