SCHOOL OF STEM SYLLABUS

TERM:

INSTRUCTOR:

COURSE CODE: CNM-222

OFFICE HOURS:

COURSE TITLE: Construction Project Management

OFFICE LOCATION:

DAY(S) AND TIME(S):

EMAIL:

LOCATION:

PHONE:

COURSE PREREQUISITE: None

CREDITS: 4

COURSE DESCRIPTION:
Students learn the processes, techniques and procedures involved in a construction project from conception to completion. The course provides an opportunity to learn about common construction methods and materials involved. Students also learn technical skills involving in the areas of cost control, scheduling, risk analysis, delay analysis, administrative procedures, safety regulations, labor relations, and record keeping.

STUDENT LEARNING OUTCOMES:

Upon successful course completion, students will be able to:

1. Apply the planning process to a project from inception to construction.
2. Create a management plan that optimizes the use of resources.
3. Evaluate a construction plan for its financial, legal, technical and socio-political aspects.
4. Determine the tests and instruments require for construction site.
5. Identify issues involved in mitigating environmental damage.

TEXTBOOK AND SUPPLEMENTAL MATERIALS:

Proposed student texts

1) Total Construction Project Management, Second Edition By George J. Ritz and Sidney M. Levy, © 2013 Construction Management Fundamentals; McGraw Hill Series ISBN: 978-0073401048
2) Soil Properties, testing, measurement and evaluation by Cheng Liu & Jack B. Evette

Reference Books and Other Sources:

Manual of Soil Laboratory Testing 3rd Edition by K.H. Head; ISBN 1420044672, 9781420044676

Soil Mechanics Laboratory Manual 8th Edition; Braja M. Das ISBN-13**:** 978-0199846375

Laboratory and exercise manual on concrete construction; ISBN 0471674354, 9780471674351

ACI Manual for Technician Level 1.

a) https://www.youtube.com/watch?v=0TTbYYfBH5w

b) https://www.youtube.com/watch?v=Bw4O4HaNIHw

c) https://www.youtube.com/watch?v=vq0m8GYB1Os

d) https://www.osha.gov/Publications/OSHA3252/3252.html

GRADING POLICY:

Attendance and Participation	**5%**
Assignments	**10%**
Lab	**20%**
Case Study	**20%**
Midterm	**20%**
Final Exam	**25%**

SAMPLE COURSE SCHEDULE:

Week / Session	**Lecture Topic**	Student Learning Objectives (SLO)
Session 1	**Project Process & Required Documentation** Orientation, description of the course content, schedule, expectation from students, project phases from conception, design (Preliminary & Final) & construction. Criteria to build or not to build (Biennial Inspection, load rating criteria) DAD	1,2

	(Design Approval Documents), concept of value engineering, balance bid, unbalanced bid, estimating profit margin, method related charge, project profitability indicators, **Lab Session 1:** General Lab Rules, Safety protocol, Tools involved in general topic covering of Material Sampling aggregates	
Session 2	**Project Resource Allocation & Procurement Criteria** Project stakeholders, public and private projects, funding sources, bidding process, design/build concept, legal/political aspects of public funded projects, socio-political issues, development of project scope, preparation of contract documents **Lab Session 2:** Reducing samples of aggregates to testing size	1
Session 3	**Case Study;** assigning group project. **Lab Session 3:** standard test for saturated surface dry density and specific gravity the concrete	1,2,3,4, 5
Session 4	**Regulations and their implementation Procedures** Compliance with federal, state and local policies (labor, environmental and political policies), litigation and liability issues, types of construction projects and their challenges, common construction standards (ACI, ASTM, AASHTO MUTCD etc.) **Lab Session 4:** Description and identification of Soils –Visual manual procedure	1 & 3
Session 5	**Construction Materials and their Testing Methods** Common construction materials their application and quality control procedures, common testing methods and acceptance criteria **Lab Session 5:** Determining moisture content of the soil	3 & 4
Session 6	Highway construction, work zone safety, OSHA construction regulations, construction related first aid procedures (fire, fall, CPR, etc), community outreach, political influence and sensitivity **Lab Session 6:** Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing	3
Session 7	**Mid Term Test**	1, 2, 3, 4, 5

	Lab Session 7: Materials Finer Than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing	
Session 8	**Review Midterm Exam** **Concrete Construction and its Testing Part I** Concrete construction, issues involve in concrete construction, inspection, testing part I **Lab Session 8:** Sieve Analysis of Fine and Coarse Aggregates	2 & 3
Session 9	Concrete construction, issues involve in concrete construction, inspection, testing part II **Lab Session 9:** Organic Impurities in Fine Aggregate for Concrete	2 & 3
Session 10	Asphalt construction, issues involve in asphalt construction, inspection, testing part I **Lab Session 10:** Concrete tests for temp, Unit weight, slump, air and for compressive strength	2 & 3
Session 11	Asphalt construction, issues involve in asphalt construction, inspection, testing part II **Lab Session 11:** Selecting Proportions for Concrete	2 & 3
Session 12	Environmental aspects of construction project, permitting process. **Lab Session 12:** Making and Curing Concrete Test Specimens in the Laboratory	5
Session 13	Estimation, negotiation, and scheduling (techniques used for scheduling), Line of balance (LOB), basic representation, LOB Calculations, crew synchronization, meeting a deadline duration, calculating resource needs, drawing LOB schedule, problems may arise during construction, schedule updating, cost crashing, project Time-Cost Trade off, activity cost relationship, Project Time-Cost Relationship, Shortening Project Duration	2,3
Session 14	**Special Topics:** Change orders, unforeseen conditions, delays, types of delays, As-Built schedule, analysis of concurrent delays, Time Impact Statement, cost overrun, CIVEC proposal, project closeout and record keeping, As-built drawings, archiving the project records.	2 & 3
Session 15	Final Test	

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https://www.hccc.edu/administration/academic-affairs/syllabus-addendum.html