CSC 464/465 Senior Design I/II 2015-2016

2+2 credits 9:00am-9:50am, T Th SDSMT

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Dept Office: M 308 **Messages:** 394-2471

Class Location: M306 (Fall) / M304 (Spring) **Office Hours:** by appointment

1 Overview and Administration

Catalog description:

CSC 464 SENIOR DESIGN I (2-0) 2 credits. Pre-requisites: CSC 470. This is a team-based project-design course. This course will focus on the design process and culminate with the faculty approval of design projects. Typical topics included are the development of a design document; identification of customer needs; development of specifications; consideration of alternate designs using a decision matrix; project management techniques; and legal, global, and ethical issues.

CSC 465 SENIOR DESIGN II (2-0) 2 credits. Pre-requisites: CSC 464. This course is a continuation of CSC 464. The student will complete the project approved in CSC 464. It will require that the students implement the design projects in a simulated industrial environment. Specific requirements may include detailed laboratory notebook, periodic written and oral progress reports, and a written and oral presentation of a final project report.

Course description: Senior Design I and II form a two semester design sequence. You will form teams to produce a software product using the standard methods in software engineering. These courses will stress teaming, communication (written and oral), ethics, and design. There are a number of documents (such as the requirements document, testing document, implementation plan, design document) and reports that will be produced as well as the core project. A writing rubric will be used to assess the written documents. Note: this course is not about technology. It is a course about industry processes and business needs.

The class will meet twice a week. Some of the team activities will be presentations of current progress which is expected at each team meeting. Evaluation of the final presentation will be conducted by Computer Science faculty members using the rubrics discussed in class. The goal is to assess the technical communication skills, the knowledge of the software engineering process and the domain specific knowledge. Attendance at presentations is required. Teams will get ready to participate in the Senior Design Fair occurring in April. A poster, short written description, presentation and demo is expected.

Teams: An essential part of this project is gaining a team experience. This is not just dividing up the work in $\frac{1}{n}$ components and calling it good. If you do this, you have failed to achieve the goal of teaming. The strength of a team is that it is greater than the sum of its parts. A good team will design together, work jointly and provide each other with feedback (constructive criticism). They help each other become stronger. These aspects are a graded part of the course.

ABET Goals: Teaming, Communication, Ethics, Globalization and Security.

Course Goals: Understand team mechanics. Understand the tasks involved in a software development process. Understand the application of testing techniques in the development of a software product. Reinforce the understanding of the different phases of software development.

Course Outcomes:
A student who successfully completes this course should, at a minimum, be able to:

1. Students will gain experience with a large project, client driven requirements and standard design practices. *Assessment:* Design Document.

2. Students will gain experience working in teams and communications. *Assessment:* Client presentations, Sprint reports, Design Document.

3. Students will learn about standard software engineering practice and tools used, such as versioning and management software. *Assessment:* resume, contract, code repository and cms use.

4. Students will gain experience in documentation and testing. *Assessment:* Design Document.

5. Students will learn about the profession with respect to globalization, intellectual property, ethics, entrepreneurship, and business issues. *Assessment:* quizzes.

Global Awareness Aspect of the Course:
Goal: Identify globalization issues that may affect the development and implementation of a software product.
Student Learning Outcomes (as a result of taking courses to meet this goal, students will):

1. Demonstrate a basic understanding of the concept of globalization in the context of software development (e.g. outsourcing, intellectual property issues, ethical issues)

2. Identify and analyze global issues that impact software implementation (e.g. coding conventions, government regulations, interface issues, Internet issues).

Writing Intensive Aspect of the Course:
Goal: Students in this course will write effectively and responsibly within their discipline. Student Learning Outcomes (as a result of taking courses to meet this goal, students will):

1. Produce documents written for technical, professional, and general audiences within the context of their disciplines.

2. Identify, evaluate and use sources of information from within their discipline for writing assignments.

3. Use instructor feedback throughout the semester to improve the quality of their writing.

Professional Component: Engineering Design: 2.0 credit or 100%

Text: None

Professional Conduct: This course is an introduction to a professional career. Interaction with your team members and classmates will at all times be professional, positive and ethical. Formal business attire is expected for presentations. Respect for classmates is expected. This will be reflected in your grade. Part of professional conduct is attending to communications. You are expected to reply to emails in a timely manner with a professional tone. You are expected to attend the team and client meetings unless arrangements have been made.

