New York City College of Technology, CUNY

**CURRICULUM MODIFICATION PROPOSAL FORM**

This form is used for all curriculum modification proposals. See the [Proposal Classification Chart](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/2013-10-09-Proposal_Classification_Chart.pdf) for information about what types of modifications are major or minor. Completed proposals should be emailed to the Curriculum Committee chair.

|  |  |
| --- | --- |
| **Title of Proposal** | **Modifications to the AAS in Construction Management & Civil Engineering Technology Programs**  |
| **Date** | **September 30, 2014/ R1 October 1, 2014/R2 October 19, 2014/R3 November 21, 2104, R4 – November 29, 2014** |
| **Major or Minor** | **Major** |
| **Proposer’s Name** | **Tony Cioffi** |
| **Department** | **CMCE** |
| **Date of Departmental Meeting in which proposal was approved** | **September 22, 2014** |
| **Department Chair Name** | **C:\Users\TCioffi\Desktop\Signature.pngTony Cioffi** |
| **Department Chair Signature and Date** |  |
| **Academic Dean Name** | **Kevin Hom** |
| **Academic Dean Signature and Date** | **10-1-14** |
| **Brief Description of Proposal**(Describe the modifications contained within this proposal in a succinct summary. More detailed content will be provided in the proposal body. | **1. Course title change** **2. Change in course credit hours** **3. Change in lecture hours to lab hours** **4. Change in course content****5. Course re-numbering****6. Withdrawal of CMCE 1155****7. Change in 3 credit CMCE Elective: ACC 1162 or MKT 1100** (**ACC1162 and MKT 1100 are no longer required for the AAS in Construction Management.)****8. New B Tech Course – CMCE 3520** |
| **Brief Rationale for Proposal**(Provide a concise summary of why this proposed change is important to the department. More detailed content will be provided in the proposal body).  | **The department has determined that accreditation by the American Council for Construction Education (ACCE) for the AAS in Construction Management Technology is no longer a viable path. The Department will instead be seeking ABET Accreditation for both the AAS in Construction Management Technology and the new B Tech in Construction Technology. As a result, the Department seeks to strengthen the Construction Management course sequence (CMCE 1220, 2320 & 2420) and to bring the Construction Drawings sequence (CMCE 1110, 1210 & CMCE 2410) into better alignment with similar programs by modernizing and realigning course content. Additional changes to the curriculum are being made to further strengthen both the AAS in Civil Engineering Technology and the AAS in Construction Management Technology. The B Tech in Construction Technology will benefit from the introduction of a new required course, CMCE 3520 for matriculating Civil Engineering Technology AAS degree students. This will not require an increase in degree requirements for any program in the Department.**  |
| **Proposal History** | **New Proposal**  |

**Rationale for proposal**

The proposed modifications to several CMCE courses will improve course learning objectives and strengthen existing courses. Additional skill sets that will be derived from the changes in the course content will create additional employment opportunities for graduates. The changes will enhance a student’s knowledge and skill set thus allowing for better matriculation to the new B Tech in Construction Technology. A new B Tech course, CMCE 3520 Construction Management for Civil Engineering Technologists is proposed for the B Tech in Construction Technology.

The main focus of this proposal is to change the number of credit hours; redistribution of lecture and lab hours and to change (realign) course content. The change in credits hours were closely examined so as to maximize student learning while maintaining program requirements. The AAS in Construction Management (CM) and the AAS in Civil Engineering Technology (CV) share several important courses. The department was mindful in proposing changes as the overall degree requirements are set at 64 credits for both the AAS degree programs and therefore could not be altered. In proposing the changes to the AAS degree requirements, the Department reviewed the B Tech degree requirements to make sure that the proposed changes did not impact the 2 + 2 B Tech degree requirements for students matriculating from either the AAS degree in Civil Engineering Technology or Construction Management Technology.

Overall the Department felt that this proposal serves to strengthen both AAS degree programs and matriculation to the new B Tech. The Department will also be seeking ABET Accreditation for both the AAS in Construction Management Technology and the new B Tech in Construction Technology.

The CMCE Advisory Committee was consulted on several occasions throughout this process and was unanimous in their support.

**Date of department meeting approving the modification:**

*Monday, September 22, 2014 - See Department Minutes*

**Course Outlines**

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 1110 Construction Drawings I**

**Course Description**

In this course students will learn the fundamental principles of drawing required in the construction field. Students will use a combination of manual and Computer-Aided drawing (CAD) techniques to develop a working knowledge of construction drawings. Students will learn the proper use of hand drafting instruments while also developing basic CAD skills. Students will survey existing conditions and take field measurements to prepare construction drawings including scale, lettering, line work, geometric constructions drawings and basic CAD commands to produce floor plans, exterior and interior elevations, sections, details and site plans.

**Prerequisites:** None

**0 class hr, 4 lab hrs, 2 credits**

**Textbook:** None; Instructors Notes and Assignments

**Reference:** Architectural Graphic Standards by Ramsey & Sleeper, John Wiley & Sons (latest edition)

**Student Learning Outcomes**

Upon graduation, each student is expected to demonstrate the following:

1. utilize principles, hardware, and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering; (ABET Program Criteria a.)
2. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities; (ABET Criterion 3.a)
3. an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. Knowledge by engaging in inquiry-based learning;
2. Employ scientific reasoning and logical thinking;
3. Gather, interpret, evaluate, and apply information discerningly from a variety of sources;

4. Understand and navigate systems.

**Student Evaluations**

Drawings: 80%

Midterm Exam: 15%

Class Participation: 5%

 **Final Grade = 100%**

**Technology**

Students will prepare and submit seven (7) drawings using the latest version of the industry standard software; AutoCAD.

**CMCE 1110 Construction Drawings I**

**Academic Integrity Policy**

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity.

Accordingly, **academic dishonestly is prohibited** in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, or expulsion.

**Course Coordinator:**  Anthony Cioffi, P.E., Professor/Nicole Anderson/Wandy Chang

(Last Updated: November 29, 2014)

**Course Outline:**

|  |  |  |
| --- | --- | --- |
| **Week** | **Topic** | **Lab Assignment** |
| **1** | Introduction to Architectural Drafting (Manual) | **--** |
| **2** | Lettering Basics and Drafting equipment-Prepare a drawing designed to teach the students proper architectural lettering techniques *(Manual)* | **Dwg. 1** |
| **3** | Drafting Equipment and Line work - Prepare a drawing designed to develop the required skills in drafting (line work). *(Manual)* | **Dwg. 2** |
| **4** | Basic Geometric Constructions - Prepare a drawing designed to develop student skills in proper drafting techniques and equipment use. *(Manual)* | **Dwg. 3** |
| **5** | Orthographic Projection - Prepare a drawing designed to develop students’ skills in proper drafting techniques and equipment use. *(Manual)* | **Dwg. 4** |
| **6** | Scale Drawings & Dimensioning - Prepare a drawing designed to develop student understanding and use of an architectural scale and proper dimensioning techniques *(Manual)* | **Dwg. 5** |
| **7** | Architectural Dimensioning & Symbols - Draw and dimension a basic architectural drawing. *(Manual)* | **Dwg. 6** |
| **8** | Working Drawings - Site Plans - Draw a site plan for a residential project. *(CAD)* | **Dwg. 7** |
| **9** | Working Drawings - Foundation Plans - Draw a foundation plan for residential structure. *(CAD)* | **Dwg. 8** |
| **10** | Working Drawings -Floor Plans - Draw a floor plan for a residential structure. *(CAD)* | **Dwg. 9** |
| **11** | Working Drawings-Elevations-Draw exterior and interior elevations for a residential structure. *(CAD)* | **Dwg. 10** |
| **12** | Working Drawings - Building Sections - Draw two cross sections for a residential structure. *(CAD)* | **Dwg. 11** |
| **13** | Working Drawings - Wall Sections - Draw a detailed wall section for a residential structure. *(CAD)* | **Dwg. 12** |
| **14** | Final Project - Students will field measure an existing building/structure (TBD) *(Manual & CAD)* | **Final Project** |
| **15** | **Final Project Submission** |  |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 1115 Statics**

**Course Description:**

This course provides an introduction to determinate static structures. Topics include civil engineering applications in: vector forces, friction, moment, external reactions of beams and trusses, internal bar forces in trusses and frames and geometric properties of structures. Labs and workshops are designed to enhance learning of concepts in a group setting. Students are required to achieve a minimum grade of C in order to successfully pass this course.

**Prerequisites:** MAT 1275 with a minimum grade of C

**Pre or Co-requisites:** PHYS 1433 (Algebra-based) or PHYS 1441 (Calculus-based)

**2 class hours, 2 laboratory hour, 3 credits**

**Textbook:** Limbrunner, G.F., Spiegel, L., Applied Statics and Strength of Materials (latest edition),

Pearson Prentice Hall, 2008, 648pp. (ISBN 0131946846)

**Student Learning Outcomes:**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge (ABET Criterion 3.b)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. Knowledge by engaging in inquiry-based learning;

2. Acquire tools for lifelong learning—how to learn, how they learn, knowledge of resources.

3. Inquiry/analysis skills by employing scientific reasoning and logical thinking;

4. Inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

5. Professional/personal growth by working with teams, including those of diverse composition.

6. Demonstrate expanded cultural and global awareness and sensitivity by communicating across cultural and linguistic barriers.

**Student Evaluations:**

The final grade will be based on the following breakdown:

Homework: 10%

Quizzes: 5%

Labs/Workshops: 25%

Projects: 20%

Exams: 40%

 **Final Grade = 100%**

**Technology Usage:**

Students will spreadsheet software (ex: Microsoft Excel) as a check for hand calculations and introductory structural analysis software (ex: MD Solids).

