

Basic Course Information: CS 696

I. Catalog Description

Independent investigation intended to be an extension of an existing body of knowledge. Reporting of research results in an oral presentation and acceptable written form. Credit assigned upon successful completion of thesis and oral presentation. Total credit limited to 3 units, but may be repeated until completion.

II. Required Coursework and Background

Pre-requisite(s): Pass or waiver for the GWT and CS 691. Advancement to Candidacy and approval of project committee required.

III. Expected Outcomes

On successful completion of this course, students will be able to:

- Study in-depth a specific research topic in computer science.
- Gain experience in reading and understanding technical articles.
- Gain programming experience in large-scale project.
- Gain experience in writing thesis report.
- Communicate effectively and defend research results orally

Outcomes of this course will build student capacity in each of the following areas as defined by programmatic objectives for the computer science major.

P-SLO 5. An ability of reasoning and problem solving to conduct independent research in the area of specialization.

P-SLO 6. An ability to communicate effectively and defend results of research to peers and broader audiences, both in written and verbal formats

IV. Instructional Materials

Reference:

Selected advanced technical papers in recent computer science publications and relevant textbooks.

V. Minimum Student Material

Selected technical papers (library) and relevant textbooks (library reserve).

VI. Minimum College Facilities

N/A

VII. Course Outline

Topics may vary with instructor and over time. Examples of possible topics might include:

Big Data

Computer Architecture

Computer Graphics, Vision, Animation, and Game Science

Machine Learning

Theory of Computation

Wireless and Sensor Systems

Computer Networks and Security

Artificial intelligence and robotics

Software Engineering

Virtual Reality

Human-computer Interaction
 Optical Computing
 Neural Networks
 Parallel and Distributed Computing
 Data Mining
 Cloud Computing
 Mobile Computing
 Cryptography
 Voice and Speech Recognition
 Genetic Algorithms
 DNA-based and molecular computers
 Computers in Medicine
 Computing in the 21st Century

VIII. Instructional Methods

Research advisor will hold weekly meeting with the student.

IX. Evaluation of Outcomes

A. Student Assessment

1. Research project
2. Thesis
3. Oral presentation

B. Meaningful Writing Assignment

Students are required to write Master thesis and prepare presentation slides.

C. A Matrix of Course Student Learning Outcomes vs Methods of Assessment

If the course is being evaluated for accreditation purposes, approved department accreditation assessment tools will additionally be utilized.

Course Learning Outcomes	Methods of Assessment		
	Research Projects	Thesis	Oral Presentation
Study in-depth a specific research topic in computer science.	x	x	
Gain experience in reading and understanding technical articles.	x	x	
Gain programming experience in large-scale project.	x		
Gain experience in writing thesis report.		x	
Communicate effectively and defend research results orally			x