

CPSC 589
Seminar in Computer Science
Introduction

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Outlines Now we are here!

1. Introduction
2. Research Resources and References
3. Research Topics in Computer Science
4. Survey
5. Presentation
6. Research Proposal

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Introduction

Research in Computer Science

Course Objectives

- Find research topics for CPSC 597 (Project) and CPSC 598 (Thesis) in the CSUF Computer Science MS program
- Investigate research resources
- Learn how to
 - Survey
 - Present research work
 - Propose research projects

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Computer Science MS Program


- CPSC 597: Project
 - Applied computing projects
 - Development of software
 - Systems development projects
 - Theoretical studies also possible
 - Good for the students choosing technical/business careers
- CPSC 598: Thesis
 - More creative components
 - Good for the students pursuing Ph.D. and academic/research careers

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Software Development

- Performed by using software engineering techniques and computer science principles to produce a working representation of the problem
 - Perform a requirements analysis and write software specification
 - Design a software solution from the specifications
 - Implement the design in computer programs
 - Test and integrate the software programs
 - Write the required documents
 - Demonstrate the project
 - Deliver the software project and documents

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Systems Development Projects

- Emphasis on developing systems that are both hardware and software intensive
- Designed and developed to interact with a special hardware environment

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Theoretical Studies

- Explore and investigate a computer science problem or topic by:
 - Analyzing the problem or topic
 - Conducting extensive research
 - Summarizing the findings from the research investigation
 - Recommending additional research on the topic
 - Drawing conclusions from the study
 - (May or may not include software development)

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Project Planning

- Identify a computer science problem
- Perform an analysis of the problem
- Postulate a solution
- Investigate current research to support the solution
- Solve the problem
- Test the solution
- Document the results
- Demonstrate the project program
- Deliver the final product

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Related Documents

- Graduate Handbook: A Guide to the Master's Degree Program, CSUF CS Dept (Find a new edition).
- Master's Project Guidelines, CSUF, CS Department, (Find a new edition).
- CSUF Computer Science Department, Forms & Documents:
<http://cs.fullerton.edu/>

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Related Documents (Forms)

- CPSC 597: Project Definition Form
 - Tentative title of project
 - Project proposal
 - Advisor
 - Reviewer
- Final Project Form
 - Presentation
 - Advisor
 - Reviewer

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Related Documents

- CPSC 598: Thesis Guideline, CSUF Graduate Studies Office, MH 103,
<http://www.fullerton.edu/graduate/>

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Project Prerequisites

- You must register in either CPSC 597 (Projects) or CPSC 598 (Thesis) in order to complete the CS project or thesis.
- Must be classified as a graduate student
- Deadlines
 - The last day of instruction of the semester before you register in CPSC 597 or 598.

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General Procedures

- Select project topic or problem
 - Think early
 - Computer science classes and references
 - Faculty research interests and samples
- Select project advisor and reviewer
 - Full-time faculties
- Prepare project proposal
 - Project Definition Form

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Project Proposal

- Project topic
- Problem objectives
- Project activities
 - Development phases, tasks, HW, SW
- Development environment
- Project results
 - Design document, source code, user's manuals, final report
- Project schedule
 - Milestones, estimated time: 150 hours – 200 hours
- Submit project proposal (Project Def. Form)
 - Must be approved prior to enrolling CPSC 597

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Perform Project Tasks

- Submit progress reports
- Create draft project document
- Demonstrate the project
 - Oral representation for theoretical studies
- Bibliography
- Submit final project and report
- Final evaluation

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Final Project and Report

- Bound in a single binder (multiple binders are acceptable for very large reports)
- Size: 8½ inches by 12 inches
- Coil binding, comb binding, fabric binding, and looseleaf ring binders are not acceptable.
 - e.g., Kingko's VeloBind is acceptable.
- Hardcopy: MS Word or PDF format with a CD
 - 4 copies must be submitted.
 - For student, advisor, reviewer and department

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Final Evaluation

- Quality of the final project report
- Quality of the product developed
- How well the tasks were performed
- The difficulty of the project

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Guidelines for SW Development Project Report

- Approval cover page (approval form)
- Table of Contents, Tables, Figures, and Appendix
- Introduction
- Description of the Problem
- Project Objectives
- Introduction to the Technical Problem
- Technical Description of the Problem
- SW System Objectives
- SW Functions
- SW Interfaces
- SW Specifications
- SW Design
- SW Implementation
- Test and Integration
- System Delivery
- Recommendations for Enhancement
- Bibliography, citing all references used

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Guidelines for Systems Development Project Report

- Approval cover page (approval form)
- Table of Contents, Tables, Figures, and Appendix
- Introduction
- Problem Definition
- Goals for the System
- System Constraints
- Description of the User Environment
- Development Operating Environment
- System Architecture
- System Interfaces
- Hardware Architecture
- Software Architecture
- Design and Implementation
- System Integration and Test
- Recommendations for Enhancement
- Bibliography, citing all references used

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Guidelines for Theoretical Studies Projects

- Approval cover page (approval form)
- Table of Contents, Tables, Figures, and Appendix
- Introduction
- Definition of the Problem
- Objectives of the Study
- Significance of the Problem
- Review of Significant Research
- Assumptions and Limitations
- Research Approach and Methodology
- Research Results
- Analysis of the Results
- Summary and Conclusions
- Bibliography, citing all references used

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Project Definition Form

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Final Project Report Form

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Example Schedule

Date	2011				2012				2013				2014				Summary	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	Hours	Percent
Attendance	10	10	8	8													36	100%
Group			4	4	10	8											30	83%
Code & Test Run					4	4	10	4									30	83%
Impress & Test							4	4	10	10	10	10					48	133%
Other Work Hours													4	4			14	44%
Other Paid Hours											4	10	10	10			30	83%
Overhead																	4	11%
Hours	10	10	12	12	14	14	14	10	10	10	10	10	14	14	10	4	202	100%

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CPSC 598: Thesis

- For Thesis, see Graduate Regulations
 - Graduate Studies Office, MH 103
 - http://www.fullerton.edu/catalog/graduate_regulations/
 - General regulations
 - Format guidelines and style Manuals
 - Deadlines
 - Final procedures
 - Approval signatures
 - University thesis reader
 - Binding and microfilming
 - Notification for award of the degree
 - Depositing of thesis in library

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References

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- Master's Project and Thesis Guidelines, CSUF Computer Science Dept.
- CSUF Computer Science, Forms & Documents: <http://cs.fullerton.edu/>

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