SYST 618: Model-Based Systems Engineering

Spring 2017
Nguyen Engineering Building 2608
Monday 7:20 pm-10:00 pm

Instructor: Chien-Chung (Edward) Huang
Office: Nguyen Engineering Bldg., room 2238
Phone: 703-993-1672
E-mail: chuang10@gmu.edu
Office hours: Tuesday 10am – 11 am, and by appointment; via e-mail at other times
Textbook: *A Practical Guide to SysML: The Systems Modeling Language, The MK/OMG Press, (Elsevier) 2012 (2nd Edition).*

Course objectives: Model-based Systems Engineering (MBSE) provides a formalized application of modeling to support the engineering of systems. The purpose of the course to study and practice the leading methodologies for MBSE and illustrate the MBSE approaches in systems engineering and management. The advanced objected-oriented systems engineering methodology and model transformation techniques are addressed. Software tools are introduced and used for supporting systems engineering design. Students are expected to develop a system design of their choice using MBSE approaches presented in class and they will make presentations on these designs.

Tentative Course Schedule

Date	Topic	Homework/Project	Chapters
Jan 23	Introduction to Model-based Systems Engineering		2
Jan 30	System Modeling Language (SysML)		3, 4, 6
Feb 6	Structure– Physical Decomposition		7
Feb 13	Structure– Interface Design	Homework 1 Due Date	7
Feb 20	Structure– Engineering Analysis Integration		8
Feb 27	Behavior– Activity modeling in MBSE	Homework 2 Due Date	9
Mar 6	Behavior– Interaction and State Machine		10, 11
Mar 13	Spring Break; No Class;		
Mar 20	*Midterm*	Project Proposal	
Mar 27	Object-oriented Systems Engineering Modeling Process		17
Apr 3	Integration Techniques– Model Integration	Homework 3 Due Date	
Apr 10	Integration Techniques– Stereotypes and Profiling		
Apr 17	Integration Techniques– Model-driven Architecture	Homework 4 Due Date	
Apr 24	Integration Techniques– Model Transformation		
May 1	Closure and Team Design Presentations	Project Presentation	
May 15	Final Exam		

Grading:
30% Homework
20% Midterm exam
20% Project
10% In-Class Assignments and Participation
20% Final exam

Coursework & Grading Policies
Unless otherwise indicated, you are expected to work individually on homework assignments, projects, and exams. Late submissions are not accepted. You can submit homework directly to me via email at chuang10@gmu.edu.

Academic Integrity
GMU is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

GMU Email Accounts
Students must use their Mason email accounts to receive important University information, including messages related to this class. See http://masonlive.gmu.edu for more information.

Disability Services
If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS. http://ods.gmu.edu

Technology Policies
Cell phones, pagers, and other communicative devices are not allowed in this class. Please keep them stowed away and out of sight. Laptops or tablets (e.g., iPads) may be permitted for the purpose of taking notes only, but you must submit a request in writing to do so. Engaging in activities not related to the course (e.g., gaming, email, chat, etc.) will result in a significant deduction in your participation grade.

University Policies
The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies.