



01/11: Course Overview

CSE 498, Collaborative Design

*From Students...
...to Professionals*

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Spring 2010



S Course Overview

➤ Course Logistics

*From Students...
...to Professionals*

- Client Projects
- Course Logistics Continued

S CSE 498, Collaborative Design

- “The Capstone Course”
- Instructors
 - Dr. Wayne Dyksen (“Dr. D.”)
 - Ken Horne
- Class Meetings
MW, 3:00-3:50pm, 2400 EB
- Course Web Site
 - www.cse.msu.edu/~cse498
 - Check it often.

S Course Goals

- Work in a Team Environment
- Build a Significant Software System
- Use (New) Tools and Environments
- Build and Administer Systems
- Develop Your Communication Skills
- Develop Interview Talking Points
- Etc...

S Team Course Goal

- Build Large Software Project
 - Design
 - Architect
 - Develop
 - Test
 - Document
 - Deliver
- For Client
- From (Almost) Nothing
- In 15 (Short) Weeks

S Project Deliverables

- Project Plan Document & Presentation
- Alpha Demonstration
- Beta Demonstration
- Project Software & Documentation
- Project Video
- Design Day
- Team Web Site

See [Other Information](#), [Major Milestones](#)

S All-Hands Meetings

Presentations By

- Professor
- Teams
 - Status Reports
 - Software Demonstrations
 - Formal Presentations
 - Project Videos
- Guest Speakers

S All-Hands Meeting Agendas

- | | |
|--|--|
| <ul style="list-style-type: none"> 01/11: Course Overview / Course Inventory 01/13: Project Plan / Team Assignments 01/18: (Martin Luther King Day, No Meeting) 01/20: Project Schedule & Risk 01/25: Teams: Status Reports 01/27: Prototyping 02/01: Teams: Project Plans 02/03: Teams: Project Plans 02/08: Teams: Project Plans 02/10: Teams: Project Plans 02/15: Resume Writing & Interviewing 02/17: Creating & Giving Presentations 02/22: Teams: Alpha Demonstrations 02/24: Teams: Alpha Demonstrations 03/01: Teams: Alpha Demonstrations 03/03: Teams: Alpha Demonstrations 03/08: (Spring Break, No Meeting) 03/10: (Spring Break, No Meeting) | <ul style="list-style-type: none"> 03/15: Teams: Status Reports &/or Demos 03/17: Teams: Status Reports &/or Demos 03/22: The Project Video 03/24: Camtasia Demo 03/29: Ethics and Professionalism 03/31: Intellectual Property and Copyright 04/05: Teams: Beta Demonstrations 04/07: Teams: Beta Demonstrations 04/12: Teams: Beta Demonstrations 04/14: Teams: Beta Demonstrations 04/19: Teams: Status Reports &/or Demos 04/21: Teams: Status Reports &/or Demos 04/26: Teams: Project Videos 04/28: Teams: Project Videos and All Deliverables 04/29: Design Day Setup 04/30: Design Day 05/04: Teams: Project Videos |
|--|--|

S CSE498 Lab

- | | |
|---|---|
| <ul style="list-style-type: none"> • 3352 EB • Door Lock <ul style="list-style-type: none"> – Electronic Keypad – Code = ##### • Systems <ul style="list-style-type: none"> – Two PC's per Team <ul style="list-style-type: none"> • Server • Development Machine – Team 100% Responsible <ul style="list-style-type: none"> • Building • Maintaining • Securing • Backing Up • Books | <ul style="list-style-type: none"> • Conference Area <ul style="list-style-type: none"> – Team Meetings – Client Conference Calls – Google Calendar • Appliances <ul style="list-style-type: none"> – Refrigerator – Microwave – Coffee Maker • Lockable Storage (If Needed) |
|---|---|

S Scheduled Lab Times

- No Formal Lab Sessions
- “Credit” for Scheduled Weekly Meetings
 - Team Meeting
 - Client Conference Call
 - Triage Meeting with Ken
- Meeting Times TBA With
 - Team
 - Client
 - Ken
- Students must be available to meet.