Note: This course is about the profession of software development; not about technology. You will take on a project submitted by someone in the community. Lack of commitment on your part can negatively impact your teammates and the reputation of the department; something the faculty will not ignore. Do not continue with this course if you know that you have heavy school, work, family or other obligations. Not taking your commitments seriously may result in termination from the course.

Program Evaluation: You are required to complete a degree check or program evaluation prior to starting on a project. This is done simply by emailing or meeting with your advisor, and requesting this be done. Let them know that you need the degree check prior to starting Senior Design.

Projects and Project Selection: Projects are submitted by our industrial clients or campus organizations. No student projects are accepted. The client will normally act as the project manager unless other arrangements have been made.[1] Project descriptions are given in the first week or two of the course. Students are asked to submit an ordered list of preferences for projects along with a resume. Every effort is made to assign students to their first or second preference. However, some very desirable projects may have more students than available spots. When that occurs, background experience and GPA will be used to select the students.

Intellectual Property: Before your team can start on work, your team and client will sign a software contract which will spell out intellectual property and deliverables. This is part of the documentation credit. Ownership of

[1] For example a campus faculty member may step in for a client.

the intellectual property must be defined before work proceeds and the details will vary from project to project. In most cases, the sponsor will retain ownership.

Software Engineering Approach: This course is Agile based and the teams will participate in the Agile development process. Agile Development is the industry standard for rapid development of quality software. Agile really refers to a family of approaches and for this course we will use Scrum. An Agile project management tool will be introduced and used (for example - Trello).

Code: Source code will be part of the deliverables at the end of Senior Design II. Your code must follow the CS Department Coding Standard (as given in CSC 250). Clarity and consistency is very important. Although your grade in 464 is not based on the code, starting out with good coding habits will help in 465 when the source code is part of the final grade. The code becomes property of the client or SDSMT. All code must be developed by the team. Use of Open Source or Freeware must be authorized by the instructor or the client. Code which contains copyrights (for any external individuals or team members) will not be accepted.

Code management: All documents, communications, worklog and code will be managed by the Computer Science department's code management system (CMS). Graded materials will be developed and must reside on the CMS. A history of source code development must be present on the CMS. Daily check-ins of code is required.

Exams: No exams (several quizzes).
Suggested Materials: A computer. Software development tools.
Course delivery: This course will be presented as an on-campus lecture.
Instructional Methods: Mix of lecture, discussion, team interaction and student presentations.

Class Assessment Methods: Several different assessment methods will be employed in evaluating student learning. The project, design documents, oral and written presentations will be the main assessment tools for this class. Note that oral presentations are expected by all students (not just team representatives). Details on assessment such as rubrics and expectations are outlined in the assessment section.

Grading:

Grades for 464 will be based on:

- 50 points - Resume and Industry Experience
- 25 points - Software Development Contract
- 100 points - Project and Code Management
- 200 points - Client presentations (2 @ 100 each)
- 75 points - Sprint Reports (3 @ 25 each)
- 300 points - Prototypes (3 @ 100 each)
- 200 points - Documentation
- 50 points - Ethics quiz
- Binary - Degree check

Total = 1000 pts

$$\text{Grade percentage} = degck \times \frac{\text{sum of points}}{1000}$$

Grades for 465 will be based on:

- 50 points - Globalization / Intellectual Property quiz
- 50 points - Legal and Business Issues quiz
- 150 points - Prototypes (2 @ 75 each)
- 100 points - Client presentation
- 200 points - Design Fair
- 200 points - Final documentation
- 150 points - Final Product Evaluation
- 100 points - MFT
- Binary - Product delivery

Total = 1000 pts

$$\text{Grade percentage} = proddel \times \frac{\text{sum of points}}{1000}$$

I will use the following: A - 90%, B - 80%, C - 70%, D - 60%, to relate percentage above to letter grade. Attendance based pop quizzes will add to the total score if they are required.

NOTE: Although this is a team project, you will receive an individual grade. Even with team related items, you will be graded individually. You just participate in presentations, contribute to documentation, code, and other deliverables. Moreover, you must be able to demonstrate your contributions. Some specifics: (1) I determine server use by the user name associated with the upload. (2) I determine authorship by looking at the initials in documents and user names on the uploads. If there is no evidence of participation, your grade will reflect that independent of how the team does. Coasting on the hard work of other team members will not be rewarded.