**Academic Integrity Policy**

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**Coordinator:** Melanie Villatoro, P.E. Assistant Professor (Last Updated November 29, 2014)

**Class Outline:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Schedule** | **Topic** | **Reading Assignment** | **Assignments & Projects** |
| **1** | Lecture 1 | Introduction  | Chapter 1: (All) |  |
| Lecture 2 | Force Vectors | Chapter 2: (All) |  |
| **2** | Lecture 3 | Force Vectors | Chapter 3: 3-1 to 3-2 | HW1: Ch.3 (p64): 4, 5, 6, 7, 9 |
| Lab 1 | Method of Components |  |  |
| **3** | Lecture 4 | Moments and Couples | Chapter 3: 3-3, 3-4, 3-6 | HW2: Handout on Blackboard |
| Lab 2 | Moments |  |  |
| **4** | Lecture 5  | Point Loads and Distributed Loads  | Chapter 3: 3-5 | HW3: Ch. 4 (p95): 15, 20, 24, 40, 22 |
| Lab 3 | Equilibrium |  | **Project 1: Floor Systems** |
| **5** | Lecture 6  | Floor Systems | Chapter 4: 4-1 to 4-4 | HW4: Ch. 4 (p95): 18, 21, 23, 42, 49 |
| Lab 4 | Floor Systems |  |  |
| **6** | Lecture 7 | **Exam 1** |  |  |
| Lecture 8 | Introduction to Trusses  | Chapter 4: 4-5 to 4-6  | HW5: Ch. 4 (p95): 19, 26, 43, 50, 52 |
| **7** | Lecture 9 | Method of Joints | Chapter 5: 5-1 to 5-4 | **Project 2: Trusses** |
| Lab 5 | Method of Joints |  |  |
| **8** | Lecture 10 | Method of Sections | Chapter 5: 5-5 | HW6: Ch. 5: (p128): 3, 5, 6 |
| Lab 6 | Method of Sections |  | HW7: Ch. 5: (p128): 7, 9, 10 |
| **9** | Lecture 11 | Frames | Chapter 5: 5-6 |  |
| Lab 7 | Frames |  | HW8: Ch. 5: (p128): 14, 15, 16 |
| **10** | Lecture 12 | **Exam 2** |  |  |
| Lecture 13 | Friction | Chapter 6: 6-1 to 6-4 | HW9: Ch. 6 (165): 1, 4, 6, 7, 9 |
| **11** | Lecture 14 | Friction |  |  |
| Lab 8 | Friction |  |  |
| **12** | Lecture 15 | Center of Gravity | Chapter 7: 7-1 to 7-4 | HW10: Ch. 7: (p185): 7, 8, 9, 10, 11 |
| Lab 9 | Center of Gravity |  |  |
| **13** | Lecture 16 | Moments of Inertia | Chapter 8:8-1 to 8-3 | **Extra Project: Section Properties** |
| Lab 10 | Moments of Inertia |  |  |
| **14** | Lecture 17 | Radius of Gyration and Polar Moment of Inertia | Chapter 8:8-4 to 8-6 | HW11: Ch. 8: (p209): 1, 3, 28, 29, 30 |
| Lab 11 | Radius of Gyration and Polar Moment of Inertia |  |  |
| **15** | Lecture 18 | Review  |  |  |
|  | **Final Exam** |  |  |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 1211 Construction Drawings II – Computer Aided Drawing (CAD)**

**Course Description**

This course provides the students with advanced skills and working knowledge using computer aided drafting techniques. Through the use of residential and commercial drawings, students build on their basic knowledge of both civil engineering and construction drawing principles and standards. Students will use advanced editing and drawing commands to create construction drawings. Three dimensional (3D) drawing and modeling techniques will be developed to facilitate students understanding of three dimensional design principles.

**Prerequisites:** CMCE 1110

**0 class hr, 4 lab hrs, 2 credits**

**Textbook** AutoCAD 2015 and AutoCAD LT 2015 Essentials: Autodesk Official Press

 By: Scott Onstott

**Reference** Using AutoCAD, Autodesk Press

**Student Learning Outcomes**

Upon graduation, each student is expected to demonstrate the following:

1. utilize principles, hardware, and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering; (ABET Program Criterion a.)

2. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly

 defined engineering technology activities; (ABET Criterion 3.a)

3. an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. Knowledge by engaging in inquiry-based learning;

2. Employ scientific reasoning and logical thinking;

3. Gather, interpret, evaluate, and apply information discerningly from a variety of sources;

4. Understand and navigate systems.

**Student Evaluations**

Drawings: 40%

Midterm Exam: 25%

Final Exam: 25%

Portfolio: 10%

**Final Grade 100%**

**Technology**

Students will prepare and submit three computer aided (3) drawings using the latest version of the industry standard software; AutoCAD.

**CMCE 1211 Construction Drawings II – Computer Aided Drawing (CAD)**

**Academic Integrity Policy**

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**Course Coordinator:** Anthony Cioffi, P.E., Professor/Cesar Salazar/Shane Baksh

(Last Updated: November 29, 2014)

**Course Outline:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Topic** | **Reading/****Text Reference** | **Lab Assignment** |
| **1** | Review Basic Concepts/Entities/Hatching & Gradients  | Chapter 2, 3, 4 & 8 |  |
| **2** | Curves – polylines, splines, curved polylines and ellipses | Chapter 5 | **Assign Drawing #1** |
| **3** | Blocks (block definition, rotating, unblocking and redefine, editing, nesting, Wblocks) | Chapter 7 |  |
| **5** | Blocks & Xrefs (External References) | Chapter 9 |  |
| **4** | Layouts | Chapter 12 |  |
| **6** | Annotative Objects | Chapter 13 |  |
| **7** | Midterm Review & Work Session | -- |  |
| **8** | **Mid Term** |  |  |
| **9** | Attributes | Chapter 15 | **Assign Drawing #2** |
| **10** | Plotting Basics & Field data and Tables  | Chapter 14 & 15 |  |
| **11** | Introduction 3D Models Basic concepts for Creating and Modeling 3D Drawings | Chapter 16 |  |
| **12** | Advanced 3D features | Chapter 17 | **Assign Drawing #3** |
| **13** | Rendering 3D Drawings | Chapter 17 |  |
| **14** | Work Session | --- |  |
| **15** | **Final Exam** |  |  |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

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**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 1221 Construction Management I**

**Course Description:**

This is the first course in a three course sequence in a three course CM sequence. The course is designed to give the student a thorough understanding of the construction process from the planning phase and leading to a successful completion. Topics covered will include formal and informal communication formats, the design and construction process, types of contracts, responsibilities of project participants, contract documents, schedules, payments, building codes, and safety. Formal and informal communication will be addressed through a series of spoken and written assignments culminating in a written report. Project safety will be addressed in a 10 (Ten) hour OSHA certification training course. Upon successful completion, the student will be awarded a certification card from OSHA.

**Prerequisites:** CMCE 1110, CMCE1114, CUNY Reading and Writing Proficiency

**3 class hours, 0 Laboratory hour, 3 credits**

**Textbook:** Construction Project Management, by Frederick E. Gould, P.E., 2009, (latest edition)

**Technology:**  Microsoft Word and Microsoft Excel

**Certification:** OSHA 10

**Student Learning Outcomes\*:**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

2. an understanding of the need for and an ability to engage in self-directed continuing professional development; (ABET Criterion 3.g)

3. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and(ABET Criterion 3.h)

4. a commitment to quality, timeliness, and continuous improvement. (ABET Criterion 3.i)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. Knowledge by engaging in inquiry-based learning;
2. Communicate in diverse settings and groups, using written (both reading and writing), oral (both speaking and listening), and visual means;
3. Gather, interpret, evaluate, and apply information discerningly from a variety of sources.
4. Inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

5. Understand and navigate systems;

6. Discern consequences of decisions and actions;

**\*** Student Learning Objectives are taken from the ABET Criteria for Accrediting Engineering Technology Programs. The CMCE Department will be seeking ABET Accreditation for the A.A.S. Degree in Construction Management Technology and the B Tech in Construction Technology.

**CMCE 1221 Construction Management I**

**Student Evaluations**

Homework: 7 assignments x 10 points each = 80 points 50%

Midterm Exam: 1 exam x 25 points = 25 points 25%

# Final Exam: 1 exam x 25 points = 25 points 25%

 **Final Grade = 100%**

**Academic Integrity Policy**

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**Coordinator:** Anne Marie Sowder, Assistant Professor (Last Updated November 29, 2014)

**Course Outline:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session** | **Topic** | **In Class Work** | **After Class Assignment** |
| **1** | Introduction to CM IInformal Communication: Email |  | **HW1: Practice Email****Ch.1-2** |
| **2** | The Construction Industry & Project Delivery | Quiz 1Case Study 1 | **HW2: Email on CS1****Ch. 5** |
| **3** | Project Chronology & Scheduling | Quiz 2Case Study 2 | **HW3: Email on Class Project****Ch. 6, 8** |
| **4** | Construction Services During Design, Construction, & On Site  | Quiz 3Case Study 3 | **HW4: Email on CS3****Ch. 12** |
| **5** | Reports: Research & Library Use | Quiz 4Case Study 4 | **HW5: Class Project Part 1****Ch. 7** |
| **6** | Award & Contracts | Quiz 5Case Study 5 | **Study for Midterm** |
| **7** | **Midterm Exam** |  | **Ch. 9, 13** |
| **8** | Billing & Change Orders | Quiz 6Case Study 6 | **HW6: Invoices****Ch. 14** |
| **9** | Codes, Plans & SpecificationsOSHA certification course | OSHA | **---** |
| **10** | OSHA certification course (3 hr) | Class Project Due OSHA |  |
| **11** | OSHA certification course (3 hr) | OSHA |  |
| **12** | Project Documentation: RFIs & Reports OSHA certification course (2 hr) | OSHA | **---** |
| **13** | Insurance & EMROSHA certification course (2 hr) | OSHA | **HW7: EMR** |
| **14** | Review for Final |  | **Study for Final** |
| **15** | **Final Exam** |  |  |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

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**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 2306 Materials Testing Laboratory**

**Course Description:**

This course will explore the mechanical properties of steel, timber, asphalt and concrete through laboratory testing. Standard tension, compression, shear, aggregate grading, specific gravity, asphalt permanent deformation, asphalt viscosity, asphalt binder content, ductility and bending tests are performed in accordance with ASTM and AASHTO standards. Principles of field inspection of fresh concrete are covered as well. Students will be required to take the “Concrete Field Testing Technician - Grade I” certification exam by the American Concrete

**Pre-requisite:** CMCE 2315 and CUNY proficiency in reading and writing

**Co-requisite:** CMCE 2315

**0 class hr, 4 lab hrs, 2 credits**

**Text(s)**

1. Laboratory Manual for Materials Testing by Sydney H. Avner, Professor Emeritus and George Cavaliere, Professor Emeritus 4th Edition, unofficial revised by Elliot Colchamiro 2006
2. Concrete Field Testing Technician Workbook, Level 1; published by the American Concrete Institute (latest edition - updated annually by ACI)
3. The American Association of State Highway and Transportation Officials (AASHTO), T168, T312, T209, T283, and T308

**References** Various ASTM Standards for Mechanical Testing of Materials, for Cement Mortar, for Field Inspection of Fresh Concrete, and for Asphalt

**Student Learning Outcomes**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments; (ABET Criterion 3.c)

2. an ability to function effectively as a member of a technical team; (ABET Criterion 3.d)

3. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. knowledge by engaging in inquiry-based learning;

2. inquiry/analysis skills by employing scientific reasoning and logical thinking;

3. inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

4. professional/personal growth by working with teams, including those of diverse composition.

