CSC462 ADVANCED COMPUTER ARCHITECTURE

Learning Outcomes

- To be able to describe the various architectural concepts that may be applied to optimize and enhance the classical Von Neumann architecture into high performance computing hardware systems.
- To be able to describe the design issues relating to the architectural options.
- To be able to describe the challenges faced in the implementation of these high performance system.
- To be able to identify, assess contemporary practical examples and contemporary application areas.

Content

Limitations of the classical Von Neumann model; Parallel Processing: overview and basic concepts; Memory subsystem for parallel architectures; Principles of pipelining and pipeline design; Vector Processing System Architecture; instruction level parallelism including Superscalar and VLIW architectures; multi-core architectures; data parallel including array Processor architectures; MIMD Architectures: Shared memory systems and Distributed memory systems; Interconnection structures for Shared memory and for Distributed memory systems.

Pre-requisites

- CSC213 Computer Architecture

Delivery

Lectures, Case Studies.