



North South University
Department of Civil and Environmental Engineering (DCEE)

CEE 250L: Transportation Engineering Lab

Spring 2018

Course Syllabus

INSTRUCTOR: JBr - Prof. Javed Bari, PhD, PE, FIEB
Professor, CEE
Room No: SAC 735, Office Phone: 8852000 ext. 1981, Mobile: 01743630729
E-mail: javed.bari@northsouth.edu

LAB HOURS: Sec-2: R 2:40pm – 5:50pm, Sec-3: M 2:40pm – 5:50pm (Lab #B115)

OFFICE HOURS: STR 11:30 pm – 12:30 pm, MW 10:00 am – 11:00 am, or by appointment

CREDIT HOURS: 1 (3 hours/week)

COURSE DESCRIPTION:

Laboratory experiments on highway materials (soil, aggregates and asphalt) and characterization of those materials.

COURSE OBJECTIVE:

Provide the students a hands-on experience of conducting laboratory experiments on highway materials needed for the materials' characterization and conformation to the specifications.

LAB EXPERIMENTS:

1. Angularity Number.
2. Elongation Index.
3. Aggregate Crushing Value.
4. Ten Percent Fines Value.
5. Aggregate Impact Value.
6. Resistance to Degradation (Los Angeles Abrasion Test).
7. Viscosity of Asphalt (using Rotational Viscometer).
8. Softening Point of Bituminous Material (Ring and Ball Method).
9. Penetrations of Bituminous Material.
10. Flash and Fire Point of Bitumen (Cleveland Open Cup Method).
11. Preparation of Marshall Specimen.
12. Marshall Stability and Flow.

TEXT:

CEE250L Lab Manual – by: DCEE, NSU

AVAILABILITY OF COURSE MATERIALS:

The lab manual is available at the university common folder "Resource". You can print them from there. Students are advised to check the folders at regular intervals.

LAB INSTRUCTIONS

The course instructor or lab assistant/coordinator must be consulted before using any lab facility. Students are strongly advised to follow the general lab safety rules. Note that closed toe shoes are mandatory in all Civil Engineering laboratories. No sandals will be allowed in the lab. It is a student's responsibility to read the test procedures and text assignments before the scheduled labs. It

is highly requested to maintain discipline in the lab like not to be late, refrain from making noise during lab time, not to leave the lab early.

EVALUATION:

Participation and attendance	35%
Lab Report	35%
Lab Exam	30%

MAPPING OF COURSE OUTCOME-PROGRAM OUTCOME (CO-PO):

Sl.	Course Outcomes (COs)	Program Outcome ¹	Bloom’s taxonomy Domain /level ²	Delivery methods and activities	Assessment tools
CO1	Conduct common laboratory experiments on highway materials (soil, aggregates and asphalt) used in transportation projects and use the test data to characterize those materials in order to conform to standard specifications.	PO-5	P1, P2, P3	Lecture, Demonstration	Participation, Lab report, Exam

Notes:

1. BSCEE Program Outcomes (POs):

- PO - 1: Engineering Knowledge
- PO - 2: Problem analysis
- PO - 3: Design/development of solutions
- PO - 4: Investigation
- PO - 5: Modern tool usage
- PO - 6: The engineer and society
- PO - 7: Environment and sustainability
- PO - 8: Ethics
- PO - 9: Individual work and teamwork
- PO - 10: Communication
- PO - 11: Project management and finance
- PO - 12: Life-long learning
- PO - 13: Contemporary Issues.

2. Domains and Levels of Bloom’s Taxonomy

- “Cognitive” Domain (C): C1 - Recall data, C2 - Understand, C3 - Apply, C4 - Analysis, C5 - Synthesize, and C6 - Evaluate.
- “Affective” Domain (A): A1 - Receive, A2 - Respond, A3 - Value, A4 - Organize personal value system, and A5 - Internalize value system.
- “Psychomotor” Domain (P): P1 - Imitation, P2 - Manipulation, P3 - Develop precision, P4 - Articulation, and P5 - Naturalization.

EXAM POLICY:

Lab exam will be a written exam based on the knowledge gained from experiments done in the lab. No make up exam will be arranged unless an absolutely unavoidable valid reason for absence is found. For such unavoidable circumstances, written explanation must be submitted before the exam.

GRADING POLICY:

Generally, NSU grading policy will be followed. However, minor deviation is still possible depending on the situation.