FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL

DEPARTMENT NAME : CIVIL ENGINEERING

COLLEGE OF: ENGINEERING AND COMPUTER SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX TTE   **COURSE NUMBER** XXXX   **LAB CODE (L or C)** _____

INSTRUCTIONAL METHOD (V, BB, IC, EC, ETC.):

COMPLETE COURSE TITLE Transportation Systems Analysis

EFFECTIVE DATE (first term course will be offered): SPRING 2008

CREDITS: 3	LAB/DISCUSSION: N/A	TEXTBOOK INFORMATION: by Winston, W.L. 1990	Operations Research: Applications and Algorithms 2nd Ed.
LECTURE: 3	FIELD WORK: N/A	**ISBN:** 0471364002	

GRADING: REGULAR X   **PASS/FAIL** _____   **SATISFACTORY/UNSATISFACTORY** _____

COURSE DESCRIPTION, NO MORE THAN 3 LINES: THIS CLASS IS DESIGNED TO BE A MODELING CLASS TO PERMIT STUDENTS TO CREATE MODELS IN MATLAB OR OTHER ENGINEERING SOFTWARE TO SOLVE TRAFFIC MOVEMENT, QUEING AND SEQUENCING FOR OPTIMIZING TRANSPORTATION FLOW. STUDENT WILL UTILIZE SKILLS IN OPERATIONS RESEARCH, LINEAR PROGRAMMING AND MULTI-OBJECTIVE ANALYSIS.

PREREQUISITES:	COREQUISITES:	OTHER REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL):
TTE 4005 OR INSTRUCTOR PERMISSION REQ'D O *Check box to enforce**	NONE O *Check box to enforce**	O *Check box to enforce**

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: PHD IN CIVIL ENGINEERING/CONCENTRATION IN TRANSPORTATION

Other departments, colleges that might be affected by the new course must be consulted. List entities that have been consulted and attach written comments from each. None

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Faculty Contact, Email, Complete Phone Number

SIGNATURES

SUPPORTING MATERIALS

Approved by:	Date:
Department Chair: _~signature~_	11/2/2007
College Curriculum Chair: _~signature~_	11/2/07
College Dean: _~signature~_	11/2/2007
UGPC Chair: _____	
Dean, Graduate Studies _____	

Syllabus—must include course objectives.

Written Consent—required from all departments affected.

Go to: *http://graduate.fau.edu/gpc/* to download this form

* "Enforce" prerequisites or other registration controls adds these restrictions to the course schedule; students whose academic careers do not show these prerequisites or other details will not be able to register. When box is not checked, restrictions show in catalog description only.

Email this form and syllabus to Graduate Studies one week *before* the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website by committee members prior to the meeting.

Transportation System Analysis

Description: This course is designed to be a modeling class to permit students to create models in CPLEX or other engineering software to solve transportation movement, queuing and sequencing for optimizing transportation flow. Students will utilize skills in operations reseasch, linear programming and multi-objective analysis.

Course Number: TTE XXXX

Course Prerequisites: Transportation Engineering II (TTE 4005) or permission of instructor.

Course Co-requisites: None

Courses that require this course as a direct prerequisite: None

Specialization: Linear programming, and Integer programming, Transportation logistics.

Special Features: Exposure to theoretical and experimental research in transportation engineering.

Credits: 3

Required Texts: Winston, W.L., 1990, "Operations Research: Applications and Algorithms," 2nd Edition, Duxbury Press, ISBN: 0-534-20971-8.

Recommended Texts: Ahuja, R.K., T.L. Magnati, and J.B. Orlin, 1993, "Network Flows and Theory, Algorithms, and Applications," Prentice Hall, Inc.
Law, A.M., and W.D. Kelton, 1991, "Simulation Modeling & Analysis," McGraw-Hill Inc.
Sheffi, Y., 1985, "Urban transportation Networks, "Prentice Hall.

Course Objectives: The objective of this course is to provide the students with basic and applied knowledge of operation research, linear programming, and integer programming. Specifically, the students completing this coutrse will be able to:
- Conceptualize, and solve transportation system problems
- Apply operation research techniques for modeling system performance and design of transportation services.
- Understand linear programming
- Understand and apply location theory in the transportation arena
- Investigate different techniques in transportation systems via class room discussion problem sets and semester long project

Methods of Instruction: Regular Class with some internet activities using Blackboard

Topics: The lecture is based on a sequence of chapters from the textbook and will be supplemented with additional material where necessary including further references and instructor's notes.

    1) Linear programming
    2) Transportation network problems
    3) Integer programming
    4) Network models and applications
    5) Graph theory, shortst path, vehicle routing algorithms and heuristic
    6) Queuing system, dynamic traffic assignment, Simulation
    7) Transportation and supply chain management

Schedule for Films/Videos/In-Class Discussions: N/A

Grading Scheme: Homework: 20% (every two weeks)
                        Project: 20%
                        Mid-Term Exam: 40%
                        Final Exam: 20%

Homework, Assisgments and other out of Class Activities: One homework every two weeks

Grading Scale: A (95%-100%), A- (90%-94%), B+ (85%-89%), B (81%-85%), B- (76%-80%), C+ (71%-75%),
C (67%-71%), C- (62%-66%), D+ (57%-61%), D (52%-56%), D- (45%-51%), F (below 45%)

Instructor: Dr. Evangelos I. Kaisar
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