FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL

UUPC APPROVAL _____
SCNS SUBMITTAL _____
CONFIRMED _____
BANNER POSTED _____
CATALOG POSTED _____
WEB POSTED _____

DEPARTMENT NAME :CIVIL ENGINEERING | COLLEGE OF: ENGINEERING AND COMPUTER SCIENCE

RECOMMENDED COURSE IDENTIFICATION:
PREFIX TTE COURSE NUMBER xxxx LAB CODE (L or C) _____
COMPLETE COURSE TITLE **Railroad Engineering Design**
EFFECTIVE DATE (first term course will be offered): **SPRING 2009**

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

CREDITS: 3 | LAB/DISCUSSION: N/A | TEXTBOOK INFORMATION: Railroad Engineering, 1st edition by William W. Hay, Ph.D

LECTURE: 3 | FIELD WORK: N/A | **ISBN:** 0471364002

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

COURSE DESCRIPTION, NO MORE THAN 3 LINES: This class outlines a brief history of railroad development, nature of railroad traffic, location of rail routes, existing railroads, nature of materials hauled and locomotive power lead to specific details of the design and use, grades, geometry, foundations, rail design, materials and right-of-ways.

PREREQUISITES:	COREQUISITES:	OTHER REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL):
SENIOR OR GRADUATE STATUS, 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

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

Approved by:	*Date:*
Department Chair:	11/2/2007
College Curriculum Chair:	11/2/07
College Dean:	11/2/2007
UGPC Chair:	
Dean, Graduate Studies	

SUPPORTING MATERIALS

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.

Florida Atlantic University
College of Engineering and Computer Science
Department of Civil Engineering

Railroad Engineering Design

Description: This class outlines the concepts behind the design of railroads. Topics include: brief history of railroad development, nature of railroad traffic, railroad network, locomotives, nature of materials hauled, grades, geometric design, foundations, rail design, right-of-ways and queuing theory.

Catalog Description: This class outlines the concepts behind the design of railroads. Topics include: brief history of railroad development, nature of railroad traffic, railroad network, locomotives, nature of materials hauled, grades, geometric design, foundations, rail design, right-of-ways and queuing theory.

Course Prerequisites: senior standing, graduate status and/or permission of instructor.

Course Co-requisites: None

Courses that require this course as a direct prerequisite: none

Specialization: Transportation engineering

Special Features: n/a.

Credits: 3

Required Texts:

- William W. Hay, Ph.D., *Railroad Engineering*, 1st edition (December 2, 1982), John Wiley & Sons; Hoboken, NJ
- Materials as needed for the design project development.

Recommended Texts: none

Course Objectives: The objectives of this course are to:

- Present and discuss the processes by which railroad tracks are designed and constructed.
- Present and develop design skills for railroads, including geometry, weight issues and material selection
- Present and develop skills of railroad operation
- Selecting appropriate considerations for routing railroads

Course Outcomes:

- Ability to prepare a railroad design acceptable to a client.
- Ability to analyze routing
- Ability to understand professional practice issues such as procurement of work; bidding versus development of specifications and locations for railway design

Topics:

1) Overview of Railroads
2) History of Railroads
3) Costs of Railroads
4) How locomotives work
5) History of Locomotive power
6) Characteristics and uses of Locomotives and Railcars
7) Grades, Acceleration and Deceleration
8) Velocity Profiles, Grade problems
9) Tonnage
10) Route locations
11) Track analysis
12) Subgrade materials, design and construction

13) Drainage
14) Ballast and Ties
15) Rail Design
16) Track Geometry
17) Crossings and turn-outs
18) Rail Right-of-way

Grading Scheme:

Midterms	20%
Final	30%
Homework	20%
Class Participation/Quizzes	10%
Project (including presentations)	20%

Grading Scale: A (92%-100%), A- (90%-91%), B+ (89%), B (82%-88%), B- (80%-81%), C+ (79%), C (70%-78%), F (below 70%)

Instructor: Dr. Frederick Bloetscher, P.E
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