

Course Outline

1. Document Information

Degree Program	Computer Science
Course Number	CS 501
Course Title	Advanced Computer Architecture
Semester Hours	3
Course Coordinator	Chun-Hsi Huang
Revision Term	Fall 2020
Latest Revision	Spring 2021

2. Catalog Description

Hardware and software elements of multiprocessors, multicomputers, pipeline and array machines, data flow architecture, and other state-of-the-art architectures. Design principles related to machine structures, interconnection networks, control software and hardware, data storage and access.

3. Textbooks

4. References

5. Course Learning Outcomes

6. Assessment of the Contribution to Student Outcomes

Outcome	1	2	3	4	5	6	7
Assessed	X	X	X		X		

7. Prerequisites by Topic

CS 401

8. Major Topics Covered in the Course

1. Classification of parallel machines {3 classes}
2. Interconnection networks {8 classes}
3. Multiprocessor architectures {6 classes}
4. Multicomputer architectures {6 classes}
5. Array processors {3 classes}
6. Hybrid architectures {3 classes}
7. Parallelism detection and parallel compilers {3 classes}
8. Special purpose systems {4 classes}
9. State-of-the-art architectures {2 classes}
10. Future directions of parallel and distributed architectures {2 classes}