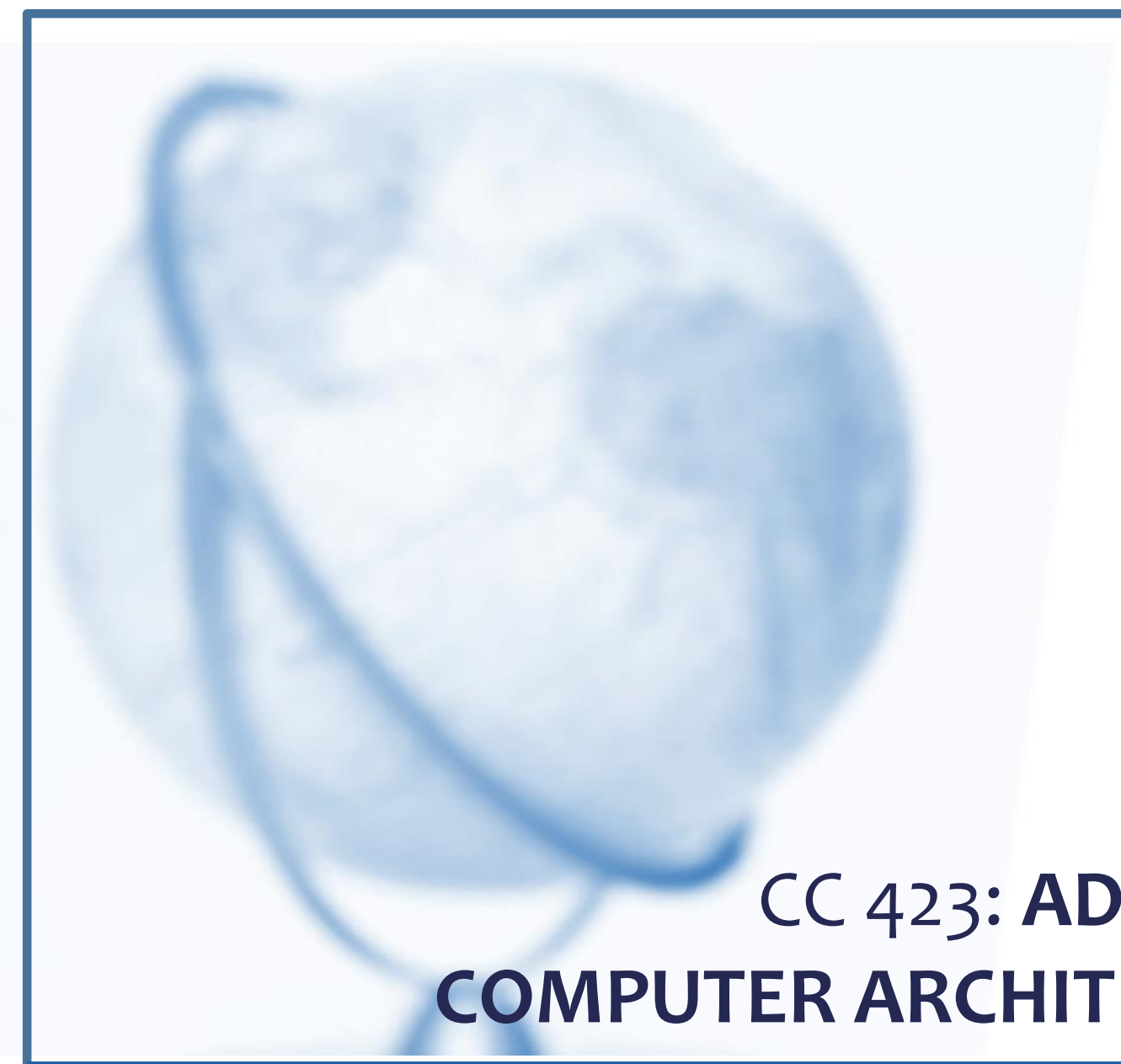

CC 423: **ADVANCED COMPUTER ARCHITECTURE**

Dr. Mohammed M. Farag

Faculty of Engineering
Alexandria University

Course Staff

- Instructor:
  - Dr. Mohammed Morsy (mmorsy@ieee.org)
    - 4th Floor ECE Building
- TAs:
  - Eng. Fatma Anwar
- Office hours :
  - Saturday: 10:00-11:30AM

Basic Info.

- Textbooks
  - "*Computer architecture: a quantitative approach.*", Patterson, David A., and John L. Hennessy. 5th ed
- Supplementary References
  - "Digital Design and Computer Architecture", David Harris, Sarah Harris, 2nd Edition
  - "*Computer organization and design: the hardware/software interface*", Patterson, David A., and John L. Hennessy. 5th ed
- Prerequisites
  - Computer Architecture
- Computer tools:
  - https://www.aldec.com/en/products/fpga_simulation/active_hdl_student

Course Outline

- Design principles associated with modern parallel computer architectures
- Overview of Pipelining and memory hierarchy
- Processor Design using Hardware Description Languages
- Instruction Level Parallelism
- Data-Level Parallelism in
- Vector, SIMD, and GPU Architectures
- Thread-Level Parallelism

Course Work

- Homework Assignments: 10 marks
- Project: You can choose only one of the following three projects
  - Design of A SPARCv8- Compatible Processor (30marks+bonus)
  - Research on Computer Architecture (30 marks)
  - Survey on Processors or Computer Systems (30 marks)
- Midterm exam: 20 marks
- Final Exam: 40 marks

Course Webpage

- All course materials and lecture slides will be published to the following website:

http://eng.staff.alexu.edu.eg/~mmorsy/Courses/Undergraduate/CC423_Advanced_Computer_Architecture/CC423.html

- Announcements and course updates will be published on the course webpage