S IP & NDA's

- IP: Intellectual Property
 - By Default, Owned by You
 - Client May Request
 - Right to Use
 - Assignment of Ownership
 - Etc.
- NDA: Non-Disclosure Agreement
 - May Be Required by Client
 - You will...
 - ...respect/protect intellectual property.
 - ...respect/protect source code.
 - ...etc.
- Normally Not an Issue

S Course Overview

✓ Course Logistics

*From Students...
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➤ Client Projects

- Course Logistics Continued

S Team / Project Generalities

- Clients
 - Vary in Size and Type
 - Client contacts/mentors are “volunteers”.
- Team Contact Person
 - Picked By Team
 - Main Point of Contact for Client

S Team / Project Generalities

- Project Level of Difficulty
 - Hard Enough
 - But Not too Hard
- Deliverable
 - To the Client
 - By the Due Date
- Documentation
 - System Administration Manual
 - Users Manual

S Team / Project Generalities

- Challenges
 - Very Short, Unforgiving Time Line
 - Client Contact
 - Team Dynamics
 - Architecture / Specifications (in Three Weeks)
 - Entirely New...
 - Languages
 - Environments
 - API's
 - SDK's
 - Processes
 - Protocols
 - Etc.
 - Project Management
 - Etc...

S Project Specifics

- Vary
 - Type
 - Current State of Specificity
- Challenge
 - Connect with Client
 - “Nail Down” the Project
 - Hard Enough
 - Not too Hard
 - Course Feature, Not Bug

S Project Teams/Clients

- Team Auto-Owners Insurance
- Team Boeing
- Team Chrysler
- Team GE Aviation
- Team Medtronic
- Team Meijer
- Team Motorola
- Team Raytheon
- Team TechSmith
- Team Terex
- Team Urban Science

S Team [Auto-Owners Insurance](#) Project Overview

- Dashboard
 - Weather Incidents
 - Statistical Reporting
 - Informational Reporting
- Weather Incident Verification System
 - Determine Weather Incidents
 - Based on Street Address
 - Using Weather Web Services
 - Used by Claims Associates
- Features
 - Policy Information
 - Emailing Reports
 - Mobile Device Support
- Technologies
 - ASP.NET
 - Visual Studio 2008
 - iPhone, Blackberry
 - Web Services
 - Etc...



Team [Boeing](#) Project Overview



XML Texture Composition

- OSG Plugin for Boeing Modeling & Simulation Applications
 - Enable Visual Replay of Simulation Activity
 - Enhance Special Effects and Realism
 - Use Sparse Virtual Texturing
- XML Texture Composition Capability
 - Extend Capstone [Sparse Virtual Texturing](#), Fall 2009
 - Apply Multiple Textures to a Specific Geographic Location
 - Manage Exclusiveness, Inclusiveness, and Priority
- Runtime Capability
 - Add Inset (Image) to the Terrain
 - At Current Viewer Resolution
 - Inside Specified Bounding Box
- Technologies
 - Sparse Virtual Texturing
 - OpenSceneGraph
 - XML
 - Texture Composition
 - C++ and OpenGL Threads
 - Etc...



Team [Chrysler](#) Project Overview



Manufacturing Dashboard Migration

- Existing Manufacturing Dashboard
 - Meets Current Business Partners' Requirements
 - Prior to Industry Standards and Software Packages
 - Difficult to Provide New Functionality
- New Manufacturing Dashboard
 - Executive Level to Plant Floor Personnel
 - 50 Real-time Charts and Graphs
 - News and Events
 - Focus on Warren Stamping Plant
 - SharePoint Portal
- Technologies
 - Microsoft SharePoint Services
 - SQL Reporting Services
 - RDBMS Technologies (UDB, Sybase, DB2)
 - Performance Point
 - Etc...



Team [GE Aviation](#) Project Overview



Flight Deck Lateral Map Display

- Lateral Map Display
 - Top Down View of Aircraft's Situation
 - Features
 - Present Position
 - Heading
 - Ground Speed
 - Terrain
 - Weather
 - Flight Plan Line
 - Waypoints
 - Selectable Navigation Aids
 - Geopolitical Features
 - Interactivity
 - Etc.
- Integrate With XPlane
- Technologies
 - Map and Terrain Databases
 - Open GL, GL Studio
 - XPlane
 - Capstone [Synthetic Vision Display](#), Fall 2009
 - Etc.



Team [Medtronic](#) Project Overview



Mobile Health Management System

- Manage Chronic Disease
 - Improve Quality of Life
 - Reduce Costs (Currently 80% of All Health Care Costs)
- Web App
 - Create and Track Goals
 - Provide Feedback on Health and Wellness
- iPhone App
 - Track Calorie Intake and Expenditure
 - Suggest Exercise and/or Food Consumption
 - Accept Input from Monitoring Devices
 - Motion (e.g., Nike+)
 - Heart
 - Glucose
- Technologies
 - iPhone
 - Java based web development
 - Microsoft Healthvault
 - Google Health
 - Etc...



