AMERICAN UNIVERSITY
OF CYPRUS

Course Code MH481	**Course Name** VLSI Design	**ECTS Credit** 7.5
Pre-Requisite	**Course Type** Major Elective	**Language of Instruction** English
Year of Study 4th /8th	**Level of Course** BSc/1st Cycle	**Mode of Delivery** On Campus

Course Objectives:

Give an introductory perspective of the modern digital Very Large Scale Integration circuits examining technology, design analysis and performance.

Provide hands-on experience of layout level design and simulation.

Learning Outcomes:

After completion of the course students are expected to be able to:

• Explain the VLSI technology and discuss the main issues of the modern microchips manufacturing process.

• Analyze and design VLSI circuits using layout editor and other CAD tools for the evaluation and simulation of their designs.

• Define and utilize higher abstraction level design methods and hardware description languages.

• Estimate the engineering cost of designing, verification, fabrication and testing of modern VLSI circuits.

• Describe the VLSI technology and understand the main issues of the modern microchips manufacturing process.

Teaching Methodology:

Lectures 42 hours

Labs 30 hours

Course Content

• Introduction to CMOS logic.

• Fabrication and layout of MOS circuits.

• Logic design, circuit design and physical design.

• MOS transistor theory.

• Ideal and non-ideal I-V characteristics.

• DC transfer characteristics

• Switch Level RC delay models

• CMOS processing technologies

• Circuit Characterization and performance evaluation.

Assessment Methodology:

Final Exam

Mid-term/Lab Exam

Required Textbooks/Reading:

Title	Author(s)	Publisher	Year
CMOS VLSI Design A Circuits and Systems Perspective	Neil Weste and David Harris	Addison Wesley	2005