Documentation: Format: Much of what you will produce for this course are documents. The format for all submissions outside the Design Document **must be PDF.** Word, Plain Text, OpenOffice documents will be given a zero. Documents must be submitted to the code repository. It is expected that you will follow the standards of quality technical and professional writing. You will be provided with a template to format your design document. The template is a LaTeX template. This is a requirement.

Course Deliverables:

- Product - source code and executable(s), scripts, libs, prototypes, hardware, data, etc.
- Design fair materials.
- Client presentations

Attendance policy: Required. Missing three or more classes (or team meetings) may result in a failing grade.

Late Assignments: Grades may be dropped a letter grade each day they are late.

Makeups: If you hand in an assignment late for a legitimate reason, I will gladly waive the late penalty. If you miss a quiz without a legitimate reason, you will receive a zero. Please do not be offended if I ask you for documentation for an excused absence. Do not expect to make up for missing assignments by doing extra work at the end of the semester. You can make up for missing assignments by doing extra work the next time you enroll for this course. Also, if you have to miss an in-class assignment, you should call the department office at 394-2471 before the assignment starts or you will not be allowed to take a makeup.

Breakage Policy: The equipment used in the labs is expensive. If you use lab or robotics equipment owned by the Math & Computer Science Department, you are financially responsible for all equipment that you use. This means that, for example, if you break some component, you will be required to purchase replacement parts and hire the repair hours (or effect them yourself). Failure to do so will result in failing the course and a freeze on registration in Math/CS courses.

Team Membership: Team membership is not automatic and may be revoked. This can happen due to lack of contribution or progress, or due to violation of course policies. Clients may fire a student from a team. If team dynamics are severely disrupted, the instructor may also remove a team member. Depending on the reasons for removal, the instructor may try to find another team for the student to join. Otherwise, the student will be dropped from the course and the student will have to sign up again for the next offering.

Academic Honesty and Integrity:
All students will be held to the institutional standard for academic honesty and integrity. The following are the relevant sections taken from the student handbook (SD Policies and Procedures): Acts of academic dishonesty will include, but are not limited to, the following:

- Cheating, which is defined as, but not limited to, the following:
  - Use (accepting or giving) of any unauthorized assistance in taking quizzes, tests, or examinations;
  - Use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or
  - Acquisition, without permission, of tests or other academic material belonging to a member of the institutional faculty or staff.
  - Discussing an exam with students who have not yet taken the exam.
  - Acquisition of partial problem solutions from the web.
  - Working on individual assignments with anyone other than the instructor.
  - Working on group assignments with anyone not included in the group.
- Plagiarism, which is defined as, but is not limited to, the following:
  - The use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment consistent with accepted practices of the discipline;
  - The unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.
- Other forms of dishonesty relating to academic achievement, research results or academically related public service;
- Furnishing information known or believed to be false to any institutional official, faculty member or office;
- Forgery, fabrication, alteration, misrepresentation or misuse of any document, record, or instrument of identification, including misrepresentations of degrees awarded or honors received.

What is permitted in this course

- use of course lecture notes and course textbook
- discussion of course material with other students for study purposes
- discussion of how to operate the computer (e.g., how to use an editor or compiler) with other students
- discussion of programming language features with other students (e.g., how to use a library function, or how to eliminate minor syntax errors)
- general discussion of an assignment for purpose of understanding the solution requirements with other students (discussion of ideas, not implementation)
- seeking assistance from your course instructor or teaching assistant on an assignment
- working together with officially designated team members on a group project

You must be the original author of every sentence, line of code, and formula, and you must create every image, diagram, table, or other illustrative object that you submit for grading, unless explicitly instructed otherwise, or unless you can show that you have obtained permission from the original author. Any text, code, formula, image, diagram, table, or other illustrative object that was created by someone else and is submitted as your own work is a violation of copyright law, student codes of conduct, and professional ethics. **If I suspect any form of cheating as described above, I will immediately report this to the MCS Dept Head and the Student Conduct Office.** This can result in failure on the assignment or in the course.

Disruptive Behavior:

The Student Handbook prohibits the disruption or obstruction of teaching (Section 2, Category B, subsection 2 in the SD BOR Policies and Procedures). Activities that are disruptive and/or obstructive to teaching will include, but are not limited to, the following:

- **Showing up late to class**. While it is understandable that a student might be a few minutes late to class there is a limit to how late one can be. As a general rule, it is acceptable for a person that is **less than** 10 minutes late to enter class. I would like to ask a student that is more than 10 minutes late to class to refrain from entering class. The student can catch me after class if they need to see me. Repeated late entry will not be tolerated.