Team [Meijer](#) Project Overview



CIO Dashboard

- Dashboard of ITS (Information Technology Services) KPI's
 - Target for CIO and ITS Leadership
 - Build on Capstone [ITS Scorecard Dashboard](#), Fall 2009
 - Features
 - Spotlighting of Actual vs. Goal
 - Drill-down
 - Trending (Up/Down and Rolling)
 - Alerts/Notification
 - Consistency of Delivery and Format
- Extensible Architecture
 - Framework
 - Templates
 - Standards
- Technologies
 - Microsoft SharePoint 2007
 - Visual Studio 2005
 - Microsoft SQL Server 2008
 - Etc...



Team [Motorola](#) Project Overview



Mobile User Generated Video Service

- User Videos from Mobile Phone to Home TV
 - Users Generate Videos
 - Capture with Mobile Phone
 - Upload from Mobile Phone to Service
 - Family and Friends View Videos
 - On Home TV
 - Using Cable TV Set Top Box (STB)
 - Support Apple iPhone and Motorola Droid
- Software Components and Features
 - RESTful Video Services
 - Video On Demand (VOD)
 - Social Networking
 - Allow Friends to View Videos
 - View Friends' Videos
 - Cable TV Set Top Box (STB) Interface
- Technologies
 - iPhone (Objective C) Development - AJAX
 - Android Droid 2.0 Development - Advanced Java and JEE
 - RESTful Web Services - Video on Demand and Other Cable Services
 - Databases - Multimedia Development

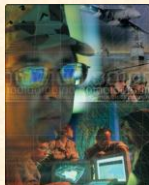


Team [Raytheon](#) Project Overview



Common Interface Adaptors for Command Assurance

- Command Assurance
 - Situational Awareness (SA) Tools
 - Provides 2D and 3D Visualizations of Wide Variety of Sensors
 - Broad Spectrum of Data Representations and Transport Mediums
 - Exploits Multiple Map Engines
- Design and Implement Flexible Isolation Layer
 - Between SA Tools and Sensors
 - Design and Implement Standards
 - Data Representation
 - Transport Medium
 - Handle Wide Variety of Sensors
- Technologies
 - Command Assurance SDK
 - Various Sensors
 - Serial and Parallel Input
 - TCP/IP
 - Windows
 - Linux
 - Etc...



Team [TechSmith](#) Project Overview



Facebook Study Group Application

- Portal for Social Networking Study Group
 - On-line Version of Face-to-Face Study Groups
 - Collaborate Using Rich Media Content Created with TechSmith Products
 - Leverage Features of Facebook Platform
- Students Should be Able to...
 - ...Find Other Students Interested in Same Course
 - ...Invite Friends
 - ...Ask and Answer Questions
 - ...Share Notes
 - ...Create Study Guides
 - ...Promote a Weekly Agenda
 - ...Rotate a Leader/Moderator
 - ...Etc.
- Technologies
 - Facebook Application Development (PHP, JavaScript, ActionScript 3.0)
 - Web Development (HTML, XML, AJAX, .NET)
 - Etc...



Team [Terex](#) Project Overview



Advanced Search for eCommerce

- Existing Terex eCommerce Site
 - Based on Oracle ERP iStore
 - Enhanced to Handle a Variety of Business Requirements
 - User Friendly User Interface
 - Bill of Materials
 - Display of CGM Images via Arbortext Isoviewer
- Advanced Search
 - Across XML, pdf, and CGM
 - Stored in Content Management Server
 - Generate and Upload pdf Documents
 - Based on User Selections
 - Sections of XML Documents
 - Include Table of Contents and Page Numbers
- Technologies
 - JSP/JRE Development
 - Content Management Systems
 - XML
 - Arbortext Isoviewer
 - PDF Generator Plug-ins
 - Etc...



Team [Urban Science](#) Project Overview



Applications for Mobile Devices

- Urban Science Product Suite
 - Automobile Manufacturers and Dealers
 - Business Analysis Tools
 - Registrations
 - Demographics
 - Sales
 - Designed for Internet Explorer on Desktops or Laptops
- Provide Mobile Access
 - Automated Migration from IE-Ready to Mobile Device
 - Handle Personal Access Point via Login
 - Display Text, Tables, Charts, and Maps
 - Target Blackberry, iPhone
- Technologies
 - Microsoft .NET
 - SQL Databases
 - Blackberry, iPhone
 - Etc...



First Assignments



- Read the Syllabus
- Check out the Lab
 - See if you can find it.
 - See if you can get in.
- Check out the Web Site
- Research Clients

What's Next?



