

**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 620 Survey of Optimization

3. Course description (not more than 50 words): Theory and numerical methods for deterministic linear and nonlinear optimization; topics include linear programming, unconstrained-nonlinear optimization, constrained-nonlinear optimization; Lagrange and K-K-T conditions, and numerical algorithms.

4. Prerequisite(s) MATH 304 or MATH 311 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. 79 (07C); 23 (06C)

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.

Prefix		Course #		Title (excluding punctuation)																
ISEN		620		SURVEY OPTIMIZATION																
Lect.	Lab	SCH	Subject Matter Content Code						Admin. Unit			Acad. Year			FICE Code					
03	00	03	1437010006						1622			09-10			003632					
														Level		6				

Approval recommended by:

Guy L. Curry 3-4-08  
 Head of Department Date

N.K. Anand 4/2/08  
 Chair, College Review Committee Date

Head of Department (if cross-listed course) Date

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

Submitted to Coordinating Board by:

Dean of College Date

Director of Academic Support Services

Date

**RECEIVED**  
 Effective Date

MAR 07 2008

Questions regarding this form should be directed to Sandra Williams at 845-8836.

OAR/AS - 04/07

**N.K. ANAND**

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

ISEN 620 COURSE SYLLABUS

Number and Title of Course: ISEN 620 Survey of Optimization

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

Prerequisites: MATH 304 or MATH 311

Description of Course (Concise statement of purpose or design): Theory and numerical methods for deterministic linear and nonlinear optimization. Topics to be discussed include linear programming, unconstrained-nonlinear optimization, constrained-nonlinear optimization: Lagrange and K-K-T conditions, and numerical algorithms.

Textbook(s): Instructor notes

References: Introduction to Mathematical Programming, Wayne Winston and M. Venkataramanan, Fourth Edition, Duxbury; Linear Programming and Network Flows, Bazarra, Jarvis and Sherali, Second Edition, Wiley; An Introduction to Optimization, Chong and Zak, Second Edition, Wiley.

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

	HOURS	
	Th	Pr
1. Vector space and matrices		3
2. Linear programming fundamentals		6
3. Revised simplex and other algorithms		6
4. Duality and sensitivity analysis		6
5. Unconstrained optimality conditions		6
6. Equality constrained optimality		6
7. Convex programming theory		6
8. Numerical algorithms		3
7. Exams		3
	Total Hours	45

Grade Basis: Homework 25%  
Exams (3) 75%

Date: 2/19/08

Course Instructor: Guy L. Curry

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>)