5. Global/multicultural orientation by communicating across cultural and linguistic barriers.

**CMCE 2306: Materials Testing Laboratory**

**Student Evaluations**

 Laboratory Reports 70%

 7 ACI performance exams: 15%

 ACI written Exam: 15%

 **Final Grade = 100%**

**Course Coordinator:** Professor Hamidreza Norouzi, PhD, P.E. (Last Updated: November 29, 2014)

**Course Outline:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week(s)** | **Topic** | **Hours** | **Lab Reports** |
| **1** | Course Introduction | 4 hrs | **#1** |
| **2-5** | Steel and Timber  | 16 hrs | **#2** |
| **6-8** | Asphalt | 12 hrs | **#3** |
| **9 - 11** | Concrete | 12 hrs | **#4** |
| **12 - 13** | 7 ACI performance examinations | 8 hrs |  |
| **14** | Preparation for ACI examination | 4 hrs |  |
| **15** | Review and **ACI written examination** | 4 hrs |  |

**Description of required/recommended supplies for this course.**

Students are required to take the ACI Certification Exam as part of the course grade (exam fee applies).

**Scope of assignments and other course requirements**

Lab reports, written and performance exams are standardized by ACI.

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

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**CMCE 2321 CONSTRUCTION MANAGEMENT II**

**Course Description**

The course is the second in a three course CM sequence. It is designed to enhance the student’s understanding of the various processes learned in Construction Management I and introduce them to new, advanced planning and management techniques including computer applications. Topics covered will include an expanded knowledge of the Pre-construction and construction processes, a further understanding of construction and labor law, risk allocation and safety, accounting principles, material testing and quality control techniques, changes, claims and disputes as well as discussion on the role of the project manager and project superintendent during the entire process. Students will also study the LEED rating system and be prepared to take a LEED certification exam at the end of this course, if qualified.

**Prerequisites:** CMCE 1110, CMCE 1221, CMCE 1224

**3 class hours, 0 Laboratory hour, 3 credits**

**Textbook:** Construction Project Administration, Fisk, Edward R., (latest edition)

**Certification:** Optional: LEED GA or LEED AP

**Technology:** Industry Standard Project Management Software (SiteManager or Newforma)

**Student Learning Outcomes\*:**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

2. an understanding of the need for and an ability to engage in self-directed continuing professional development; (ABET Criterion 3.g)

3. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and(ABET Criterion 3.h)

4. a commitment to quality, timeliness, and continuous improvement. (ABET Criterion 3.i)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. knowledge by engaging in inquiry-based learning;
2. inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

3. Understand and navigate systems (Gen Ed).

4. Discern consequences of decisions and actions (Gen Ed).

5. Use appropriate methods for producing a written research paper.

**\*** Student Learning Objectives are taken from the ABET Criteria for Accrediting Engineering Technology Programs. The CMCE Department will be seeking ABET Accreditation for the A.A.S. Degree in Construction Management Technology and the B Tech in Construction Technology.

**CMCE 2321 Construction Management II**

**Student Evaluations**

Homework: 7 assignments x 10 points each = 80 points 50%

Midterm Exam: 1 exam x 25 points = 25 points 25%

Final Exam: 1 exam x 25 points = 25 points 25%

 **Final Grade = 100%**

**Academic Integrity Policy**

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity.

Accordingly, **academic dishonestly is prohibited** in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, or expulsion.

**Coordinator:** Anne Marie Sowder, Assistant Professor (Last Updated November 29, 2014)

**Course Outline:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session** | **Topic** | **In Class Work** | **After Class Assignment** |
| **1** | Introduction to Construction Management IIChange Orders |  | **Chapters 6, 19****HW 1** |
| **2** | Work Breakdown StructuresSpecifications & Workmanship | Quiz 1 | **Chapters 7, 8****HW 2** |
| **3** | Construction Safety & Labor Law | Quiz 2 | **Chapter 10** |
| **4** | Meetings and NegotiationsLEED Module 1 | The NegotiationLEED Module 1 | **Chapter 14****HW 3** |
| **5** | Project Planning & SchedulingCost Control | Quiz 3The BudgetProject Management Software - TBD | **Chapter 11****HW 4 – Class Computer Module**  |
| **6** | Risk Allocation & ManagementLEED Module 2 | LEED Module 2 | **Study for Midterm** |
| **7** | **Midterm Exam** |  | **---** |
| **8** | Accounting (Progress Measurement & Payment) | The Requisition | **Chapters 16, 17****HW 5** |
| **9** | Value Engineering PrinciplesLEED Module 3 | LEED Module 3 | **Chapter 12****HW 6** |
| **10** | Bidding & Contract Award | Quiz 4Project Management Software - TBD | **Chapter 15****HW7 - Class Computer Module** |
| **11** | Construction Operations | Quiz 5 | **Study for LEED** |
| **12** | LEED Module 4 – PRACTICE EXAM |  |  |
| **13** | Project Closeout | Quiz 6 | **Chapter 21** |
| **14** | REVIEW |  | **Study for Final** |
| **15** | **Final Exam** |  | --- |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 2416 Elements of Structural Design - Concrete**

**Course Description:**

This capstone course delivers a working knowledge of the basic concepts encountered in the analysis and design of reinforced concrete elements while integrating elements of computer aided drafting, estimation, and technical writing. The Building Code Requirements for Reinforced Concrete (ACI latest edition) is studied as it applies to the design and analysis of concrete beams, slabs, columns and footings for buildings. Students will complete a capstone design project and submit a final design report as part of this course.

**Prerequisites:** CMCE 2315

**3 class hr, 3 credits**

**Textbook:** Limbrunner, George F., Reinforced Concrete Design, (latest edition), Pearson-Prentice Hall, 2007

**Student Learning Outcomes**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities (ABET Criterion 3.a);
2. an ability to identify, analyze, and solve narrowly defined engineering technology problems (ABET Criterion 3.e);
3. an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature (ABET Criterion 3.f);
4. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity (ABET Criterion 3.h and Gen Ed);
5. a commitment to quality, timeliness, and continuous improvement (ABET Criterion 3.i);
6. utilize principles, hardware, and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering (ABET Program Criterion a.);
7. apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to civil engineering. (ABET Program Criterion d.);
8. provide a capstone or other integrating experience (ABET Criterion 5.d);

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. knowledge by engaging in inquiry-based learning;

2. inquiry/analysis skills by employing scientific reasoning and logical thinking;

3. inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

**Student Evaluations**

Assignments 2 assignments 20%

Capstone Project 1 Project 20%

Midterm/Final Exam: 2 exams 60%

**Final Grade = 100%**

**CMCE 2416 Elements of Structural Design - Concrete**

**Academic Integrity Policy**

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**Coordinator:** Hamid Norouzi, PhD, PE, Assistant Professor (Last Updated: November 29, 2014)

**Course Outline:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Class Schedule** | **Topic** | **Reading Assignment** | **Assignments & Practice Problems** |
| **1** |  | Introduction  | Chapter 1  |  |
| **2** |  |  |  |  |
| **3** |  | Design & Analysis Methods  | Chapter 2  |  |
| **4** |  |  |  |  |
| **5** |  | Beam Analysis |  | **2-1, 2-7** |
| **6** |  |  |  |  |
| **7** |  | Beam Design |  | **2-17, 2-18** |
| **8** |  |  |  |  |
| **9** |  | Free Beam Design |  | **2-21, 2-23****Assign. 1**  |
| **10** |  |  |  |  |
| **11** |  | Slab Analysis |  |  |
| **12** |  |  |  |  |
| **13** |  | Slab Design  |  | **2-30, 2-31, 2-32****Assign. 2**  |
| **14** |  |  |  |  |
| **15** | **Midterm** |  |  |  |
| **16** |  | T-Beam Analysis  | Chapter 3 | **3-6, 3-7** |
| **17** |  |  |  |  |
| **18** |  | T-Beam Design |  | **3-12, 3-13** **Assign. 3** |
| **19** |  |  |  |  |
| **20** |  | Shear Analysis | Chapter 4 | **4-1, 4-2** |
| **21** |  |  |  |  |
| **22** |  | Shear Design |  | **4-7, 4-10** |
| **23** |  |  |  |  |
| **24** |  | Column Analysis | Chapter 9 |  |
| **25** |  |  |  |  |
| **26** |  | Column Design |  | **9-3, 9-4** |
| **27** |  |  |  |  |
| **28** |  |  |  |  |
| **29** |  | Review |  |   |
| **30** | **Final Exam** |  |  |  |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 2421 Construction Management III**

**Course Description:**

This course is the third in the CM sequence. This course builds on the concepts developed in Construction Management II and is designed to give the student a thorough understanding of the current practices for planning, documenting, managing, and analyzing construction projects. The student will use industry standard computer scheduling software in preparing a Critical Path Method (CPM) project schedule. The use of value engineering (VE) workshop to reduce construction costs will be studied.

**Prerequisites:** CMCE 2321 or departmental approval

**3 class hours, 0 Laboratory hour, 3 credits**

**Textbook:** Edward R. Fisk. P.E., L.S. Construction Project Administration, (latest edition)

**Reference:** Documents available from General Contractors Association and OSHA

**Technology:** Construction scheduling software (ex: Primavera, Suretrak).

**Student Learning Outcomes\*:**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities; (ABET Criterion 3.a)

2. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

3. an understanding of the need for and an ability to engage in self-directed continuing professional development; (ABET Criterion 3.g)

4. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and(ABET Criterion 3.h)

5. a commitment to quality, timeliness, and continuous improvement. (ABET Criterion 3.i)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. knowledge by engaging in inquiry-based learning;
2. inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

3. Understand and navigate systems (Gen Ed).

4. Discern consequences of decisions and actions (Gen Ed).

5. Use appropriate methods for producing a written research paper.

**\*** Student Learning Objectives are taken from the ABET Criteria for Accrediting Engineering Technology Programs. The CMCE Department will be seeking ABET Accreditation for the A.A.S. Degree in Construction Management Technology and the B Tech in Construction Technology.

