

**Texas A&M University**  
**Departmental Request for a New Course**  
**Undergraduate ♦ Graduate ♦ Professional**  
 • Submit original form and attach a course syllabus. •

1. This request is submitted by the Department of Industrial and System Engineering
2. Course prefix, number and complete title of course: ISEN 640 Systems Thinking and Analysis
3. Course description (not more than 50 words): Introduction to the systems development process and the fundamental considerations associated with the engineering of large-scale systems, or systems engineering.
4. Prerequisite(s) none Cross-listed with \_\_\_\_\_  
Cross-listed courses require the signature of both department heads.
5. Is this a variable credit course?  Yes  No If yes, from \_\_\_\_\_ to \_\_\_\_\_.
6. Is this a repeatable course?  Yes  No If yes, this course may be taken \_\_\_\_\_ times. Will the course be repeated within the same semester/term?  Yes  No
7. Has this course been taught as a 289/489/689?  Yes  No If yes, how many times? 2 Indicate the number of students enrolled for each academic period it was taught. 30 (08A); 26 (07A)
8. This course will be:
  - a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)
  - b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)  
M.S., M.Eng., Ph.D. in Industrial Engineering
9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. **Attach approval letters.**

10.

Prefix	Course #	Title (excluding punctuation)
ISEN	620	SYS THINKING ANALYSIS

  

Lect.	Lab	SCH	Subject Matter	Content Code	Admin. Unit	Acad. Year	FICE Code	
03	00	03	142701	0006	1622	09-10	003632	
							Level	6

**Approval recommended by:**  
Gay L. Curry 3-4-08  
 Head of Department Date

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Head of Department (if cross-listed course) Date

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**Submitted to Coordinating Board by:**

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Director of Academic Support Services

N.K. Ahmed 4/7/08  
 Chair, College Review Committee Date

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N.K. Ahmed 4/2/08  
 Dean of College Date

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Dean of College Date

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Date

**RECEIVED**

N.K. ANAND

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

ISEN 640 COURSE SYLLABUS

Number and Title of Course: ISEN 640 Systems Thinking and Analysis

Hours: Theory 3, Practice 0, Total 3, Credits 3

Prerequisites: None

Description of Course: Introduction to the systems thinking process and the fundamental considerations associated with the engineering of large-scale systems, or systems engineering.

Textbook(s):

Kossiakoff, A. Sweet, W.N., *Systems Engineering Principles and Practice*, 2<sup>nd</sup> Edition, John Wiley & Sons, New York, NY, 2003. ISBN: 0471234435.

References:

1. Wymore, W.A., *Model-Based Systems Engineering*, CRC Press Inc., Boca Raton FL, Chapter 1 & 2, 1993.
2. Blanchard, B.S. and Fabrycky, W.J., *Systems Engineering and Analysis*, 4<sup>th</sup> Edition, Prentice Hall, 2005. ISBN: 0131869779.
3. Derek K. Hitchins, *Advanced Systems Thinking, Engineering, and Management*, Artech House Publishers, 2003. ISBN: 1580536190.
4. Gharajedaghi, J., *Systems Thinking, Managing Chaos and Complexity: A Platform for Design Business Architecture*, 2<sup>nd</sup> Edition, Butterworth Heinemann, 2005. ISBN: 0750679735.

Course Outline by Major Topics and Approximate Time Assigned to Each:

	Hours	
	Th	Pr
1. Introduction to Systems Thinking	3	0
2. Functional and Information Modeling	3	0
3. Systems Thinking Tools	3	0
4. Systems Design Requirements	6	0
5. Systems Modeling	9	0
6. The System Development Process	6	
7. Formulation of Issues and Constraints	6	0
8. Design and Evaluation of Systems Models	6	0
9. Project Presentations	3	
Totals	45	0

Grade Basis: Homework and projects 50%  
2 - exams 50%

Date: 2/19/08

Course Instructor: Lewis Ntaimo

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Cain Hall, Room B118, or call 845-1637.

Academic Integrity: "Aggies do not lie, cheat, or steal, nor do they tolerate those who do." It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty. (<http://www.tamu.edu/aggiehonor>)