CSEN 4201
Software Engineering
Senior Design Project

Fall Semester 2016

project proposals

what is a project proposal supposed to be?

- formal document used to communicate a succinct but complete description of a proposed project
- explanation should be clear enough (and in sufficient detail) so reader unfamiliar with project can understand what is being proposed
- is a valuable <u>team planning document</u>
- details can vary according to project type
  - however, most share some basic information items/elements
- is required for CSEN 4201

project proposal – the timing

- when should you start on your project proposal?
- shouldn't rush to formalize things too rapidly
  - don't want to hinder brainstorming process
- however, remember:
  - proposal is one of major artifacts produced during this semester
  - writing process can take a while
- should start on it as soon as possible
- but more practically:
  - once project topic is decided
  - as project scope is being narrowed/determined

elements of a proposal include:

- project objectives/goals
- potential benefits of product to users/customers
  - the rationale
- overall strategy for accomplishing project objectives
- a listing of specific tasks required to implement your strategy
- schedule outlining specific tasks and indicating:
  - target completion date for tasks
  - any precedence relations among project tasks
- evaluation criteria for prototype system

document structure

- a reasonable proposal structure might include following sections:
    - introduction
    - objectives of project
    - design strategy
    - action plan
    - evaluation criteria
    - schedule
    - references (and other appendices)

introduction

- what is project about?
- what is motivation/need?
  - what problem is being addressed?
- convey the significance of project
- preliminary look at specifications
- contextualization
  - provide a look at current "state of the art"
    - related research
    - related technology areas

objectives and deliverables

- describe project goals
- describe scope of project
  - what specific part of larger area will be focus of project
  - your project should be complex enough to be a senior project, but have a scope that makes it realistic
    - can be done given available time, labor, etc.
- make sure objectives are clear
  - helps in generating clear plan to accomplish goals of project

design strategy

- general approach that will be used to accomplish project goals
- discuss feasible design alternatives, and strategy for choosing among them
- how will the inherent problem be solved
- what technologies are to be involved
- what will be "shape" of solution produced during the project
  - what will be major components of design
  - how will they fit/work together

plan for project

- what tasks will be involved in achieving project goals
- tasks should reflect elements of design strategy
- should represent a decomposition of overall project that:
  - divides the larger problem into more manageable subproblems
  - results in solutions to subproblems that when combined together yield an overall solution

evaluation criteria

- how to determine project success
- what will be specific capabilities of the prototype system
- should reflect scope of project within potentially larger problem space

schedule

- establish a timeline for what will get done and when
- should reflect tasks identified in project plan
- show estimate of task durations and create a specific schedule
- identify which tasks are independent and which have precedence relationships
    - make sure timeline reflects constraints
- consider use of Gantt/Pert chart or something similar
    - can be included as part of appendix

references

- in all written artifacts should include references when appropriate
- references can help to:
  - substantiate a claim made in writing
    - use written work of other authors to back up something you are saying
  - point the reader to additional material
    - give reader quick reference to look up details that are beyond current document
  - identify/credit source of any quoted material
    - important to make clear where any quoted materials have come from
- for web citations
  - use sparingly
  - make sure to include date last accessed

general format comments

- should include a title page
- be careful with writing style in terms of:
  - general formatting:
    - spacing, pagination, font size, justification, etc.
  - grammar
  - punctuation
  - spelling
  - sentence construction

benefits of a good proposal

- helps to clarify your thinking
  - nothing ensures that you really understand a topic like writing about it technically
  - formulating a clear explanation for readers forces you to clarify your own thoughts
- promotes a common understanding of project topic, scope, etc. among all team members
- very effective communication vehicle for client, advisor, etc.
- delineates clearly project boundaries
  - what is part of the project, and what is not
  - important metric in project evaluation