CS46000 Senior Capstone Project I

1. Course Description

P: CS 36000 and Senior Standing. The first course of a two-semester sequence. Student teams will participate in the development of a substantial application-oriented or research-oriented software project utilizing a formal software process model. Emphasis on teamwork, project management, and oral and written communication. Student teams will conduct review activities and develop artifacts appropriate for the software project and process model chosen.

2. Course Goals and Learning Outcomes

Using the background provided by CS 36000, this course emphasizes the practice of software engineering. The goals of this course are: (1) To foster your software engineering skills by completing a substantial software project working as part of a team; (2) To increase your technical presentation skills; and (3) To increase your independent learning skills. Specific learning outcomes are listed below. The letters in parentheses refer to ABET Program Learning Outcomes. Upon successful completion of the course requirements, a student should be able to:

1. Apply software engineering principles and skills to a team-oriented software project (a, b, c, d, i, k)
2. Construct a software project schedule and track its progress (a, i, k)
3. Construct artifacts appropriate to demonstrate completion of each phase of the software process. (a, i, k)
4. Conduct formal technical reviews (f, k)
5. Utilize a repository for project artifacts (a, i, k)

3. Course Director and Project Advisor of CS46000-01

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Office :	ET 125B
Office Hours :	Tue, Weds, Thurs 1:30 – 3:00 p.m.
	or call/e-mail to set up an appointment
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4. Course Web site

All materials associated with this course are available at https://ipfw.blackboard.com/ including the course syllabus, assignments guidelines, and supporting resources.

5. Grading

Your grade will be based on assignments related to the project and oral presentations. In general, all members of a team will receive the same evaluation on a given assignment. However, the project advisor reserves the right to assess the work of each individual's contributions.

Both oral presentations will be assessed by averaging scores collected from attending CS faculty members, project advisors, project sponsors, and other guests.

Several artifacts produced during a phase will be refined and extended in each subsequent phase. It is expected that the project advisor and other stakeholder feedback will be used by your team to improve these artifacts. These are weighted as follows:

Assignment	**Weight**
Project proposal	5%
Preliminary report	20%
Midterm report	25%
Midterm report oral presentation	5%
Final report	40%
Final report oral presentation	5%
TOTAL	100%

Unless curved	A	90% - 100%	B	80% - 89%	C	70% - 79%
	D	60% - 69%	F	Below 60%		

6. Assignment Submission

- Depending on the type of project and guidelines of the project advisor, assignment requirements at each phase will vary. In addition to the requirements specified below, each project advisor will determine what other artifacts must be submitted for evaluation.

Phase	**Requirements**
Project Launch	Project proposal
Milestone 1	Project plan Advisor-defined artifacts
Milestone 2	Project status presentation Revised project plan Advisor-defined artifacts
Milestone 3	Project status presentation Revised project plan Advisor-defined artifacts

- All assignments should be typed and figures/diagrams should be computer generated.
- Submit a USB flash drive or CD storing all assignments and other supporting files to your project advisor and course director.
- In case of electronic submission, compress all files to a single file and e-mail the file to your project advisor and course director. If the file size is bigger than 20 MB, submit the deliverable on USB or CD.
- For credit on a given assignment, it must be submitted by the due date and time. Late submission without advanced approval by the project advisor will be penalized as follows:

1 day late: 10% deduction	2 days late: 20% deduction
3 days late: 25% deduction	Not accept submissions after 3 days

- Assignment evaluation will be based on completeness, quality of work, and correctness.
- The project advisor reserves the right to make adjustments to the number of assignments, assignment requirements, and weights during the course of the semester.
- Be certain to check that any storage device you submit is virus-free. Storage devices containing viruses will be assigned a grade of 0. If requested by the project advisor or course director, you may also be required to submit hard copy of your assignments.

7. Course Policies

- At the end of the first week of CS 46000, the teams are final. No switching projects or project teams is allowed after the first week.
- A student who is unable to complete CS 46000 or who is not able to complete CS 46500 the subsequent semester will have to enroll in CS 46000 again during the semester prior to enrolling in CS 46500. Under very exceptional circumstances, a student who is not able to complete CS 46500 immediately after CS 46000 will be allowed to enroll in CS 46500 if the student is accepted into a team by their other students of the team and the project advisor, according to the project needs/scope and team abilities.