**Student Evaluations**

Homework: 1 assignment x 10 points each = 10 points 20%

Midterm Exam: 1 exam x 25 points = 25 points 40%

Final Exam: 1 exam x 25 points = 25 points 40%

 **Final Grade = 100%**

**CMCE 2421 Construction Management III**

**Academic Integrity Policy**

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**Coordinator:** Anne Marie Sowder, Assistant Professor (Last Updated November 29, 2014)

**Course Outline:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session** | **Topic** | **In Class Work** | **After Class Assignment** |
| **1** | Introduction to CMIIIPlanning for Construction |  | **Chapter 13****page 326-351** |
| **2** | Planning for Construction, cont’d. |  |  |
| **3** | Planning for Construction, cont’d. |  |  |
| **4** | Fundamentals of CPM Construction Scheduling | Manual Practice | **Chapter 14****page 352-389** |
| **5** | Fundamentals of CPM Construction Scheduling cont’d. | Manual Practice |  |
| **6** | Fundamentals of CPM Construction Scheduling, cont’d. | MANUAL LAB. PROBLEM | **Study for Midterm** |
| **7** | **Midterm Exam****Term Project Issued on Blackboard** |  |  |
| **8** | Fundamentals of CPM Construction Scheduling | COMPUTER LAB PROBLEM |  |
| **9** | Value Engineering |  | **Chapter 16****page 407-419** |
| **10** | Value Engineering, cont’d. | VE Lab Session |  |
| **11** | Construction Safety  |  | **Chapter 9****page 230-246 and handout** |
| **12** | Construction Safety, cont’d. | Safety Lab & Discussion,Project Due |  |
| **13** | Project Closeout |  | **Chapter 21****page 577-614 and handouts** |
| **14** | Project Closeout, cont’d.Final Review |  | **Study for Final** |
| **15** | **Final Exam** |  |  |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 2457 Construction Techniques in Civil Engineering**

**Course Description:**

This course is part of the Civil Engineering sequence designed to provide students with a working knowledge of construction project management as well as heavy construction techniques, including buildings and civil engineering type structures (highways & bridges). Topics covered will include construction management, professional ethics, contracts, and CPM scheduling. Sustainable Construction and the LEED Green Building Rating System will also be introduced. The fundamentals of any construction project will be covered in detail, including concrete, steel, masonry, and wood construction methods. The New York City Building and Zoning Codes and A.A.S.H.T.O will be used as reference. Each student is required to submit a research paper at the end of the semester, and must select a topic that is related to the construction of a reinforced concrete building, structural steel building or a civil engineering type structure.

**Prerequisites:** CMCE 1222 or Departmental Approval

**1 class hr, 2 lab hrs, 2 credits**

**Textbook:**  Building Construction Principles, Materials, & Construction by Mehta, Scarborough &

Armpriest

**Reference(s):** Construction Project Administration, Edward R. Fisk, Prentice Hall, 7th Edition

 Architects Handbook of Professional Practice

 American Society of Civil Engineers – Code of Ethics

**Technology:** Construction scheduling software (ex: Primavera, Suretrak)

**Student Learning Outcomes:**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities; (ABET Criterion 3.a)

2. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

3. an understanding of the need for and an ability to engage in self-directed continuing professional development; (ABET Criterion 3.g)

4. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and(ABET Criterion 3.h)

5. a commitment to quality, timeliness, and continuous improvement. (ABET Criterion 3.i)

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. knowledge by engaging in inquiry-based learning;
2. inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

3. Understand and navigate systems (Gen Ed).

4. Discern consequences of decisions and actions (Gen Ed).

5. Use appropriate methods for producing a written research paper.

**CMCE 2457 Construction Techniques in Civil Engineering**

**Student Evaluations**

Homework: 8 assignments x 10 points each = 80 points 20%

Presentation: 1 oral presentation x 10 points =10 points 20%

Midterm Exam: 1 exam x 25 points = 25 points 30%

# Final Exam: 1 exam x 25 points = 25 points 30%

 **Final Grade = 100%**

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**Coordinator:** Anne Marie Sowder, Assistant Professor (Last Updated November 29, 2014)

**CMCE 2457 Construction Techniques in Civil Engineering**

**Course Outline:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session** | **Topic** | **In Class Work** | **After Class Assignment** |
| **1** | Introduction to CMCE2457Professional & Ethical ResponsibilitiesSustainable Construction, Green Building Design,  |  | **Chapter 10** |
| **1L** | Introduction to LEED rating System |  | **Instructor’s Notes & Chapter 1** |
| **2** | The Construction Process & ContractsIntroduction to CPM Scheduling |  | **Instructor’s Notes & Chapter 1** |
| **2L** | CPM Lab | Assgn.2: CPM Exercise |  |
| **3** | CPM Scheduling (continued) |  | **Instructor’s Notes** |
| **3L** | CPM Lab | Assgn.3:CPM Exercise |  |
| **4** | Superstructure & Fire Ratings |  | **Chapters 3, 7** |
| **4L** | Superstructure Lab | Assgn.4: Superstructure |  |
| **5** | Cast in place and Pre-Cast Concrete |  | **Chapter 21, 22, 23** |
| **5L** | Concrete Methods Lab |  |  |
| **6** | Shoring, Reshoring, Formwork, & the Placement Cycle |  |  |
| **6L** | Concrete Formwork & Placement Lab | Assgn.5: Formwork | **Study for Midterm** |
| **7** | Midterm Review |  | **Study for Midterm** |
| **7L** | **Midterm Exam** |  |  |
| **8** | Steel Construction |  | **Chapter 18, 19, 20** |
| **8L** | Steel Methods Lab | Assgn.6: Steel Methods |  |
| **9** | Wood & Masonry Construction |  | **Chapters 13, 24, 25, 26** |
| **9L** | Wood & Masonry Methods Lab |  |  |
| **10** | Exterior Cladding, Curtainwall, and Roofing  |  | **Chapter 27, 28, 29** |
| **10L** | Cladding Methods Lab | Assgn.7: CPM Exercise |  |
| **11** | Interior Finishes |  | **Chapter 36, 37****Instructor’s Notes** |
| **11L** | Finishes Lab | Assgn.8: CPM Exercise |  |
| **12** | Short Span Bridge Construction |  | **Instructor’s Notes** |
| **12L** | Bridge Methods Lab |  |  |
| **13** | Highway Construction |  | **Instructor’s Notes** |
| **13L** | Highway Methods Lab |  |  |
| **14** | Research Papers  | Presentation of Student’s Term Research Papers |  |
| **14L** | Research Papers, cont. Review for Final | Presentations | **Study for Final** |
| **15** | Review for Final |  | **Study for Final** |
| **15L** | **Final Exam** |  | **---** |

**New Course Outline**

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 3520 Construction Management for Civil Engineering Technologists**

**Course Description:**

The course is designed to give the civil engineering technology student a thorough understanding of the construction process from the planning phase through successful project completion. Advanced planning and management techniques will be discussed. Topics covered will include project communications, CPM scheduling, safety, construction processes, risk allocation, accounting principles, material testing and quality control techniques, change orders, claims and disputes. Project safety will be addressed in a 10 (Ten) hour OSHA certification training course. Students will also study the LEED rating system and be prepared to take a LEED certification exam (if qualified). The student will use industry standard computer scheduling software and industry standard project management software. The use of value engineering (VE) workshop to reduce construction costs will also be studied. This course is open to civil engineering technology students only.

**Prerequisites:** CMCE 2457, this course is open to civil engineering technology students only

**4 class hours, 0 Laboratory hour, 4 credits**

**Textbook:** Construction Project Management, by Frederick E. Gould, P.E., 2009, Third Edition

**Reference:** Documents available from General Contractors Association and OSHA

**Technology:** Microsoft Word and Microsoft Excel

Industry Standard Project Management Software (SiteManager or Newforma)

 Construction scheduling software (ex: Primavera, Suretrak).

**Certification:** OSHA 10

Optional: LEED GA or LEED AP

**Student Learning Outcomes\*:**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities; (ABET Criterion 3.a)

 an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

2. an understanding of the need for and an ability to engage in self-directed continuing professional development; (ABET Criterion 3.g)

3. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and(ABET Criterion 3.h)

4. a commitment to quality, timeliness, and continuous improvement. (ABET Criterion 3.i)

**\*** Student Learning Objectives are taken from the ABET Criteria for Accrediting Engineering Technology Programs. The CMCE Department will be seeking ABET Accreditation for the A.A.S. Degree in Construction Management Technology and the B Tech in Construction Technology.

**CMCE 3520 Construction Management for Civil Engineering Technologists**

**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. Knowledge by engaging in inquiry-based learning;
2. Communicate in diverse settings and groups, using written (both reading and writing), oral (both speaking and listening), and visual means;
3. Gather, interpret, evaluate, and apply information discerningly from a variety of sources.
4. Inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;
5. Understand and navigate systems; (Gen Ed).
6. Discern consequences of decisions and actions; (Gen Ed).
7. inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;
8. Use appropriate methods for producing a written research paper.

**Student Evaluations**

Assignments: 14 assignments x 10 points each = 140 points 60%

Class Project: 1 report x 25 points = 25 points 10%

LEED Exam: 1 exam x 25 points = 25 points 10%

Midterm Exam: 1 exam x 25 points = 25 points 10%

# Final Exam: 1 exam x 25 points = 25 points 10%

 **Final Grade = 100%**

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**Coordinator:** Anne Marie Sowder, Assistant Professor (Last Updated November 29, 2014)

**CMCE 3520 Construction Management for Civil Engineering Technologists**

**Course Outline:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session** | **Topic** | **In Class Work** | **After Class Assignment** |
| **1** | IntroductionInformal Communication: EmailThe Construction Industry & Project Delivery |  | **ASSGN1: Practice Email****Ch.1-2, 5** |
| **2** | Construction Services During Design, Construction, & On SiteWork Breakdown StructuresSpecifications & WorkmanshipReports: Research & Library Use | **ASSGN. 2: WBS****Library Research Practice**Case Study 1 | **ASSGN3: Email on CS1****Ch. 12** |
| **3** | LEED Module 1 & LEED Module 2Project Planning & SchedulingFundamentals of CPM Construction Scheduling | **ASSGN. 4: LEED**Case Study 2 | **ASSGN5: CPM****Ch. 6, 8** |
| **4** | Fundamentals of CPM Construction Scheduling cont’d. | **ASSGN. 6: CPM**Case Study 3 | **ASSGN7: Email & CPM on CS3** |
| **5** | LEED Module 3Meetings and Negotiations | **ASSGN. 8: LEED**Case Study 4 | **ASSGN9: Class Project Part 1****Ch. 7, 14** |
| **6** | Award & ContractsChange OrdersBilling & Accounting PracticesAccounting (Progress Measurement & Payment) | **ASSGN. 10: Requisition**Case Study 5 | **Study for Midterm** |
| **7** | **Midterm Exam** |  | **Ch. 9, 13** |
| **8** | Codes, Plans & SpecificationsLabor Law | **ASSGN. 11: Invoices**Case Study 6 | **ASSGN12: LEED** |
| **9** | LEED Module 4 – PRACTICE EXAM | OSHA | **---** |
| **10** | OSHA certification course (3 hr.)Risk Allocation & Management | OSHAClass Project Due  | **---** |
| **11** | OSHA certification course (3 hr.)Value Engineering Principles | OSHA**ASSGN. 13: VE Exercise** | **---** |
| **12** | OSHA certification course (2 hr.)Value Engineering, cont’d.Project Documentation: RFIs & Reports  | OSHA **ASSGN. 13: VE Exercise, cont.** | **---** |
| **13** | OSHA certification course (2 hr.)Insurance & EMRProject Closeout | OSHA | **ASSGN14: EMR****OSHA Certification Exam** |
| **14** | Review for Final Exam |  | **Study for Final Exam** |
| **15** | **Final Exam** |  |  |

