

# Project Proposal Guidelines

## 1. Overview

The goal of the project proposal is to outline the goals of your project and how you will achieve these goals. You can use your preferred tool for writing the proposal, e.g., Microsoft Word, LaTeX, FrameMaker, etc., but a simple ASCII file will not be accepted!

The deadline for the proposal is September 8<sup>th</sup> (midnight), either hardcopy or softcopy are acceptable. You are encouraged to show your proposal to the instructor before the submission deadline for early feedback, but this is not a requirement. The proposal will account for 5% of the project grade (or 2.5% of the total grade). If the proposal is returned to you, together with instructions on how to improve it, you will also receive a new deadline for the revision (if you do not receive the proposal back within 3 days, it has been accepted fully as it is).

If this is a proposal for the entire project duration, the proposal should be about four pages long, font size 11 or 12, and single or 1.5 spacing. If this is a proposal for only the first half of the semester, it should be about 2 pages, the other requirements are the same.

## 2. Structure

As a guideline, a typical proposal should contain the following sections:

1. Title and participants: state a tentative title for your project and list your name (or all members of the project team if working in a group) and email address.
2. Introduction: this section describes the problem you are attempting to address, why the problem is relevant, and what the expected outcome is.
3. Related work: in preparation for the proposal, you should begin to become acquainted with previous and ongoing work in this area. For example, if you plan to address the problem of clock synchronization in a highly mobile environment such as a sensor network, search for a few relevant papers that address clock synchronization in general, and synchronization in wireless/mobile environments in specific. Briefly describe how your work will rely on or compare to such previous work. The related work section will play an important role in the final term paper. In the proposal, it should give you a starting point for your work, so to mention and compare 4-5 relevant papers is sufficient.
4. Technical Details: here you describe in more detail the problem you are addressing and how you plan to address it. What will you actually do, will you perform simulations (using which tools?), implementations (what platforms, languages, software tools), or experiments and evaluations (comparing what and how?).
5. Evaluation: the evaluation will, again, play a critical part in your final term paper. In the proposal, you should describe how you will compare/evaluate your work and what results do you expect to obtain. For example, in the previous clock synchronization example, you can suggest to evaluate how

your algorithm reacts to unreliable or failed connections and how it compares to another algorithm (in terms of overheads and effectiveness) that you found in a recent paper. You can describe that you expect to study the overheads of your algorithm and a graph will show how these overheads depend on the size of the network and possibly other parameters, etc. If there are multiple team members, also discuss how you plan to split the work.

6. Timeline and milestones: this is a vague, but nonetheless important, piece of information in a proposal. You should identify the pieces of work that need to be accomplished and you should estimate how much time you will need for each piece. This will be used to evaluate your progress and significant deviations from the timeline will need to be discussed. Also, don't forget that the project is not only the actual programming/implementation/simulation/etc. work, but also the final term paper. This piece of work is often the only visible and lasting outcome of your work. Your timeline and milestones should also include your steps towards this final document (e.g., when you plan to have drafts ready, etc.). Tentatively, the final version will be due December 11 with a workshop-style presentation and demo session in the week of final exams. A well-written and almost complete draft (possibly except some results and measurements) will be due before Thanksgiving. A peer review process will be used to provide feedback to you by your colleagues from this and other courses.
7. Summary: conclude your proposal by repeating the key goal(s) and contributions of your work, summarizing why it is relevant.
8. Bibliography: this part should contain the papers you mentioned in the related work sections and other parts in the document. Refer to papers from conferences and journals to see how this part should be structured.

### 3. Common mistakes

- Lack of structure of the document: this is an important document, make it readable, e.g., using headers and lists, emphasizing important parts using *italic* or **bold** fonts, even figures if you have, etc.
- Thoughtless timeline: the timeline (even though vague and tentative) is an important guideline for the project and the instructor will look at it every week. Make sure to think carefully about this part and leave some time to "catch up" if necessary.
- Story telling: this is a technical document, so be professional and to the point (make every line count).
- Amount of work: this is a semester-long project, done individually or in teams of two. Plan your work accordingly. It is feasible to study existing clock synchronization algorithms, design a new algorithm that improves on existing ones, implement it or build a simulator for it, evaluate and measure it thoroughly, and write a sound and mature technical paper about your work. It is not feasible to design and implement a new real-time operating system that you will compare to existing ones and you will port a variety of existing applications onto your new operating system.