8. Tentative Calendar

Date	Meeting	Topics	Deliverables
Aug 26	**All students**	Introduction / Project team formation	
Sept 2	**All students**	**Project proposal presentation**	Project proposal
Sept 9	Individual team		
Sept 16	Individual team		
Sept 23	Individual team		
Sept 30	**Team leaders**	Project progress report	Preliminary report
Oct 7	Individual team		
Oct 14	Individual team		
Oct 21	Individual team		
Oct 28	**All students**	**Midterm presentation in ET115**	Midterm report
Nov 4	Individual team		
Nov 11	Individual team		
Nov 18	**Team leaders**	Project progress report	
Nov 25	Thanksgiving		
Dec 2	Individual team		
Dec 9	**All students**	**End-of-semester presentation in KT G46 from 1:00pm**	Final report

* All students: All students should attend the class for group presentations.
* Team leaders: Team leaders will update the project progress to the course director.
* Individual team: Each project team will have an independent meeting.

9. Other Policies

Using Project Results

The CS department has the right to use project results for demonstrations in various departmental functions, such as student recruitment activities. Purdue/IPFW intellectual property policies will be observed regarding the products of the projects.

Academic Honesty Policy

All assignments must be done individually unless otherwise noted. The following programming-related activities are specifically prohibited:

- Seeking assistance in the development of algorithms
- Seeking assistance in the development of code
- Seeking assistance in debugging code

In addition, you may not seek assistance in completing written assignments or other related software engineering tasks such as requirements analysis, design, and testing.

Seeking assistance means asking someone to show or tell you how to complete a task, working together to complete a task, or copying someone's work including solutions that may be found on the internet. The penalty for the first violation of this policy is a score of 0; a subsequent violation will result in a grade of 'F' for the class and the placement of a memo describing the infraction in the CS Department's files. For non-majors the memo will be forwarded to the student's major department.

Attendance Policy: Class attendance is a University requirement. I will expect you to attend every class. I will be taking attendance and your grade may be adversely affected by any absences. In the event you cannot attend class you are responsible for obtaining any course-related information or materials.

Make-Ups: Make-ups and incompletes will be given only in extreme circumstances. To schedule a make-up exam you must contact either the instructor or Department office prior to the date and time of the exam. The instructor reserves the right to either allow a makeup with penalty, a makeup without penalty, or deny a makeup as it relates to the circumstances and the promptness of notice. Expect to provide documentation for the makeup.

Note to Students with Disabilities: If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Office for Services for Students with Disabilities (SSD) as soon as possible to work out the details. They are located in Walb Student Union, room 113, telephone number 260-481-6658. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to me. For more information, please visit the web site for SSD at http://www.ipfw.edu/ssd/.

Note for Free Personal Counseling Services: IPFW and the Department of Computer Science recognize that personal problems can sometimes interfere with a student's ability to progress in his/her academic program. To help students address such problems IPFW makes free personal counseling services available in Walb 113. To schedule an appointment with an IPFW/PARKVIEW Student Assistance Program (SAP) counselor call 260-266-8060.

Course Evaluation Surveys: (Student Evaluation of Instruction and Course Learning Outcomes Assessment surveys) Course evaluation is an important component of the Computer Science Department's assessment plan. Data gathered from assessment surveys helps us to evaluate and improve course content and delivery. To ensure that these data reflect the experiences of all students, your participation is required in both the Student Evaluation of Instruction and the Course Learning Outcomes Assessment surveys. These surveys are distributed online via the Purdue Qualtrics system and each takes 2-5 minutes to complete. Approximately two weeks prior to the end of the semester you will receive a link to each survey via your IPFW email account. These surveys are anonymous and no results will be released to the instructor until after the end of the semester. The CS Department expects that you complete both surveys before the final exam date. If you have any difficulties accessing a survey, you should immediately notify the instructor or the CS Department Administrative Assistant, Kaye Pitcher (pitcherk@ipfw.edu, 260-481-6803).

Course Withdraw, Academic Probation Policy: Reference "Student success initiatives & changes to campus procedures" guideline posted on the course web site.

Criteria for Accrediting Computing Programs

The following learning outcomes are defined by ABET, our accrediting agency, for computer science programs.

(a) An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline
(b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
(c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
(d) An ability to function effectively on teams to accomplish a common goal
(e) An understanding of professional, ethical, legal, security and social issues and responsibilities
(f) An ability to communicate effectively with a range of audiences
(g) An ability to analyze the local and global impact of computing on individuals, organizations, and society
(h) Recognition of the need for and an ability to engage in continuing professional development
(i) An ability to use current techniques, skills, and tools necessary for computing practice.
(j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
(k) An ability to apply design and development principles in the construction of software systems of varying complexity.