PART I.
Catalog Description:

Parallel computer models, program and network properties. Principles of scalable performance, processors and memory hierarchy, cache and shared memory. Pipelining, Multi-processors and Multi-computers. SIMD and MIMD architectures.

PART II.

Major, Measurable Learning Objectives

Having successfully completed this course, the student will be able to:
- Describe computer performance metrics.
- Compare state-of-the-art computer architectures based on relevant performance metrics.
- Model and analyze interconnection network designs for parallel computer architectures.
- Analyze applications programs, formulate approaches for implementing the programs on advanced architectures, and select the most appropriate architecture to achieve a desired level of performance.

PART III. Texts and Special Teaching Aids


PART IV. Topics

- Computer architectures, taxonomies, performance models
- Principles of scalable performance
- Performance metrics
- Pipelining, vector processing, superscalar architectures
- Interconnection networks and performance comparisons
- SIMD systems: system case studies and applications
- MIMD systems: system case studies and applications
- Software support for massively parallel architectures
PART V. Tentative Grading

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<tr>
<td>Home Work</td>
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<td>Final-Exam</td>
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Part VI: Honor Code

The Alexandria University honor code will be strictly enforced.