- **Eating in class**. Please refrain from eating during class. Those with medical conditions that require special accommodations are certainly welcome to speak with me.

- **Electronic noises from Cell Phones, Pagers, iPods, iPads, PDA's, Laptops, or associated electronics will not be tolerated**.
  - Turn off cell phones and pagers.
  - No audio or video devices allowed.
  - Instructor's permission is required before recording any lectures.
  - Portable computers may be used for note-taking, but other uses such as reading email or web surfing is not acceptable.
  - If an electronic device disrupts class, then the owner will sacrifice their highest Homework/Quiz score for each offense, or pay a fine. The Fine for electronic device disruption is the purchase of cookies for the entire class.

ADA statement: Students with special needs or requiring special accommodations should contact the instructor, (jeff.mcgough@sdsmt.edu) and/or the campus ADA coordinator, at 394-1924 at the earliest opportunity.

Freedom in Learning statement: Freedom in learning. Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.

Continued registration for this course implies acceptance of the preceding policies.

2 Topics and Schedule

464/465 Course Content and Lecture Topics:

- Job interviews and Resumes
- Project management and code repository
- Documentation and document production
- Contracts
- Conops and Client interactions
- Agile Development
- Testing, Verification and Validation
- Teaming
- Ethics
- Security
- Globalization
- Intellectual Property, Legal Issues and Licensing
- Business Concerns, Start-ups and SBA
- Posters and Presentations

F15-S16 Assignment Schedule:
There are three sprints for Fall semester (464) and three for Spring semester (465):

- **Sprint 1:** 9/14/15 - 10/2/15, prototype and summary due 10/8/15
  Review and Client Presentation: 10/20/15, 10/22/15 and 10/27/15
- **Sprint 2:** 10/12/15 - 10/30/15, prototype and summary due 11/5/15
- **Sprint 3:** 11/9/15 - 11/27/15, prototype and summary due 12/4/15
  Review and Client Presentation: 12/1/15, 12/3/15 and 12/8/15
- **Sprint 4:** 1/18/15 - 2/5/16, prototype and summary due 2/12/16
- **Sprint 5:** 2/15/16 - 3/4/16, prototype and summary due 3/18/16
  Review and Client Presentation: 3/22/16, 3/24/16 and 3/27/15
- **Sprint 6:** 3/21/16 - 4/15/16, product and summary due with final materials
- **Design Fair:** Tentatively 4/19/16
- **All materials due 4/28/16**

Note: at the end of each sprint, a prototype and a sprint report/summary is due. These materials should be uploaded to the code repository. There will be several client presentations with the tentative dates listed. The biggest event of the course is the Spring Design Fair which occurs mid-April. You will target having your project completed by the Design Fair. [2]

F14 Lecture Schedule:

This is a tentative schedule, and is subject to change:

Lecture	Date	Topic	Information
1	Aug 25	Introduction & Syllabus	
2	Aug 27	Resume	Resume
3	Sep 1	Project Proposals	
4	Sep 3	Agile SCRUM	Resumes Returned

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[2] With the possible exception of documentation, client training and product delivery.

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Lecture	Date	Topic	Information
5	Sep 8	Agile & Github	Project Application: Cover Letter and Resume
6	Sep 10	Teams	Project Team Assignments, Degree Check
7	Sep 15	Teams	
8	Sep 17	Documentation	
9	Sep 22	Documentation	
10	Sep 24	Documentation	
11	Sep 29	LaTeX	
12	Oct 1	LaTeX	
13	Oct 6	LaTeX	
14	Oct 8	Client Presentation Rubric	
15	Oct 13	Testing	
15	Oct 15	Testing	
17	Oct 20	Sprint 1 Review and Client Presentations	
18	Oct 22	Sprint 1 Review and Client Presentations	
19	Oct 27	Sprint 1 Review and Client Presentations	
20	Oct 29	Testing and Client Presentation Feedback	
21	Nov 3	Videos (Pogue, Kurzwell, Dyson)	
22	Nov 5	Videos (Singer, Cuddy, Venter)	
23	Nov 10	Ethics	
24	Nov 12	Ethics	
25	Nov 17	Ethics Assessment	
26	Nov 19	Client Presentation Scheduling	
27	Nov 24	Client Presentation Rubric	
28	Dec 1	Sprint 3 Review and Client Presentations	
29	Dec 3	Sprint 3 Review and Client Presentations	
29	Dec 8	Sprint 3 Review and Client Presentations	

