

# CSSE 490 – Advanced Topics: Model-Based Software Engineering

## Term Paper Proposal

### Objective

To propose your CSSE 490 Term Paper topic based on acceptable criteria. As an advanced topics course, we are interested in your ability to grasp Model-Based Software Engineering (MBSE) concepts deeply enough to understand, determine the relevant trade-offs, apply them in context, and critically evaluate them. This entails some research of a body of knowledge, organization and analysis, a position, and reasonable arguments for your position.

I will review these and give you approval to proceed once we are in agreement on the paper. Assume the term paper will be between 5 and 7 pages long and you will be responsible for a 10-minute presentation during the last week of the course where you will inform the class of what you have learned.

For many students this is the most rewarding part of the there program where you get to become more expert at a valuable topic and know it well enough to convey to your peers.

### Due Date

11:55 p.m., Monday, Week 7, April 25<sup>th</sup>, 2011.

### Tasks

1. Review the MBSE related topics in this course and select one that is both attractive enough for you to explore and relevant enough to be interesting to the class. Suggested topics include:
  - a. Critically analyze the state of software productivity and the potential for Model-Based Engineering to make an impact.
  - b. Conduct a survey of Model-Based Engineering approaches (e.g., MDA/MDD, MBSE, DSL, MIC, etc.) to compare and contrast them.
  - c. Survey Model-Based Engineering in other disciplines (e.g., civil, mechanical,) comparing them with MBSE.
  - d. From a macro-economic perspective, evaluate the cost-benefit of Model-Based Engineering for software.
  - e. Critically analyze advances in automatic programming from a feasibility perspective and outline how these implications are relevant for software today.

- f. Survey applications of “Product-Lines” to software systems and present arguments for a Model-Based Engineering approach.
  - g. Critically analyze transformation technology in the production of Model-Based/Driven Engineering software solutions.
  - h. Survey studies of Model-Driven Architecture (MDA) for the state-of the practice and outline key criteria for success and failures.
  - i. Suggest one that you would be more motivated to do!
2. Please write-up a short proposal for your topic with respect to the following criteria (a through e):
- a. Provide a descriptive Title (e.g., “Survey of Model-Based Engineering approaches: A Comparison”)
  - b. Provide a short description of your topic bringing clarity to the intended scope of the paper (intentionally excluding related areas that will not be examined).
  - c. Provide a “going in position” or “stand” regarding what you want to convey or learn.
  - d. Outline the major controversial issues or trade-offs inherent in the topic (bullets are acceptable).
  - e. The proposal should be no longer than one page (not including cover page).

### Submitting Your Work

Please submit your assignment as a single document to the Angel Homework Dropbox on Angel under “../Lessons/Homework Dropboxes/*Term Paper Proposal*”. Please submit a **pdf** file with a cover page containing your Name, Assignment Title, Date, and email address. Please name the document: *<your last name>TermPaperProposal.pdf* (e.g., *Bohner-TermPaperProposal.pdf*).