CptS 421 - Software Design Project I

Syllabus: Additional Materials

Student Learning Outcomes:
In CptS 421/423, students will engage in projects that require them to perform all steps in the software development lifecycle. Outcomes of instruction include:

- experience in large-scale software development;
- communication with clients and other stakeholders;
- gathering of project requirements;
- designing of software according to requirements;
- implementing the design;
- performing adequate verification, validation, and testing procedures;
- delivering a professional quality software that meets the client's requirements;
- writing product specifications, documenting different phases of the project;
- using software development and maintenance tools
- planning and developing project timelines;
- demonstrating an awareness of professional responsibilities;
- negotiating team dynamics;
- creating presentations, using audio/visual tools, at different stages of the project.

Teams:
Teams will usually consist of 3 to 5 students and the team will receive their primary technical guidance from a mentor provided by a sponsoring company or research group this sponsor shall act in the client role to answer questions about requirements and final product needs. It is important that you are placed onto a project that will utilize your unique design and programming skills. Similarly, it is important that you have skills to bring to your team.

Evaluation of Student Work: Both team *process* and subsequent products will be evaluated. Process and products will be evaluated based on the team's abilities to:

1. Elicit and analyze project requirements, develop formal requirements, specifications, and analysis documents.
2. Propose a design for the project solution, and clearly identify the design goals.
3. Develop the project architecture, and identify the major subsystems in the architecture.
4. Clearly articulate the design of each subsystem after a thorough exploration of multiple solution paths.
5. Compare and contrast options to narrow down design choices in ways that refine concepts and lead to focusing on the most promising design solutions.
6. Analyze the proposed design for compliance with design goals.
7. Communicate in an organized and professional manner with multiple audiences.
8. Ultimately to deliver a working solution to the project sponsor.

As with any group project, everyone has their own strengths, weaknesses, resources, and personality. Teams are expected to act as industry professionals, both to take pride in your work and to communicate with your teams. Almost all projects with significant problems in group dynamics stem from lack of honest communication, active listening, and empathy. Contact the course instructor if there are communication breakdowns, but in the end it is up to you as professionals to collaborate. Leveraging project management tools such as Github's issues and Trello boards can ensure everyone knows their jobs and are accountable for their results.

Every student will be asked to provide feedback about team contributions. This will be done directly to the course instructor through online forms. The instructor shall be using the feedback to help determine contributions to the final project.

Yellow Slip: Students in CptS421 must demonstrate competency at 1) functioning within teams and 2) understanding professional and ethical responsibilities. The yellow slip is a way for team members to draw the instructor's attention to a member who exhibits behavior that contradicts these competencies. Until semester grades are submitted to the WSU Registrar, students can issue a "yellow slip" to a team member and email it to the instructor. The result of a yellow slip can

be severe enough to change the letter grade. The instructor will also be seeking feedback about team contributions intermittently during the term.

Student Work Load for CptS 421:
CptS 421 is a 3-credit course. The 3-credit designation normally implies that on average the student is expected to spend 3hrs ("lectures") + 6hrs ("homework") = 9 hours per week working on this course. The 9 hours per week will be spent in the following activities: 1) meeting with the team, instructor, and mentor; 2) completing writing/presentation assignments; 3) engaging in the design process; 4) project development and coding; 5) reading the technical literature related to your design project; 6) attending the sponsor company visits arranged by your mentor; 7) strengthening your teaming skills; 8) helping with project management; 9) organizing team headquarters including obtaining pertinent hardware and software.

There will be four writing assignments and two presentation assignments in CptS 421. Please see Appendix A for a complete list of assignments. Much of the implementation work will be completed in Cpts 423; however, teams are expected to make significant progress on their design and testing platform during CptS 421. Each team should develop a prototype of the software with basic features and present a design review to the team sponsor.

Weekly Review Meetings:
Each team will meet once a week with the project mentor, where all team members will report the progress for the past week and present the plan for the upcoming week.

For some teams may occasionally skip weekly meetings. If so, you will report your progress for the time since your last meeting. For all the weeks you covered in your progress report you will be given the same rating.
In addition to the weekly meetings, each team should meet at least once a week to review internal efforts and resolve roadblocks before meeting with the mentor/instructor.

Miscellaneous Advice: The most successful CptS421/423 teams schedule face-to-face team meetings at least on a weekly basis and they insist on 100% team attendance at these meetings.

Github and Canvas
The project teams will primary use Github for software version control, task management, bug tracking and posting the meeting notes. The instructor will create a private group of repositories for each team at the EECS Github organization. All team assignments and source code submissions will be made to Github. The project teams should utilize Github tools and features as effectively as possible. The instructor and the industry mentor will monitor a team's progress through its repository and they will consider the Github activity in evaluating a team's progress during the semester.

The instructor will communicate with the class and project groups primarily via announcements posted at the Canvas platform. Assignment grades will be posted on Canvas. Teams are welcome to use other tools such as Github, Slack, Trello, appear.in, Hangouts, etc to foster team and mentor communications.

COVID-19 Policy:
Students are expected to abide by all current COVID-19 related university policies and public health directives, which could include wearing a cloth face covering, physically distancing, self-attestations, and sanitizing common use spaces. All current COVID-19 related university policies and public health directives are located at https://wsu.edu/covid-19/. Students who do not comply with these directives may be required to leave the classroom; in egregious or repetitive cases, students may be referred to the Center for Community Standards for university disciplinary action.

Email Address:
For the duration of CptS 421/423, your email address will appear on professional correspondence that will be circulated at the sponsoring company. Please use only professional sounding email addresses (e.g. your WSU address).

Protecting Intellectual Property (IP):
Teams have an obligation to protect IP they develop and IP that the mentor and sponsor share with them. WSU employees, including faculty, staff and graduate students are legally bound to protect intellectual property. Do not post IP at non-password-protected websites. Questions about IP should be directed to your mentor or directed to WSU attorneys trained in

IP issues. Similar comments apply to information that government and military entities label as "sensitive" or "classified". The final project developed for this course will be given the project sponsor for their use. Ask the instructor if you need contact information for WSU professionals working with these issues.

Some project sponsors also require the teams to sign Non-Disclosure Agreements (NDAs) to work on their projects. This should be made clear up front and if individual students do not want to sign such a contract, they will be moved to other teams to accommodate for these wishes. For questions about this process, both the instructor and WSU legal advisers are available to help.

Academic Integrity:
Academic integrity will be strongly enforced in this course. All work submitted for grading is to be original. Material submitted that is not original must be cited as described in technical writing textbooks. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions."

Service Learning:
As part of this course, you may participate in a service-learning experience which is being facilitated by the Center for Civic Engagement. This type of experiential learning allows you to take what you are learning into the real world as you identify, examine, and apply course concepts. Students have often commented that their experiences with service-learning were enjoyable, meaningful, and enhanced their learning of course concepts!
Student civic engagement is a form of experiential learning, a cyclical model of experience, reflection, conceptualization, and testing (Kolb 1984). WSU students who participate in civic engagement activities have the opportunity to enhance their academic and personal growth in these areas:

- **Civic Responsibility:** Understanding issues in the community and the responsibility of citizens to participate in the democratic process and work toward positive change in society
- **Self Awareness and Efficacy:** Identifying one's own values and interests; respecting and appreciating the perspectives and life situations of others; and gaining confidence to take action that makes a difference
- **Academic Success:** Acquiring and strengthening knowledge by applying academic concepts to real issues in the community, leading to success in the classroom and development of professional skills

You will manage your service-learning experience on GivePulse (wsu.givepulse.com). This system tracks your activities and can even provide you with student involvement records to show all of the activities you have participated in at WSU. This will be a great resource when applying for jobs and/or graduate school!
If you have questions, please contact the CCE (cce.academic@wsu.edu or 509.335.7708), stop by the Student Resource Center in CUB L-45 on the Pullman Campus, or visit the website at cce.wsu.edu. We hope that you enjoy and learn from your service experience!

Students with Disabilities:
Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist on your home campus:
Pullman or WSU Online: 509-335-3417
http://accesscenter.wsu.edu, Access.Center@wsu.edu

Campus Safety:
Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.