S15 Lecture Schedule:

This is a tentative schedule, and is subject to change:

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Lecture	Date	Topic	Information
1	Jan 12	Syllabus and Schedule Review, Design Fair	
2	Jan 14	Security	
3	Jan 19	Security	
4	Jan 21	Security	
5	Jan 26	Work Day (No Class)	
6	Jan 28	Work Day (No Class)	
7	Feb 2	Guest Lecture - Security Topic	
8	Feb 4	Globalization	
9	Feb 9	Globalization	
10	Feb 11	Globalization	
11	Feb 16	Globalization Assessment	
12	Feb 18	Guest Lecture - Career Management	
13	Feb 23	Guest Lecture - Technology Roles	
14	Feb 25	IP and Software Licensing	
15	Mar 1	IP and Software Licensing	
16	Mar 3	Client Presentation Schedule and Rubric	
17	Mar 8	Spring Break (No Class)	
18	Mar 10	Spring Break (No Class)	
19	Mar 15	Business	

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Lecture	Date	Topic	Information
20	Mar 17	SBA	Location: TBD
21	Mar 22	Sprint 5 Review and Client Presentations	
22	Mar 24	Sprint 5 Review and Client Presentations	
23	Mar 29	Sprint 5 Review and Client Presentations	
24	Mar 31	Design Fair Overview and Posters	
25	Apr 5	Startups	Final Design Fair preparation
26	Apr 7	Funding	Final Design Fair preparation
27	Apr 12	Guest Lecture - Startup Story	
28	Apr 14	Guest Lecture - Startup Story	
29	Apr 19	Design Fair (tentative)	Surbeck Center 9 AM - 2 PM
30	Apr 21	Senior Exit Interviews	Finalize project deliverables
31	Apr 26	Student Satisfaction Inventory (SSI)	Finalize project deliverables
32	Apr 28	MFAT Discussion	
33	May ?	MFAT (Final Exam Time)	?

3 Requirements and Expectations

3.1 Basic Requirements

The basic requirements and expectations for this course are

- Work on a team in a professional manner.
- Participate in the reports, contracts and presentations.
- Participate with code development, prototypes and code management.
- Master the professional skills of the software industry and business.
- Complete the documentation.
- Complete the project.

3.2 Course Documentation

The document template will include the following sections (plus some administrative ones as well):

- Mission - Team mission statement.
- Overview - Technical project overview, scope and concept of operations.
- Project - Administrative project overview.
- Requirements - Project user stories, backlogs and requirements.
- Design - System design and architecture.
- Testing - Unit and system testing, verification and validation.
- Develop - Development environment, languages, tools, IDEs and source code control.
- Deploy - Release, setup and deployment.
- Userdocs - User documents such as install guide, usage guide, maintenance guide, etc.
- Refman - Doxygen generated class reference document.
- Sprints - Sprint dates, sprint backlogs, sprint reports.
- Industrial - Resumes and Industrial experience reports.
- Appendx1 - Additional materials such as component spec sheets.

The template is a LaTeX template. This is a requirement. You will need one system with LaTeX installed to build the documents. The Linux lab machines have LaTeX installed. You will note that Doxygen is included in the design document. Installation of Doxygen can be done via following step 03 on CSC250 Documents Page. The template will have additional details within the document. As a guide, a three person team will generate 120 pages for the Design Document (about 40 pages per student).

3.3 Github Organization

Repo root:

- Documents/
  - DesignDocExample.pdf
  - DesignTemplate/
  - DoxygenExample/
  - Industry
    - Resume_xy.pdf
    - Resume_yz.pdf
    - Industry_xy.pdf
    - Industry_yz.pdf
  - SoftwareContract/
    - SoftwareContract.pdf
    - SoftwareContract.tex
  - SprintReports/
    - SprintReport1.pdf
    - SprintReport1.tex
    - SprintReport2.pdf
    - SprintReport2.tex
  - syllabus.pdf
- Source/
  - trunk/
  - branch/

3.4 Sample Mission Statement

Go online and look at mission statements. Get the team together and decide about your team name and team goal. Next think about if you were to move to building a small company. What things do you need to address to get started in business.

Mission Statement for the Mouse Detector Phone App

Product Description: iPhone based app that can detect the high frequency sounds of mice and locate them.