**Chancellor’s Report Forms**

**Construction Management & Civil Engineering Technology**

**CMCE 1110 Construction Drawings I**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Description** | ~~Fundamental principles of drafting required in the construction field. Students learn the proper use of drafting instruments and develop a basic working knowledge of construction drawings. Students survey existing conditions and prepare construction drawings from field measurements. Site plans, basic electrical and plumbing drawings will also be studied.~~ | **Description** | The fundamental principles of drawing for the construction field. Students learn a combination of manual and computer-aided drawing (CAD) techniques to develop a working knowledge of construction drawings. Students survey existing conditions and take field measurements to prepare construction drawings including scale, lettering, line work, geometric constructions drawings and basic CAD commands to produce floor plans, exterior and interior elevations, sections, details and site plans. |
| **Class Hours** | ~~1~~ | **Class** | 0 |
| **Lab Hours**  | ~~2~~  | **Lab Hours**  | 4  |
| **Credits** | 2  | **Credits** | 2 |

**Rationale**: While the primary focus of the earlier course outline was hand drafting, the focus has been expanded to include computer-aided drafting (CAD) techniques. The nature of the course will require students to complete both hand drafting and computer aided assignments in a lab setting requiring additional lab hours. The number of credits was not increased.

**CMCE 1115 Statics**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Description** | ~~An introduction to determinate static structures. Topics include civil engineering applications in: vector forces, friction, moment, external reactions of beams and trusses, internal bar forces in trusses and frames and geometric properties of structures. Students are required to achieve a minimum grade of C in order to successfully pass this course.~~ | **Description** | An introduction to determinate static structures. Topics include civil engineering applications in: vector forces, friction, moment, external reactions of beams and trusses, internal bar forces in trusses and frames and geometric properties of structures. Labs and workshops are designed to enhance learning of concepts in a group setting. Students are required to achieve a minimum grade of C in order to pass this course. |
| **Class Hours** | ~~3~~ | **Class** | 2 |
| **Lab Hours**  | ~~0~~ | **Lab Hours**  | 2 |
| **Credits** | 3  | **Credits** | 3 |

**Rationale:** A lab component was added to this course that will allow students to perform hands on activities. Students will complete class projects that will serve to reinforce theoretical class concepts. There was no change in the number in credits.

**CMCE 1210 Construction Drawings II**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Course Number:** | ~~CMCE 1210~~ | **Course Number:**  | CMCE 1211 |
| **Description** | ~~Students acquire a basic working knowledge of Computer Aided Drafting. Through the use of residential drawings, students build on their basic knowledge of both civil engineering and construction drawing principles and standards. Students learn basic commands and/or steps required to start, create, save and plot CAD drawings. Improved skills are also developed in the reading and interpretation of typical working drawings from construction projects.~~ | **Description** | Advanced skills and working knowledge of computer-aided drafting techniques. Through the use of residential and commercial drawings, students build on their basic knowledge of both civil engineering and construction drawing principles and standards. Students use advanced editing and drawing commands to develop three-dimensional (3D) drawing and modeling techniques. |
| **Class Hours** | ~~1~~ | **Class** | 0 |
| **Lab Hours**  | ~~2~~ | **Lab Hours**  | 4  |
| **Credits** | ~~1~~  | **Credits** | 2 |

**Rationale:**  The number of credits was increased from 1 to 2 due to the complexity of the software (AutoCAD 2014) and the hands on nature of the course. A one credit, 2 hour lab course was seen as academically unproductive by the faculty. The increase in credits and subsequent additional lab hours will allow students to expand their knowledge and skill set through more hands on (computer) time. Advanced concepts will be added to the curriculum which will make students more productive in the work environment.

**CMCE 1220 Construction Management I**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Course Number:** | ~~CMCE 1220~~ | **Course Number:**  | CMCE 1221 |
| **Description** | ~~Introduction to the basic practice of construction management in the erection and construction of a building project. The course is designed to give the student a thorough understanding of the construction process and the elements that comprise this process. Discussion of the design and construction process including types of contracts, zoning and building codes. Project jobsite safety is addressed as part of a ten (10) hour OSHA certification training course. Students must pass an examination administered by OSHA officials in order to obtain a certification card.~~ | **Description** | A thorough overview of the construction process from the planning phase to successful completion. Topics include formal and informal communication formats, the design and construction process, types of contracts, responsibilities of project participants, contract documents, schedules, payments, building codes, and safety. Formal and informal communication are addressed through a series of spoken and written assignments culminating in a written report. Project safety is addressed in a required 10-hour OSHA certification training course. Upon successful (exam) completion, the student earns a certification card from OSHA. |
| **Class Hours** | ~~2~~ | **Class** | 3 |
| **Lab Hours**  | 0   | **Lab Hours**  | 0  |
| **Credits** | ~~2~~  | **Credits** | 3 |

**Rationale:**  CMCE 1221 is the first course in a three (3) course construction management sequence. The faculty and CMCE Advisory Committee felt that the students would benefit from increased class time and an increase in course content. This course also contains a 10 hour OSHA 10 Safety Certification.

**CMCE 2306 Materials Testing Laboratory**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Description** | ~~This course explores the mechanical properties of steel, timber and concrete through laboratory testing. Standard tension, compression, shear, torsion, ductility and bending tests are performed in accordance with ASTM standards. Principles of field inspection of fresh concrete are covered as well. Students are required to take the “Concrete Field Testing Technician – Grade I” certification exam administered by the American Concrete Institute (ACI).~~ | **Description** | The mechanical properties of steel, timber, asphalt and concrete will be explored through laboratory testing. Standard tests for tension, compression, bending, shear, torsion, ductility, aggregate grading and asphalt are performed in accordance with ASTM and AASHTO standards. Principles of field inspection of fresh concrete are covered as well. Students take the “Concrete Field Testing Technician - Grade I” certification exam by the American Concrete Institute (ACI). |
| **Class Hours** | ~~1~~ | **Class** | 0 |
| **Lab Hours**  | ~~2~~ | **Lab Hours**  | 4  |
| **Credits** | 2  | **Credits** | 2 |

**Rationale:**  CMCE 2306 Materials Testing is a lab course where students test and explore strength characteristic of different structural materials (wood, steel and concrete). The faculty has long sought to include asphalt testing to the curriculum. The realignment of the class and lab hours will allow the faculty to introduce asphalt and asphalt testing. This will enhance the student’s knowledge which will provide an additional skill set. Included in this course is the 16 hour American Concrete Institute Certification of Fresh Concrete Level 1. There was no change in the number of credits for this course.

**CMCE 2320 Construction Management II**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Course Number:** | ~~CMCE 2320~~ | **Course Number:**  | CMCE 2321 |
| **Description** | ~~The second in a three-course CM sequence, this course is designed to give the student a thorough understanding of the construction process and the issues concerning resident engineers, inspectors and project managers. This course addresses the responsibility and authority of the owner, engineer, and inspector. Design-build contracts (public and private ); record keeping; digital imaging; CPM guide specs; measurement and payment, claims and disputes, liquidated damages are covered. Proper conduct of field personnel are stressed.~~ | **Description** | An introduction to advanced planning, management techniques and computer applications. Topics covered include an expanded knowledge of the pre-construction and construction processes; a further understanding of construction and labor law; risk allocation and safety; accounting principles; material testing and quality control techniques; and changes, claims and disputes as well as discussion of the role of the project manager and project superintendent during the entire process. Students also study the LEED rating system and take a LEED certification exam at the end of this course (if qualified). |
| **Class Hours** | ~~2~~ | **Class** | 3 |
| **Lab Hours**  | 0       | **Lab Hours**  | 0  |
| **Credits** | ~~2~~  | **Credits** | 3 |

**Rationale:** CMCE 2321 is the second course in a three (3) course construction management sequence. The faculty and CMCE Advisory Committee determined that students would benefit from increased class time and an increase in course content and the introduction of industry standard project management software.

**CMCE 2415 Elements of Structural Design - Concrete**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Course Number:** | ~~CMCE 2415~~ | **Course Number:**  | CMCE 2416 |
| **Description** | ~~This capstone course delivers a working knowledge of the basic concepts encountered in the analysis and design of reinforced concrete elements while integrating elements of computer aided drafting, estimation, and technical writing. The Building Code Requirements for Reinforced Concrete (ACI latest edition) is studied as it applies to the design and analysis of concrete beams, slabs, columns and footings for buildings. Students will complete a capstone design project and submit a final design report as part of this course.~~ | **Description** | This capstone course delivers a working knowledge of the basic concepts encountered in the analysis and design of reinforced concrete elements while integrating elements of computer aided drafting, estimation, and technical writing. The Building Code Requirements for Reinforced Concrete (ACI latest edition) is studied as it applies to the design and analysis of concrete beams, slabs, columns and footings for buildings. Students complete a capstone design project and submit a final design report as part of this course. |
| **Class Hours** | ~~2~~ | **Class** | 3 |
| **Lab Hours**  | 0       | **Lab Hours**  | 0  |
| **Credits** | ~~2~~  | **Credits** | 3 |

**Rationale:**  CMCE 2416 Structural Design – Concrete is the fourth course in a four (4) course structural design sequence. This course provides a capstone experience which is an ABET requirement. The number of credits was increased from 2 to 3 due to the complexity of the subject matter and its importance in construction and civil engineering. A 2 credit structural design course was deemed inadequate by the faculty and was seen as academically unproductive. The increase in credits and resulting additional class hours will allow the faculty to fully develop theoretical concepts which expand the students’ knowledge, putting this course on par with similar courses at other universities and colleges. Advanced concepts will be added to the curriculum.

