### **MURRAY STATE UNIVERSITY**

# DEPARTMENT: INDUSTRIAL AND ENGINEERING TECHNOLOGY COURSE NUMBER: CET 385 CREDIT HOURS: 3

I. TITLE: CET 385 Construction Estimating I

#### II. CATALOG DESCRIPTION:

Basic estimating procedures relating to quantity surveying, earthwork computations, and cost of labor and materials. CPM determinations of project durations and resources required for construction. (Fall)

- III. <u>PURPOSE</u>: Students will learn basic principles employed in determining the costs of materials, equipment, labor, and overhead used in heavy construction work.
- IV. <u>COURSE OBJECTIVES</u>: Students will (1) determine owning and operating costs for heavy equipment, (2) estimate equipment and labor production rates and costs, (3) determine basic material quantities from construction drawings, (4) use critical path scheduling to determine project time, and (5) prepare cost estimates for heavy construction projects.

## V. CONTENT OUTLINE:

- A. Determination of owning and operating costs for heavy equipment
- B. Estimating equipment and labor production rates and unit cost
- C. Calculation of materials quantities for earthwork, road construction, and foundations.
- D. Use of Gantt Chart scheduling to compute project duration and overhead
- E. Preparation of cost estimates for bidding and negotiation

#### VI. INSTRUCTIONAL ACTIVITIES:

- A. Lecture
- B. Discussion
- C. Class exercises
- D. Computer assignments
- E. Homework assignments and projects

#### VII. FIELD, CLINICAL, AND LABORATORY EXPERIENCES:

- A. Site visits to local construction projects
- B. Use of construction cost estimating software for cost estimate preparation
- VIII. <u>RESOURCES:</u> Instruction will involve the use of the MSU computer lab in the Collins Center.

#### IX. GRADING:

Exams 3 @ 15% 45% Lab/Estimates 30% Final 25%

## X. ATTENDANCE POLICY:

In accordance with university attendance policy, regular attendance in class is expected.

#### XI. ACADEMIC HONESTY:

Cheating, plagiarism (submitting another person's material as one's own), or doing work for another person which will receive academic credit are all impermissible. This includes the use of unauthorized books, notebooks or other sources in order to secure or give help during an examination; the unauthorized copying of examinations, assignments, reports or term papers; or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

#### XII. TEXT AND REFERENCES:

Nunnally, S.W. (2011). Construction methods and management. 8th ed. Prentice-Hall, NY. (required text)

XIII. PREREQUISITES: CET 310

XIV. <u>INSTRUCTOR</u>: A.C. Kellie 253L Collins Center 809-6982 andy.kellie@murraystate.edu

XV. <u>NONDISCRIMATION STATEMENT</u>: Murray State University does not discriminate on grounds of race, color, gender, sexual orientation, religion, national origin, age, disability, or veteran's status in providing any educational or other benefits services of Murray State University to students or those applying for admission at Murray State University. Murray State University attempts to provide equal opportunity in all areas of student admissions, financial aid, employment, and placement and provides upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities.

CET 385		Construction Estimating I		Fall, 2011
Week 8/15 8/22 8/29	Estimating methods <i>Est1—Palma FD</i> <sup>1</sup>	Topics Estimating methods Materials	Introduction <i>Est1—Palma FD</i> <sup>1</sup> Volumes	<b>Text</b> 1 18 2
9/5 9/12 9/19 9/26	Labor Day Unit Priceslabor Material Handling Est2—NHBC <sup>2</sup>	Volumes Exam I Excavation Est2—NHBC <sup>2</sup>	Unit Prices—matl Machine Production Est2—NHBC <sup>2</sup> Fall Break	8 3 - 5
10/3 10/10 10/17 10/24	Load & Haul CIP concrete Est 3—TBA <sup>3</sup> CIP concrete	Compaction Exam II Est 3—TBA <sup>3</sup> Precast	Formwork  Est 3—TBA <sup>3</sup> CIP concrete  Piling	6 12 12
10/31 11/7 11/14 11/21 11/28	Piling Exam III Est 4—TBA <sup>4</sup> Steel Steel	Masonry  Est 4—TBA <sup>4</sup> Est 4—TBA <sup>4</sup> Thanksgiving  Steel	Masonry No Class Est 4—TBA <sup>4</sup> Review	14 - - 15

Final exam will be at 10:30 Wednesday, December 9, 2009 in room 237 Collins Center. The final will be comprehensive; all students are required to take the final

<sup>&</sup>lt;sup>1</sup>Estimate 1—Palma Fire Department—paving, drainage, unit prices, addons <sup>2</sup>Estimate 2—New Harmony Baptist Church—site grading, foundation excavation, paving

<sup>&</sup>lt;sup>3</sup>Estimate 3—To be announced

<sup>&</sup>lt;sup>4</sup>Estimate 4—To be announced