Pennsylvania State University - Altoona
Rail Transportation Engineering

RTE403 Railroad Track Practicum
Fall 2015

Course Description

Track Practicum covers advanced track topics such as:

- Track Analysis: where students will be able to learn and use computer tools to conduct quasi-static track stress analysis; it will also cover fundamental Finite Element Analysis procedures for railroad track structures. Dynamic Track analysis including dynamic track modeling and train-track interaction will be introduced.
- Track Structures including railroad bridges
- Track Location and Maintenance
- Passenger, Transit and High Speed Rails

Software such as GEOTRACK, KENTRACK, VAMPIRE, and MatLab will be used in the computer lab. Triaxial tests will be covered in the Soil lab.

Prerequisites

Prerequisite: RTE 302, CE310. Prerequisite or concurrent: CE333W, CE335
Computer Skills: MatLab

Instructor

Dr. Hai Huang, Office address to be determined, 949 - 5346, huh16@psu.edu
Office Hours: MWF 12 – 3 PM or by appointment

Class Schedule

Class: MWF 11:00-11:50 EMS; Lab: Tu 1:15 PM EMS

Textbook

TBD

Course Objectives

RTE 403 support following ABET objectives:

- *(a) an ability to apply knowledge of mathematics, science, and engineering*
- *(b) an ability to design and conduct experiments, as well as to analyze and interpret data*
- *(e) an ability to identify, formulate, and solve engineering problems*
- *(g) an ability to communicate effectively*
- *(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice*

Course Web Site

ANGEL website (please check it regularly for course related materials and updates)

Course Project

Five course project reports and one final project report.

Attendance Attending all the classes is important and it is strongly recommended. Although no separate graded is allotted, attendance records may be used to improve your final grade in case of border-line scenario. To have this privilege you should attend at least 90% of the classes.

Statement on Academic Integrity

Definition and Expectations

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic Integrity includes a commitment not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

To protect the rights and maintain the trust of honest students and support appropriate behavior, faculty and administrators should regularly communicate high standards of integrity and reinforce them by taking reasonable steps to anticipate and deter acts of dishonesty in all assignments. At the beginning of each course, it is the responsibility of the instructor to provide students with a statement clarifying the application of University and College academic integrity policies to that course.

Consequences of Academic Dishonesty

The penalty for academic dishonesty in less serious cases may consist of a failing grade for the course. The decision is made by the instructor. In more serious cases of academic dishonesty, the penalties may be more severe, including automatic failure for the course, and referral to the Office of Judicial Affairs for disciplinary action. Formal due process procedures are available for the students and faculty involved. The Student Guide to University Policies and Rules provides the details on these procedures.

Schedule of Topics

The course topics as outlined below are subjected to minor changes during the semester

Topics	Weeks	Activities
Track Analysis • Review	1	
Track Analysis • GEOTRACK	2	Lab
Track Analysis • KENTRACK	3	Lab
Track Analysis • Finite Element Analysis	4, 5, 6	Lab
Track Structures • Bridges	7	Guest Speaker/ Field Trip
Track Location and Maintenance	8	Field Trip
Passenger, Transit, and High Speed Rail	9	Guest Speaker
Track Dynamics • MatLab • Train-Track Interactions	10,11,12,13	Lab
Final Project	14, 15	Lab