**CMCE 2420 Construction Management III**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Course Number:** | ~~CMCE 2420~~ | **Course Number:**  | CMCE 2421 |
| **Description** | ~~The third course in the CM sequence. The student learn current practices in preparing a project schedule, including bar charts and the Critical Path Method (CPM). Industry standard computer scheduling software will be used. The use of value engineering (VE) workshop to reduce construction costs will be studied. Construction safety and tasks required for project closeout are covered.~~ | **Description** | Builds on the concepts developed in Construction Management II to give a thorough understanding of the current practices for planning, documenting, managing, and analyzing construction projects. Students use industry standard computer scheduling software in preparing a Critical Path Method (CPM) project schedule and study the use of value engineering (VE) workshop to reduce construction costs. |
| **Class Hours** | ~~1~~ | **Class** | 3 |
| **Lab Hours**  | ~~2~~ | **Lab Hours**  | 0  |
| **Credits** | ~~2~~  | **Credits** | 3 |

**Rationale:**  CMCE 2421 is the third course in a three (3) course construction management sequence. The faculty and CMCE Advisory Committee agreed that this course needed to be upgraded and that it would benefit from the introduction of new concepts in construction management. Students learn to use industry standard scheduling and project management software. Although there is an increase in credits, the hours remain the same. This is more reflective of the course content. This class will be taught in a multi-purpose classroom so that computers are readily available for student use.

**CMCE 2455 Materials & Methods of Construction Civil**

|  |  |  |  |
| --- | --- | --- | --- |
| **From:**  |  | **To:**  |  |
| **Course Number:** | ~~CMCE 2455~~ | **Course Number:**  | CMCE 2457 |
| **Course Title:**  | ~~Materials & Methods of Construction Civil~~ | **Course Title:** | Construction Techniques in Civil Engineering |
| **Description** | ~~This course provides students with a working knowledge of construction techniques for buildings and structures involving civil engineering (highways and bridges). The fundamentals of the major categories of any construction project, namely excavation, substructure and superstructure are covered in detail. The N.Y.C. Building and Zoning Codes and A.A.S.H.T.O codes are used as reference. The basic principles of construction management are also covered, including construction ethics. An overview of Sustainable Construction and Green Building Design including the LEED – Green Building Rating System is covered.~~ | **Description** | Construction project management and heavy construction techniques, including buildings and civil engineering type structures (highways & bridges). Topics include construction management, professional ethics, contracts, and CPM scheduling. Sustainable Construction and the LEED Green Building Rating System are also introduced. The fundamentals of any construction project are covered in detail, including concrete, steel, masonry, and wood construction methods. The New York City Building and Zoning Codes and A.A.S.H.T.O are references. Each student is required to submit a research paper at the end of the semester, and must select a topic that is related to the construction of a reinforced concrete building, structural steel building or a civil engineering type structure. |
| **Class Hours** | ~~2~~ | **Class** | 1 |
| **Lab Hours**  | ~~0~~ | **Lab Hours**  | 2  |
| **Credits** | 2  | **Credits** | 2 |

**Rationale:**  CMCE 2457 is a course unique to the Civil Engineering Technology program. The introduction of the new B Tech in Construction Technology required that the course content be strengthened. While the primary focus of the earlier course was on general construction techniques, the focus needed to be expanded to include topics in basic construction management, construction scheduling (CPM) and ethics. The redistribution of credits will allow for the introduction of a lab component. Students will be able to complete in class computer scheduling projects as well as the use of other industry standard project management software. The number of credits was not increased. The course number and title was changed to avoid confusion and to signal a change in the course in course content.

**Courses Withdrawn**

**1. CMCE 1155 Computer Applications in Engineering Technology - 0 Class hours, 4 Lab hours, 2 Credits**

**Rationale:**  CMCE 1155 Computer Applications in Engineering Technology became outdated as new students already possess basic computer skills. The faculty determined that this course was no longer academically viable. The reduction of two (3) credits were redistributed and used to strengthen the remaining major courses. Project based learning concepts and computer skills will be incorporated into several CMCE courses.

**New Courses**

**Department:** The Department of Construction Management & Civil Engineering Technology

**Course Number:** CMCE 3520

**Title:** Construction Management for Civil Engineering Technologists

**Hours: 4** Class Hours, **0** Lab Hours

**Credits: 4** Credits

**Prerequisites:** CMCE 2457

**Corequisites:** None

**Pre- or Corequisites: None**

**Course Description**: A thorough overview of advanced planning and management techniques for the construction process. Topics include project communications, CPM scheduling, safety, construction processes, risk allocation, accounting principles, material testing and quality control techniques, change orders, claims and disputes. Project safety is addressed in a 10-hour OSHA certification training course. Students also study the LEED rating system and take a LEED certification exam (if qualified). Industry standard computer scheduling software, industry standard project management software and the use of value engineering (VE) workshop to reduce construction costs are also covered. This course is open to civil engineering technology students only.

**Rationale:** This new 4-credit BTech course is specific to graduates of the AAS degree in Civil Engineering Technology. It incorporates important concepts from CMCE 1221, CMCE 2321 and CMCE 2421 into a single course and prepares them to move quickly forward with more advanced baccalaureate coursework.

**Changes in Degree Programs**

**1. The following revisions are proposed for the Department of Construction Management & Civil Engineering Technology:**

**Program: Associate Degree of Applied Science in Civil Engineering Technology**

**Program Code: 01381**

**Effective: Fall 2015**

**A change of required courses**

|  |  |
| --- | --- |
|  **FROM:** |  **TO:** |
| **REQUIRED COURSES IN THE MAJOR** | **Credits** | **REQUIRED COURSES IN THE MAJOR** | **Credits** |
| CMCE 1110 | Construction Drawings I | 2 | CMCE 1110 | Construction Drawings I | 2 |
| CMCE 1115 | Statics  | 3 | CMCE 1115 | Statics  | 3 |
| ~~CMCE 1155~~ | ~~Computer Applications in Engineering Technology~~  | ~~2~~ | CMCE 1211 | Construction Drawings II - Computed Aided Drawing (CAD) | 2 |
| ~~CMCE 1210~~ | ~~Construction Drawings II - Computed Aided Drawing (CAD)~~ | ~~1~~ | CMCE 1215 | Strength of Materials  | 2 |
| CMCE 1215 | Strength of Materials | 2 | CMCE 1222 | Surveying I  | 3 |
| CMCE 1222 | Surveying I  | 3 | CMCE 2306 | Materials Testing Laboratory  | 2 |
| CMCE 2306 | Materials Testing Laboratory  | 2 | CMCE 2315 | Elements of Structural Design - Steel  | 3 |
| CMCE 2315 | Elements of Structural Design - Steel  | 3 | CMCE 2322 | Surveying II  | 3 |
| CMCE 2322 | Surveying II  | 3 | CMCE 2351 | Fluid Mechanics  | 4 |
| CMCE 2351 | Fluid Mechanics  | 4 | CMCE 2351L | Fluid Mechanics Laboratory  | 0 |
| CMCE 2351L | Fluid Mechanics Laboratory  | 0 | CMCE 2410 | Construction Drawings III  | 2 |
| CMCE 2410 | Construction Drawings III  | 2 | CMCE 2416 | Elements of Structural Design - Concrete  | 3 |
| ~~CMCE 2415~~ | ~~Elements of Structural Design - Concrete~~  | ~~2~~ | CMCE 2454 | Applied Hydraulics  | 2 |
| CMCE 2454 | Applied Hydraulics  | 2 | CMCE 2456 | Soil Mechanics and Laboratory  | 3 |
| ~~CMCE 2455~~ | ~~Materials & Methods of Construction (Civil Engineering Technology)~~  | ~~2~~ | CMCE 2457 | Construction Techniques in Civil Engineering  | 2 |
| CMCE 2456 | Soil Mechanics and Laboratory  | 3 |  |  |  |
|  | **Subtotal** | **36** |  | **Subtotal** | **36** |
| **CORE COURSES**  |  | **CORE COURSES** |  |
| ENG 1101 | English Composition I | 3 | ENG 1101 | English Composition I | 3 |
| ENG 1121 | English Composition II | 3 | ENG 1121 | English Composition II | 3 |
| MAT 14751 | Calculus I (Mathematical and Quantitative Reasoning) | 4 | MAT 14751 | Calculus I (Mathematical and Quantitative Reasoning) | 4 |
| MAT 15752 | Calculus II  | 4 | MAT 15752 | Calculus II  | 4 |
| PHYS 1433 | General Physics I: Algebra Based or PHYS 1441  | 4-5 | PHYS 1433 | General Physics I: Algebra Based or PHYS 1441  | 4-5 |
| PHYS 1434 | General Physics II: Algebra Based or PHYS 1442  | 4-5 | PHYS 1434 | General Physics II: Algebra Based or PHYS 1442  | 4-5 |
| ECON 1101 | Macroeconomics (US Experience in its Diversity ) | 3 | ECON 1101 | Macroeconomics (US Experience in its Diversity ) | 3 |
| GEN ED ELECTIVE | Any course from World Cultures and Global Issues or Creative Expression or Individual and Society | 3 | GEN ED ELECTIVE | Any Course from World Cultures and Global Issues or Creative Expression or Individual and Society | 3 |
|   | **Subtotal** | **28-30** | **Subtotal** | **28-30** |
| **TOTAL CREDITS REQUIRED FOR DEGREE** | **64-66** | **TOTAL CREDITS REQUIRED FOR DEGREE** | **64-66** |

**Notes: 1** Students without the requisite math background to enter MAT 1475 will be required to take MAT 1175, MAT 1275, and/or MAT 1375 in preparation. This will increase the number of required credits for the degree by 4-12 credits.

**2** Students who have already completed MAT 1575 may select either another mathematics course or another approved General Education Common Core course from any group instead.

**2.The following revisions are proposed for the Department of Construction Management & Civil Engineering Technology:**

**Program: Associate Degree of Applied Science in Construction Management Technology**

**Program Code: 01393**

**Effective: Fall 2015**

**A change of required courses**

|  |  |
| --- | --- |
|  **FROM:** |  **TO:** |
| **REQUIRED COURSES IN THE MAJOR** | **Credits** | **REQUIRED COURSES IN THE MAJOR** | **Credits** |
| CMCE 1115 | Statics  | 3 | CMCE 1115 | Statics  | 3 |
| CMCE 1110 | Construction Drawings I | 2 | CMCE 1110 | Construction Drawings I | 2 |
| CMCE 1114 | Materials and Methods of Construction I | 3 | CMCE 1114 | Materials and Methods of Construction I | 3 |
| ~~CMCE 1155~~ | ~~Computer Applications in Engineering Technology~~  | ~~2~~ | CMCE 1211 | Construction Drawings II - Computer Aided Drawing (CAD) | 2 |
| ~~CMCE 1210~~ | ~~Construction Drawings II - Computer Aided Drawing (CAD)~~ | ~~1~~ | CMCE 1215 | Strength of Materials  | 2 |
| CMCE 1215 | Strength of Materials  | 2 | CMCE 1221 | Construction Management I | 3 |
| ~~CMCE 1220~~ | ~~Construction Management I~~ | ~~2~~ | CMCE 1222 | Surveying I  | 3 |
| CMCE 1222 | Surveying I  | 3 | CMCE 1224 | Materials and Methods of Construction I | 2 |
| CMCE 1224 | Materials and Methods of Construction I | 2 | CMCE 2306 | Materials Testing Laboratory  | 2 |
| CMCE 2306 | Materials Testing Laboratory  | 2 | CMCE 2315 | Elements of Structural Design - Steel  | 3 |
| CMCE 2315 | Elements of Structural Design - Steel  | 3 | CMCE 2319 | Building Service Systems | 2 |
| CMCE 2319 | Building Service Systems | 2 | CMCE 2321 | Construction Management II | 3 |
| ~~CMCE 2320~~ | ~~Construction Management II~~ | ~~2~~ | CMCE 2410 | Construction Drawings III  | 2 |
| CMCE 2410 | Construction Drawings III  | 2 | CMCE 2412 | Construction Estimating | 2 |
| CMCE 2412 | Construction Estimating | 2 | CMCE 2416 | Elements of Structural Design - Concrete  | 3 |
| ~~CMCE 2415~~ | ~~Elements of Structural Design - Concrete~~  | ~~2~~ | CMCE 2421 | Construction Management III | 3 |
| ~~CMCE 2420~~ | ~~Construction Management III~~ | ~~2~~ |  |  |   |
| ~~CMCE ELECTIVE~~ | ~~ACC 1162 or MKT 1100~~ | ~~3~~ |  |  |  |
|  | **Subtotal** | **40** |  | **Subtotal** | **40** |
| **CORE COURSES**  |  | **CORE COURSES** |  |
| ENG 1101 | English Composition I | 3 | ENG 1101 | English Composition I | 3 |
| ENG 1121 | English Composition II | 3 | ENG 1121 | English Composition II | 3 |
| MAT 1275 | College Algebra and Trigonometry1 or higher | 4 | MAT 1275 | College Algebra and Trigonometry1 or higher | 4 |
| MAT 1375 | Precalculus2 or higher | 4 | MAT 1375 | Precalculus2 or higher | 4 |
| PHYS 1433 | General Physics I: Algebra Based or PHYS 1441 | 4-5 | PHYS 1433 | General Physics I: Algebra Based or PHYS 1441  | 4-5 |
| ECON 1101 | Macroeconomics (US Experience in its Diversity) | 3 | ECON 1101 | Macroeconomics ( US Experiences in it Diversity ) | 3 |
| GEN ED ELECTIVE | Any course from World Cultures and Global Issues or Creative Expression or Individual and Society | 3 | GEN ED ELECTIVE | Any course from World Cultures and Global Issues or Creative Expression or Individual and Society | 3 |
|   | **Subtotal** | **24-25** | **Subtotal** | **24-25** |
| **TOTAL CREDITS REQUIRED FOR DEGREE** | **64-65** | **TOTAL CREDITS REQUIRED FOR DEGREE** | **64-65** |

**Notes: 1.** Students without the requisite math background to enter MAT 1275 will be required to take MAT 1175 in preparation. This will increase the number of required credits for the degree by 4 credits.

**2.** Students who have already met this requirement may choose an additional mathematics course or another course from any group

**3. The following revisions are proposed for the Department of Construction Management & Civil Engineering Technology:**

**Program: Bachelor of Technology (B Tech) in Construction Technology (AAS Civil Engineering Technology - Transfer Student Track)**

**Program Code: 36280**

**Effective: Fall 2015**

**A change of required courses**

|  |  |
| --- | --- |
|  **FROM:** |  **TO:** |
| **REQUIRED COURSES IN THE MAJOR** | **Credits** | **REQUIRED COURSES IN THE MAJOR** | **Credits** |
| CMCE 1110 | Construction Drawings I | 2 | CMCE 1110 | Construction Drawings I | 2 |
| CMCE 1115 | Statics  | 3 | CMCE 1115 | Statics  | 3 |
| ~~CMCE 1155~~ | ~~Computer Applications in Engineering Technology~~  | ~~2~~ | CMCE 1211 | Construction Drawings II - Computed Aided Drawing (CAD) | 2 |
| ~~CMCE 1210~~ | ~~Construction Drawings II Computed Aided Drawing (CAD)~~ | ~~1~~ | CMCE 1215 | Strength of Materials  | 2 |
| CMCE 1215 | Strength of Materials | ~~2~~ | CMCE 1222 | Surveying I  | 3 |
| CMCE 1222 | Surveying I  | 3 | CMCE 2306 | Materials Testing Laboratory  | 2 |
| CMCE 2306 | Materials Testing Laboratory  | 2 | CMCE 2315 | Elements of Structural Design - Steel  | 3 |
| CMCE 2315 | Elements of Structural Design - Steel  | 3 | CMCE 2322 | Surveying II  | 3 |
| CMCE 2322 | Surveying II  | 3 | CMCE 2351 | Fluid Mechanics  | 4 |
| CMCE 2351 | Fluid Mechanics  | 4 | CMCE 2351L | Fluid Mechanics Laboratory  | 0 |
| CMCE 2351L | Fluid Mechanics Laboratory  | 0 | CMCE 2410 | Construction Drawings III  | 2 |
| CMCE 2410 | Construction Drawings III  | 2 | CMCE 2416 | Elements of Structural Design - Concrete  | 3 |
| ~~CMCE 2415~~ | ~~Elements of Structural Design - Concrete~~  | ~~2~~ | CMCE 2454 | Applied Hydraulics  | 2 |
| CMCE 2454 | Applied Hydraulics  | 2 | CMCE 2456 | Soil Mechanics and Laboratory  | 3 |
| ~~CMCE 2455~~ | ~~Materials & Methods of Construction (Civil Engineering Technology)~~  | ~~2~~ | CMCE 2457 | Construction Techniques in Civil Engineering  | 2 |
| CMCE 2456 | Soil Mechanics and Laboratory  | 3 |  |  |  |
|  | **Subtotal** | **36** |  | **Subtotal** | **36** |
| **ADDITIONAL REQUIRED COURSES** |  | **ADDITIONAL REQUIRED COURSES** |  |
| CMCE 1114 | Materials & Methods of Construction I | 3 | CMCE 1114 | Materials & Methods of Construction I | 3 |
| ~~CMCE 1220~~ | ~~Construction Management I~~ | ~~2~~ | CMCE 2319 | Building Service Systems | 2 |
| CMCE 2319 | Building Service Systems | 2 | CMCE 2412 | Construction Estimating | 2 |
| ~~CMCE 2320~~ | ~~Construction Management II~~ | ~~2~~ | CMCE 3501 | Steel Fabrication Detailing | 3 |
| CMCE 2412 | Construction Estimating | 2 | CMCE 3520 | Construction Management for Civil Engineering Technologists | 4 |
| CMCE 3501 | Steel Fabrication Detailing | 3 | CMCE 3602 | Heavy Construction Practices | 3 |
| CMCE 3602 | Heavy Construction Practices | 3 | CMCE 4700 | Construction Law | 3 |
| CMCE 4700 | Construction Law | 3 | CMCE 4701 | Construction Field Management | 3 |
| CMCE 4701 | Construction Field Management | 3 | CMCE 4702 | Construction & Site Safety Management | 3 |
| CMCE 4702 | Construction & Site Safety Management | 3 | CMCE 4800 | Senior Capstone Project | 3 |
| CMCE 4800 | Senior Capstone Project | 3 | ARCH 3551  | Sustainability: History & Practice | 3 |
| ARCH 3551  | Sustainability: History & Practice | 3 |  |  |  |
|  | **Subtotal** | **32** |  | **Subtotal** | **32** |
| **ADDITIONAL REQUIRED COURSES – TECHNICAL ELECTIVES** |  | **ADDITIONAL REQUIRED COURSES – TECHNICAL ELECTIVES** |  |
| CMCE 4XXX | Technical Elective – See Catalog | 3 | CMCE 4XXX | Technical Elective – See Catalog | 3 |
| CMCE 4XXX | Technical Elective – See Catalog | 3 | CMCE 4XXX | Technical Elective – See Catalog | 3 |
| CMCE 4XXX | Technical Elective – See Catalog | 3 | CMCE 4XXX | Technical Elective – See Catalog | 3 |
|  | **Subtotal** | **9** |  | **Subtotal** | **9** |

|  |  |  |  |
| --- | --- | --- | --- |
| **CORE COURSES**  |  | **CORE COURSES** |  |
| GEN ED ELECTIVE | Liberal Arts | 3 | GEN ED ELECTIVE | Liberal Arts | 3 |
| GEN ED ELECTIVE | Creative Expressions | 3 | GEN ED ELECTIVE | Creative Expressions | 3 |
| GEN ED ELECTIVE | Liberal Arts Advanced | 3 | GEN ED ELECTIVE | Liberal Arts Advanced | 3 |
| GEN ED ELECTIVE | Interdispinary | 3 | GEN ED ELECTIVE | Interdisciplinary | 3 |
| US EXPERIENCES | See Catalog | 3 | US EXPERIENCES | See Catalog | 3 |
| SPEECH/ORAL COMM | See Catalog | 3 | SPEECH/ORAL COMM | See Catalog | 3 |
|   | **Subtotal** | **18** | **Subtotal** | **18** |
| **B TECH SUBTOTAL**  | **59** | **B TECH SUBTOTAL**  | **59** |
| **TOTAL CREDITS REQUIRED FOR B TECH DEGREE**  | **123** | **TOTAL CREDITS REQUIRED FOR B TECH DEGREE** | **123** |

**Note:** There is no modification to the B Tech requirements for AAS Students in Construction Management – New Chart not required

New York City College of Technology, CUNY

NEW COURSE PROPOSAL FORM

This form is used for all new course proposals. Attach this to the [Curriculum Modification Proposal Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/2013-10-10-Curriculum_Modification_Proposal_Form.docx) and submit as one package as per instructions. Use one New Course Proposal Form for each new course.

