

Syllabus for ESI 6555, Systems Management
Sections TBD
UF, Spring 2018

1. Course Description (3 semester hours) – Systems engineering is a discipline that addresses the management of systems of increasing complexity in military, industrial, commercial, and civil areas. The objectives of this course are to acquaint students with concepts of systems and the role systems engineering plays in their development. The course includes a project.
2. Pre-requisites: Linear algebra, calculus, probability
3. Instructor: Don A. Grundel
 - a. Phone: 850-582-0716
 - b. E-mail address: don.grundel@us.af.mil
 - c. Class Web site: EDGE e-learning site for ESI 6555
 - d. I have no office in the College of Engineering, you may contact me by email or phone at anytime
4. Taping Times: TBD
5. Meeting Location: UF REEF, Shalimar, FL
6. Material and Supply Fees: None
7. Textbook: Blanchard and Fabrycky, *Systems Engineering and Analysis*, 5th edition, Prentice Hall, 2011. No specialized software required. Microsoft Excel will be used for several exercises. Additional materials developed by instructor are provided in Resources section of e-learning site.
8. Course Outline (planned topics): see attached weekly schedule from 2017 which is representative of the Spring 2018 weekly schedule
9. Attendance and Expectations: Any student who can attend any taping session is welcome. There is no penalty for absence or tardiness.
10. Grades are based on Homework, Quizzes, Project, midterm and final exam.
 - a. Homework is due within one week after assignment
 - b. Homework (25%), Quizzes (25%), Project (25%) midterm (12.5%), final (12.5%) (quizzes, midterm and final are open book, open notes – no proctor required)
11. Grading Scale: 90-100 A, 80-89 B. Instructor reserves the right to scale grades, but scale will be no more rigorous than shown.

In order to graduate, graduate students must have an overall GPA and an upper-division GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

12. Make-up Exam Policy: Exams may be made-up in extreme circumstances. Please contact instructor. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.”
13. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.
14. Accommodation for Students with Disabilities – Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.
15. UF Counseling Services –Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
 - UF Counseling & Wellness Center, 3190 Radio Rd, 352-392-1575, psychological and psychiatric services.
 - Career Resource Center, Reitz Union, 352-392-1601, career and job search services.
16. Software Use – All faculty, staff and student of the University of Florida are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.
17. Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Some references for the course and for use in daily Systems Engineering activities

- Blanchard and Fabrycky, *Systems Engineering and Analysis*, 5th edition, Prentice Hall, 2011
- International Council on Systems Engineering, www.incose.org
- IEEE Std 15288, 2014
- Defense Acquisition Guidebook, 16 Sep 2013

The following is the weekly course schedule from 2017 which is representative of Spring 2018

Date	Lecture	Topic	Text (read)	Assignments (due ~7 days)
5 Jan	1	Introduction	Chapter 1	1) Introduce yourself
9 Jan*	2	Systems Engineering	Chapter 1	2) Ch 1 Q's
9 Jan*	3	Engineered Systems	Chapter 2	3) Write SRD
12 Jan*	4	Engineering Process/Requirements Mgt	Chapter 2	
19 Jan*	5	Design Considerations/Implementation	Chapter 2	4) Tolerance Stack Up
19 Jan*	6	Case Study 1: A-10 Warthog	Case Study	5) Case Study Questions
23 Jan	7	Conceptual System Design	Chapter 3	
23 Jan	8	Design Reviews and TPMs	Chapter 3	6) Excel Solver, Ch9,Q 27
26 Jan	9	More on Optimization In Design	Chapter 9	
30 Jan	10	Risk and Opportunity Management	Ch 19.5	7) Opt Assignment
30 Jan	11	Trade Off/Decision Analysis	Chapter 7	
2 Feb	12	SWaP-C		8) Ch7,Q19; MC; LOP
6 Feb	13	Case Study 2: Hubble Space Telescope	Case Study	9) Case Study Questions
6 Feb		Quiz 1 (no lecture)		
9 Feb	14	Preliminary System Design	Chapter 4	10) Aging
13 Feb	15	Preliminary System Design	Chapter 4	
13 Feb	16	Detail Design	Chapter 5	
16 Feb	17	Curve Fitting (post Mid-Term)		
20 Feb	18	Case Study 3: Big Dig	Case Study	11) Case Study Questions
20 Feb	19	Test and Evaluation	Chapter 6	12) Curve Fitting
23 Feb	20	Test and Evaluation (Acceptance Testing)	Chapter 6	
27 Feb		Mid-Term (due) (no lecture)		
27 Feb	21	Economic Evaluation	Chapter 8	13) Acceptance Testing
2 Mar*	22	Queuing Theory and Analysis	Chapter 10	14) Project Proposal
13 Mar		Quiz 2 (no lecture)	Chapter 12	15) Economic Analysis
13 Mar	23	Design for Reliability	Chapter 12	16) Queuing Theory
16 Mar	24	Design for Reliability	Chapter 12	
20 Mar	25	Design for Reliability (Bayesian Inference)	Chapter 12	17) Reliability
20 Mar	26	Case Study 4: B-2		18) Case Study Questions
23 Mar		Quiz 3 (no lecture)		
27 Mar	27	Maintainability	Chapter 13	
27 Mar	28	Human System Interface	Chapter 14	19) Maintainability
30 Mar	29	Manufacturing	Chapter 16	
3 Apr	30	Manufacturing	Chapter 16	20) Manufacturing
3 Apr		Quiz 4 (no lecture)		
6 Apr	31	RAM-C		
10 Apr	32	SEP and SEMP	Chapter 18	
10 Apr	33	Open Systems Architecture		
13 Apr	34	DODAF		
17 Apr	35	Integrated Baseline Reviews		
17 Apr	36	Control Concepts	Chapter 11	
20 Apr	37	Case Study 5: COBE (post Final Exam)		Submit Project Paper
25 Apr		Final Exam (due)		