Key Business Goals: Product introduced in the second quarter 2009

- 50% gross margin
- 15% share of mouse trap market

Primary Market: Consumers

Secondary Markets: Cats

Assumptions:

- Available from App store
- Survillence mode
- Low power consumption
- Autodial on detection

Stakeholders:

- User
- Retailer
- Sales Force
- Production
- Legal department

Certifications: Apple, Cat Fancy Magazine

3.5 CSC 464/465: Sprint Reports

These reports will be placed on Github and in the Design Document.

Report 1

Your first progress report will include the following items:

- Identify team members
- Identify the project customer or sponsor
- Customer description - overview of the client
  - Description of sponsoring customer
  - Brief statement of customer's problem or goal for this project
  - List the customer needs
- Overview of the project
- Project environment
  - Project boundaries
  - Project context
    - Technical Environment
    - Current systems overview
- Identify the project deliverables (e.g. prototype, documentation, code, users manual, ...)
- Outline the backlog
- Identify any issues or problems you foresee.
- Due as a separate document is the signed client contract.

Reports 2, 3, 4, 5

Reports will describe the backlog and burndown. It should describe the prototype and its features. You should include the activities (since the last report) such as meetings, client interactions, research, code experiments, etc. Be sure to describe which team member did what activity.

3.6 Presentations

CSC 464: Sprint Review / Client Presentation

This presentation will act as a sprint review and client requirements review.

Dress: business appropriate (no jeans, no t-shirts)
Presentation: professional Prezi/video/pdf, all members will present a component.
Submission: presentation file
Time: 25 minutes of presentation.
Content: The vision, context, user stories, backlog, analysis, sprint plan, goals and prototype(s).

Suggested organization:

- Open with client/project overview and goals
- For multi-team projects, each team will take the floor and explain team goals and objectives

- The user stories, use cases (requirements and specifications), backlog
- Analysis: tools used to refine the solution - then which solution you feel is best.
- Sprints, results of the first sprint
- Your initial solution - the prototype(s), the running code, the UI examples
- Problems you found with the prototypes, additional problems you expect to encounter (pros and cons)
- Remaining sprints
- Budget and resources
- Schedule and deliverables

Slides - overall:

- Uncluttered format
- Professional look and feel
  good color and image selections
- Practice ahead to determine timing
  e.g. know that you will take about 2 1/2 minutes per slide and you have 8 slides ...
- Be able to cover for a missing team member
  e.g. know the entire set of slides
- Have PowerPoint and PDF versions (break OO links if needed)

Hints:

- Eye contact with audience
- There is no reason to be nervous - since you are the expert
- Accept feedback and suggestions
- You don't need to fill the air with chatter
- Think before you answer a question
  it is OK to take a moment
  ask for clarification if you need it

Example:

1. Welcome, Project Name, Team Name (30 secs)
2. Client, Company, Situation/Current Problem or project goal (1 minute)
3. Problem analysis, objectives and constraints (issues, challenges) (2 minutes)
4. Client user stories (requirements and specifications if needed), backlog and testing (2 minutes)
5. Design and architecture (2 minutes)
6. Prototype(s) (2 minutes)
7. Analysis (decision matrix) and selection (2 minutes)
8. Risks, risk analysis, mitigation and contingency plan (2 minutes)
9. Budget (1 minutes)
10. Gantt plan: Sprints (1 minutes)
11. Deliverables (30 seconds)
12. Questions (5 minutes)

Details (items to consider):

- Client description
- Client environment
- Client problem and needs
- Current System and CONOPS
- User stories (requirements if the client wants)
- Scope
- Referenced Documents
- Justification for and nature of proposed changes
- Objectives (objective tree, combined tree)
- Pairwise comparison charts
- Function means tree
- Concept for the Proposed System
- Structural diagrams (black box and transparent box)
- UML or Flowcharts
- Your solution - how you address the requirements
- Initial design
- Initial architecture
- APIs
- GUI designs
- Library structure and preliminary function list
- Communications
- Specific algorithms
- Hardware needs
- Costs
- Implementation time-line and plan
- Analysis of the Proposed System
- Summary of Impacts
- Testing plan - how you prove you meet the requirements
- Anticipated problems
- Deliverables
- Glossary
- Lifecycle
- Maintenance
- Training and documentation

To do:

- Schedule time
- Find out about proprietary work and public presentation
- Invite client
- Collect materials and solutions
- Make slides
- Place slides on Trello

CSC 465: Sprint Review / Client Presentation

This presentation will act as a sprint review and client requirements review.

Dress: business appropriate (no jeans, no t-shirts)
Presentation: Prezi/video/pdf, all members will present a component.
Submission: file(s)
Time: 45 minutes of presentation including questions.
Content: update on where the project is and how you will finish up.

Suggested organization:

- Introduction/Overview (Team/Client, Project Goals)
- Sprints, Backlogs
- Prototypes and Demos (x3)
- Budget updates, Intellectual Property updates
- Unit or Component Testing, System Testing, System Integration
- Remaining backlog, documentation ... completing product
- Risk Analysis, Risk Mitigation, Time-line
- Professionalism, Communication and Overall Presentation

Slides - overall:

- Uncluttered format
- Professional look and feel
  good color and image selections

- Practice ahead to determine timing
  e.g. know that you will take about 2 1/2 minutes per slide and you have 8 slides ...
- Be able to cover for a missing team member
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Example:

1. Welcome, Project Name, Team Name (30 secs)
2. Client, Company, Situation/Current Problem or project goal (1 minute)
3. Problem analysis, objectives and constraints (issues, challenges) (2 minutes)
4. Client user stories (requirements and specifications if needed), backlog and testing (2 minutes)
5. Design and architecture (2 minutes)
6. Prototype(s) (2 minutes)
7. Analysis (decision matrix) and selection (2 minutes)
8. Risks, risk analysis, mitigation and contigency plan (2 minutes)
9. Budget (1 minutes)
10. Gantt plan: Sprints (1 minute)
11. Deliverables (30 seconds)
12. Questions (5 minutes)

Details:

- Client description
- Client environment
- Client problem and needs
- User stories (requirements if the client wants)
- Updated requirements
- Referenced Documents
- Current system
- Evolving architecture
- Structural diagrams
- UML or Flowcharts
- Your solution - how you address the requirements
- Initial design
- APIs
- GUI designs
- Library structure and preliminary function list
- Communications
- Specific algorithms
- Hardware needs
- Costs
- Implementation timeline and plan
- Analysis of the System
- Summary of Impacts
- Testing plan - how are you proving that you meet the requirements
- Issues and problems
- Updated deliverables
- Glossary
- Lifecycle
- Maintenance
- Training and documentation

To do:

- Find out about proprietary work and public presentation
- Invite client
- Collect materials and solutions
- Make slides
- Place presentation on Github

4 Assessment formulas and forms

- Resume and Industry Experience (35 points)
  Your resume will be assessed according to the following (7 pts each)
  - Presentation
  - Education
  - Experience
  - Skills
  - Projects

- Industry Experience (15 points)
  Summary of all your industry experience.

- Software Development Contract (25 points)
  All items complete, no partial credit.
  - Customized for your project (no "fill in here text" items left).
  - Filled out.
  - Signed by the team and client.

- Project and Code Management (100 pts)
  You will be required to demonstrate consistent and semester long use of the repository and the management tools.
  - Weekly commits
  - Backlogs
  - Issues
  - Milestones
  - Code reviews

- Client presentations (100 pts)
  These are graded according to the rubric below in this section.

- Sprint Report (25 pts)
  The first report has more detail as listed in the requirements sheet, the remaining require few items. At least you will be expected to address (5 pts each):
  - Work summary
  - Backlog
  - Success
  - Issues or changes
  - Team details

- Prototype (100 pts in 464 and 75pts in 465)
  As defined by backlog - percentage of backlog implemented.

- 464 Documentation (200 pts)
  - Document cleaned - 40 pts
  - Mission, Overview, Project - 40 pts
  - Requirements - 50 pts
  - Initial Design - 30 pts
  - Sprints, Resumes and Industrial - 40 pts

- Ethics quiz (50 pts)

  Each quiz question is graded on your ability to support your position using the ACM guidelines.

- Globalization and Intellectual Property quiz (50 pts)

  Questions graded on knowledge of the topic.

- Legal and Business Issues quiz (50 pts)

  Questions graded on knowledge of the topic.

- Design Fair (200 pts)

  Graded according to the rubric below.

- Final documentation (200 pts)
  Added to the document draft from CSC464:
  - Requirements - 30 pts
  - Design - 40 pts
  - Testing - 50 pts
  - Develop and Deploy - 20 pts
  - Userdocs and Refman - 40 pts
  - Sprints - 20 pts

- Final Product Evaluation (150 pts)

  This is the client evaluation.

