Computer Science Senior Capstone Project Proposal Guide and Outline

The BSU Computer Science Department invites industry partners to propose a student project for the 2013-2014 senior capstone course. Partners may propose more than one student project. The faculty reviews the proposals, and student development teams will choose their projects from the suitable proposals. Industry partners whose project is chosen become customers, and the instructor leads each student team through the development of a software product for the customer.

Objectives
The capstone project facilitates a student’s transition from BSU to an industry career through development of a high-quality software product for real customer needs. Students address challenging problems in the scoping, design, development process, quality, schedule and management of their projects. Working with industry partners, students may be required to rapidly learn new software development technologies, roles, tools and lifecycles, perhaps even in an interdisciplinary team where they find themselves the computer science experts.

Guidelines for Pilot Student Projects
1. The capstone project provides the student development team with an opportunity to specify, design, implement and test their first software tool, application or product for a customer. Suitable projects include:
   a. A software tool or application to enhance the efficiency or quality of the customer’s business
   b. A software product to enhance, promote or compliment the customer’s existing product line may sometimes be suitable
   c. An ideal project enriches but is not critical for the customer’s business
2. Non-disclosure agreements between customers, students and faculty are acceptable.
3. Project proposals should allow intellectual property to remain with the students or released under an open-source license.
4. The scope of the project (no more than about 5000 LOC) must allow the student team to finalize the specification in one semester, and complete the design and its implementation in the following semester.

Pilot Capstone Project Proposal Template
The project proposal need not be a detailed specification. The proposal merely introduces the project to the student development teams, and provides the up-front information necessary for the team to developing a specification.
Abstract
Briefly describe the tool, application or product to be developed (hereafter simply referred to as the “product”).

User Needs
Describe the end users of this product and their needs. Needs may be written as User Stories (i.e. “As a <role>, I need <goal or desire> so that <benefit>”) if the customer prefers.
Prior Art

Briefly describe existing solution(s) and the ways in which they do and especially do not address the User Needs identified above. Is there any feature of an existing solution that must be preserved? Abandoned?
Proposed Solutions
Describe any proposed solutions, if known, indicating any mandatory technologies, code, data, features or frameworks. If unknown, indicate this will be a “green field” project granting the development team considerable room to innovate.
Deliverables
Describe the required deliverables (e.g. client-side application, server-side application, web service, installers, documentation, etc).
**Lifecycle**
The project lifecycle (e.g. waterfall, agile, etc) may be specified by the customer or by the student team, subject to the instructor's approval. Identify the success criteria for the end of the project.

**Customer Contact**
The customer assigns a contact to meet weekly with their student team to review lifecycle artifacts, progress, next steps and impediments. The contact serves as the customer's representative, able to judge if the product meets the success criteria defined above.

**Hardware**
Identify any specific or prototype hardware (e.g. an embedded system, graphics processor, etc) required to implement the project along with the plan for making it available to the development team.
Software
Identify any commercial, proprietary or prototype software (e.g. an existing application program, a commercial database management system, a commercial server or hypervisor, etc) required to implement the project along with the plan for making it available to the development team.