- Teams
 - Assignments by Email Tonight
 - Meet Initially by Tuesday Afternoon
 - Lab Machine Assignments in Lab
 - Start Configuring Lab Machines
 - Pictures Wednesday After All-Hands Meeting
- Client
 - Contact by Email by Tuesday Afternoon
 - Contact by Phone Tuesday or Wednesday
 - Review Project Proposal

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 - From Students...
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1-31

S Course Environment

- Business-Like
- Team
 - External Software Development Company
 - Internal Software Development Team
- Dyksen & Horne
 - Are Your
 - External Paying Clients
 - Internal Managers
 - Expect Results
 - On Time
 - No Excuses

S Expectations & Workload

- Extremely High For Both
- Your MSU Career Capstone
- Addition to Your Personal Portfolio
- View Like an Internship
- Interview Talking Points
- Leverage Into a Job Offer

S Major Milestones

- 01/25: Teams: [Status Reports](#)
- 02/01: Teams: [Project Plans](#)
- 02/22: Teams: [Alpha Demonstrations](#)
- 04/05: Teams: [Beta Demonstrations](#)
- 04/26: Teams: [Project Videos](#)
- 04/28: Teams: [Project Videos](#), [All Deliverables](#)
- 04/30: Teams: [Design Day](#)
- 05/04: Teams: [Project Videos](#)

S Meeting Attendance

- Required
 - All-Hands (Class) Meetings
 - Team Triage Meetings
- 5% of Final Grade
- Late == Absent
- Almost No Excuses Accepted
 - One or Two Excused Possible for Interviews
 - Must Provide Information In Advance (Date, Company, Recruiter Name & Contact Info)
- Must Attend (No Excuses Accepted)
 - Your Team Presentations
 - All Final Project Video Viewing
 - Design Day

} Do NOT Schedule Interviews

S Team Organization

- Up to Each Team
- Organize into Roles
 - Client Contact
 - Program Manager
 - Developer
 - Tester
 - Systems Administrator
 - Web Master
 - Etc...
- Everyone Must Make Technical Contributions

S Team Dynamics

- Key to Success
- Significant Component of Course Grade
- Address Problems Immediately
 - Within Team
 - With Dr. D. and/or Ken
- Be Ready to Discuss During Interviews

S Grading (1 of 3)

- Team (70%)

– Project Plan Document & Presentation	10
– Alpha Demonstration	10
– Beta Demonstration	10
– Project Video	15
– Project Software & Documentation	15
– Design Day	5
– Team Web Site	<u>5</u>
	70
- Individual (30%)

– Technical Contribution	10
– Team Contribution	10
– Team Evaluation	5
– Class Meeting Attendance	<u>5</u>
	30

S Grading (2 of 3)

- Final Grade Sum Of...
 - Individual Grade
 - **Percentage** of Team Grade Based on Team Contribution
- Grand Total =

(Individual Total)	}	N.B.
+		
(Team Total) * (Team Contribution) / 10.0		
- Nota Bene: **Your Team Contribution will have a very significant effect on your final grade.**

S Grading (3 of 3)

- We reserve the right to make changes with sufficient notice.
- No special consideration will be given for final grades including but not limited to
 - status in any academic program including CSE,
 - financial aid,
 - rank in the armed forces,
 - job,
 - graduation,
 - mortgage,
 - wedding, or
 - visa status.

S Integrity of Scholarship

- MSU's policies will be enforced.
- Individual and team work must be original.
- Violators...
 - Will be referred to the appropriate deans.
 - May receive a grade of F in the course.

S Using Resources

- Ok For "Help"
 - People
 - Past Capstone Teams
 - Other Capstone Teams
 - Faculty Members
 - Articles
 - Sample Code
 - Etc...
- Not Ok For "Entire" Project
- If Unsure, Ask Dr. D. and/or Ken

S Using Existing Code

- Ok
 - Examples
 - Prototypes
 - Open Source Code
 - Fragments
 - Libraries
 - Utilities
- Not Ok
 - Vast Amounts of Your Project
 - Not Open Source
- Document and Report All Existing Code Used
- Be Careful!
- If Unsure, Ask Dr. D. and/or Ken

S Design Day

- College of Engineering Event
 - MSU Union
 - Friday Morning, April 30
- Displays (Booths) of Design Projects
 - CSE Capstone
 - ECE Capstone
 - ME Capstone
 - Etc...
- Presentations and Awards
 - Panel of Judges
 - CSE Team Project Videos

S VISA

- Verified Individualized Services and Accommodations
- Let us know **immediately**.
- We will work with you.

S Office Hours

- Any Time...
 - Visit
 - Call
 - Send Email
- Make Appointment

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1-47

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UNIVERSITY

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