- MFT (100 pts)

  Based on percentage reported by ETS.

- Degree check (1/0)

  The degree check, `degck`, is either 1 (you met with your advisor and completed the degree check) or 0 (you did not). You will ask your advisor to send me an email stating the degree check is completed. I don't need any details about the actual degree check. **The degree check is required to be complete before you will be placed on a team (est. Sept 10th).**

- Product delivery (1/0) Product delivery. `proddel`, is 1 if you satisfied the contract and 0 if you did not.

CSC464: SPRINT REVIEW EVALUATION FORM

PROJECT TITLE: ______________________________

MENTOR/SPONSOR: ______________________________

GROUP MEMBERS: ______________________________

EVALUATOR: ______________________________

EVALUATION AREAS (Please place comments in the space provided or on the back)	Score*
1. Introduction, Team/Client, Project	
2. User Stories, Requirements & Specifications, Deliverables	
3. Sprints, Timeline and Backlogs	
4. Architecture, Design, Technical Aspects, Data structures, Dataflow, Communications	
5. Prototypes and Demos	
6. Budget/costs, Tools, Intellectual Property Aspects, Licensing	
7. Unit or Component Testing, System Testing, System Integration Analysis, Risk Analysis, Risk Mitigation, Objectives/Constraints	
8. Successes (goals met), Issues or problems (goals not met)	
9. Remaining backlog, Revised goals and Revised Deliverables	
10. Presentation	
TOTAL SCORE (out of 100)	

* EVALUATION RATING SCALE: 0 (LOWEST) TO 10 (HIGHEST) EACH AREA

CSC465: SPRINT REVIEW EVALUATION FORM

PROJECT TITLE: ______________________________

MENTOR/SPONSOR: ______________________________

GROUP MEMBERS: ______________________________

EVALUATOR: ______________________________

EVALUATION AREAS (Please place comments in the space provided or on the back)	Score*
1. Introduction, Team/Client, Project, Deliverables, Sprints, Backlog/User Stories, Requirements & Specifications	
2. Architecture, Design, Technical Aspects, Data structures, Dataflow, Communications, Tools	
3. Unit or Component Testing, System Testing, System Integration, Remaining backlog, Revised goals and Revised Deliverables	
4. Successes (goals met), Issues or problems (goals not met), Risk Analysis, Risk Mitigation, Timeline, Budget/costs, Intellectual Property Aspects, Licensing	
5. Prototypes and Demos	
6. Professionalism, Communication and Overall Presentation	
TOTAL SCORE (out of 100)	

* EVALUATION RATING SCALE: 0 (LOWEST) TO 15 (HIGHEST) FOR 1 – 4 and 0 (LOWEST) TO 20 (HIGHEST) FOR 5 & 6.

SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY
COMPUTER SCIENCE DEPARTMENT

DESIGN FAIR EVALUATION FORM

____ PROJECT

____________________ EVALUATOR

Scoring: circle the appropriate score for Proficient (3), Apprentice (2), or Novice (1). Not circling a given criteria indicates below novice performance and a score of zero.

Criteria	**Proficient (3)**	**Apprentice (2)**	**Novice (1)**	**Circle Score**		
A. Product Performance	Product performs exceptionally well meeting nearly all the functional requirements	Product performs well and meets the majority of functional requirements	Product does not perform well and may meet only a minor number of functional requirements	3	2	1
B. Professionalism	All are neat and professional; team is fully focused	Most of the team are neat and professional, some lack of focus	Team is sloppy, unprofessional, and unfocused	3	2	1
C. Team Response	Team response to questions is clear, concise, and articulate	Team response to questions is somewhat unorganized	Team response to questions is confused and unorganized	3	2	1
D. Oral Presentation	Team demonstrates poise and clearly articulates problem formulation and solution	Team can articulate problem formulation and solution with some minor problems in continuity	Team cannot articulate problem formulation or solution effectively	3	2	1
E. Poster Presentation	Poster clearly defines project need, specifications/ constraints, analysis performed, and results	Poster adequately defines project need, specifications/ constraints, analysis performed, and results	Poster fails to define project need, specifications/ constraints, analysis performed, and results	3	2	1

F. Future Product Usage / Marketing (product potential) **[0-10]** = or **Research and Development Effectiveness** (client requested R&D) or **Product Integration** (industry sponsored products) or **Student Competition Team Integration** (CAMP)	
Team Grade = 10*A + 5*(B + C + D + E) + F =	