|  |  |
| --- | --- |
| **Course Title** | **Construction Management for Civil Engineering Technologists** |
| **Proposal Date** | **October 1, 2014/October 19, 2014/November 29, 2014** |
| **Proposer’s Name**  | **Tony Cioffi** |
| **Course Number** | **CMCE 3520** |
| **Course Credits, Hours** | **4 credits, 4 Class hours** |
| **Course Pre / Co-Requisites** | **CMCE 2457** |
| **Catalog Course Description** |  A thorough overview of advanced planning and management techniques for the construction process. Topics include project communications, CPM scheduling, safety, construction processes, risk allocation, accounting principles, material testing and quality control techniques, change orders, claims and disputes. Project safety is addressed in a 10-hour OSHA certification training course. Students also study the LEED rating system and take a LEED certification exam (if qualified). Industry standard computer scheduling software, industry standard project management software and the use of value engineering (VE) workshop to reduce construction costs are also covered. This course is open to civil engineering technology students only. |
| **Brief Rationale**Provide a concise summary of why this course is important to the department, school or college. | This new 4-credit BTech course is specific to graduates of the AAS degree in Civil Engineering Technology. It incorporates important concepts from CMCE 1221, CMCE 2321 and CMCE 2421 into a single course and prepares them to move quickly forward with more advanced baccalaureate coursework. The addition of the new course is seen as being more beneficial to CV students as they would gain additional knowledge and skill sets from a combined course. Additionally, this course would be a continuation of CMCE 2457. |
| **Intent to Submit as Common Core**If this course is intended to fulfill one of the requirements in the common core, then indicate which area. | N. A. |
| **Intent to Submit as An Interdisciplinary Course** | N. A. |
| **Intent to Submit as a Writing Intensive Course** | N. A. |

**LIBRARY RESOURCES & INFORMATION LITERACY: MAJOR CURRICULUM MODIFICATION**

Please complete for **all** major curriculum modifications. This information will assist the library in planning for new acquisitions; it will not affect curriculum proposals either positively or negatively.

Consult with library faculty subject selectors (<http://cityte.ch/dir>) **3 weeks in advance** when planning course proposals to ensure enough time to allocate budgets if materials need to be purchased.

**Course proposer:** please complete boxes 1-4. **Library faculty subject selector:** please complete box 5.

|  |  |  |
| --- | --- | --- |
| **1** | **Title of proposal****Modifications to the AAS in Construction Management & Civil Engineering Technology Programs** | **Department/Program****Construction Management & Civil Engineering Technology (CMCE)**  |
|  | **Proposed by** (include email & phone)**Tony Cioffi****Tcioffi@citytech.cuny.edu****X-5575** | **Expected date course(s) will be offered** Fall 2015**# of students : 24** |

|  |  |
| --- | --- |
| **2** | **Are City Tech library resources sufficient for course assignments? Please elaborate.****Yes – No change as the current support of the Construction Management program is sufficient as this new course is a combination of CMCE 1220, CMCE 2320 & CMCE 2420.**  |

|  |  |
| --- | --- |
| **3** | **Are additional resources needed for course assignments? Please provide details about format of resources (e.g., ebooks, journals, DVDs, etc.), author, title, publisher, edition, date, and price.****No**  |

|  |  |
| --- | --- |
| **4** | **Library faculty focus on strengthening students' information literacy skills in finding, evaluating, and ethically using information. We can collaborate on developing assignments and offer customized information literacy instruction and research guides for your course.****Do you plan to consult with the library faculty subject specialist for your area? Please elaborate.****No – Not for this course at this time.**  |

|  |  |
| --- | --- |
| **5** | **Library Faculty Subject Selector: Prof. Anne Leonard** **Comments and Recommendations:** I look forward to working with CMCE faculty to developing the library’s print and electronic collection to meet future needs of this course as well as to redesign the information literacy workshops offered to CMCE 1155 students.**Date: 12/4/14** |

**NEW YORK CITY COLLEGE OF TECHNOLOGY**

**of the City University of New York**

**The Department of Construction Management and**

**Civil Engineering Technology**

**CMCE 3520 Construction Management for Civil Engineering Technologists**

**Course Description:**

The course is designed to give the civil engineering technology student a thorough understanding of the construction process from the planning phase through successful project completion. Advanced planning and management techniques will be discussed. Topics covered will include project communications, CPM scheduling, safety, construction processes, risk allocation, accounting principles, material testing and quality control techniques, change orders, claims and disputes. Project safety will be addressed in a 10 (Ten) hour OSHA certification training course. Students will also study the LEED rating system and be prepared to take a LEED certification exam (if qualified). The student will use industry standard computer scheduling software and industry standard project management software. The use of value engineering (VE) workshop to reduce construction costs will also be studied. This course is open to civil engineering technology students only.

**Prerequisites:** CMCE 2457, this course is open to civil engineering technology students only

**4 class hours, 0 Laboratory hour, 4 credits**

**Textbook:** Construction Project Management, by Frederick E. Gould, P.E., 2009, Third Edition

**Reference:** Documents available from General Contractors Association and OSHA

**Technology:** Microsoft Word and Microsoft Excel

Industry Standard Project Management Software (SiteManager or Newforma)

 Construction scheduling software (ex: Primavera, Suretrak).

**Certification:** OSHA 10

Optional: LEED GA or LEED AP

**Student Learning Outcomes:**

Upon graduation, each student is expected to demonstrate the following:

1. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities; (ABET Criterion 3.a)

 an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature; (ABET Criterion 3.f)

2. an understanding of the need for and an ability to engage in self-directed continuing professional development; (ABET Criterion 3.g)

3. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and(ABET Criterion 3.h)

4. a commitment to quality, timeliness, and continuous improvement. (ABET Criterion 3.i)

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**General Education Learning Outcomes:**

The pedagogical strategies applied in lecture and laboratory will encourage the development of the following:

1. Knowledge by engaging in inquiry-based learning;

2. Communicate in diverse settings and groups, using written (both reading and writing), oral (both speaking and listening), and visual means;

3. Gather, interpret, evaluate, and apply information discerningly from a variety of sources.

4. Inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

5. Understand and navigate systems; (Gen Ed).

6. Discern consequences of decisions and actions; (Gen Ed).

7. Inquiry/analysis skills by employing both quantitative and qualitative analysis to describe and solve problems;

8. Use appropriate methods for producing a written research paper.

**Student Evaluations**

Assignments: 14 assignments x 10 points each = 140 points 60%

Class Project: 1 report x 25 points = 25 points 10%

LEED Exam: 1 exam x 25 points = 25 points 10%

Midterm Exam: 1 exam x 25 points = 25 points 10%

Final Exam: 1 exam x 25 points = 25 points 10%

 **Final Grade = 100%**

**Academic Integrity Policy**

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity.

Accordingly, **academic dishonestly is prohibited** in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, or expulsion.

**Coordinator:** Anne Marie Sowder, Assistant Professor (Last Updated November 29, 2014)

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**Course Outline:**

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| **Session** | **Topic** | **In Class Work** | **After Class Assignment** |
| **1** | IntroductionInformal Communication: EmailThe Construction Industry & Project Delivery |  | ASSGN1: Practice EmailCh.1-2, 5 |
| **2** | Construction Services During Design, Construction, & On SiteWork Breakdown StructuresSpecifications & WorkmanshipReports: Research & Library Use | Case Study 1ASSGN2: WBSLibrary Research Practice | ASSGN3: Email on CS1Ch. 12 |
| **3** | LEED Module 1 & LEED Module 2Project Planning & SchedulingFundamentals of CPM Construction Scheduling | ASSGN4: LEEDCase Study 2 | ASSGN5: CPMCh. 6, 8 |
| **4** | Fundamentals of CPM Construction Scheduling, cont’d. | ASSGN6: CPMCase Study 3 | ASSGN7: Email & CPM on CS3 |
| **5** | LEED Module 3Meetings and Negotiations | ASSGN8: LEEDCase Study 4 | ASSGN9: Class Project Part 1Ch. 7, 14 |
| **6** | Award & ContractsChange OrdersBilling & Accounting PracticesAccounting (Progress Measurement & Payment) | ASSGN10: RequisitionCase Study 5 | Study for Midterm |
| **7** | **Midterm Exam** |  | Ch. 9, 13 |
| **8** | Codes, Plans & SpecificationsLabor Law | ASSGN11: InvoicesCase Study 6 | ASSGN12: LEED |
| **9** | LEED Module 4 – PRACTICE EXAM | OSHA | --- |
| **10** | OSHA certification course (3 hr.)Risk Allocation & Management | OSHAClass Project Due  | --- |
| **11** | OSHA certification course (3 hr.)Value Engineering Principles | OSHAASSGN13: VE Exercise | --- |
| **12** | OSHA certification course (2 hr.)Value Engineering, cont’d.Project Documentation: RFIs & Reports  | OSHA ASSGN13: VE Exercise, cont. | --- |
| **13** | OSHA certification course (2 hr.)Insurance & EMRProject Closeout | OSHA | ASSGN14: EMROSHA Certification Exam |
| **14** | Review for Final Exam |  | Study for Final Exam |
| **15** | **Final Exam** |  |  |

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| **Course Need Assessment.** Describe the need for this course. Include in your statement the following information. |
| Target Students who will take this course. Which programs or departments, and how many anticipated? **This course will be taken by graduates of the AAS degree in Civil Engineering Technology who matriculate to the B Tech in Construction Technology.**  |
| Projected headcounts (fall/spring and day/evening) for each new or modified course.**Fall: 18 – 24 (Evening)****Spring: 18 – 24 (Day)** |
| If additional physical resources are required (new space, modifications, equipment), description of these requirements. If applicable, Memo or email from the VP for Finance and Administration with written comments regarding additional and/or new facilities, renovations or construction.**None Required** |
| Where does this course overlap with other courses, both within and outside of the department?**This would be a continuation of CMCE 2457 Construction Techniques in Civil Engineering. This is a senior level course and there is no overlapping with any other course in the Civil Engineering Technology curriculum.** |
| Does the Department currently have full time faculty qualified to teach this course? If not, then what plans are there to cover this?**Yes – Prof. Anne Marie Sowder** |
| If needs assessment states that this course is required by an accrediting body, then provide documentation indicating that need.**N.A. – although the Department will be seeking ABET accreditation for the B Tech in Construction Technology** |
| **Course Design**Describe how this course is designed.  |
| Course Context (e.g. required, elective, capstone)**This is a required 4 credit course for Civil Engineering Technology graduates matriculating to the B Tech in Construction Technology.** |
| Course Structure: how the course will be offered (e.g. lecture, seminar, tutorial, fieldtrip)?**This is a Lecture course with computer applications.** |
| Anticipated pedagogical strategies and instructional design (e.g. Group Work, Case Study, Team Project, Lecture)**There are several pedagogical strategies to be used: lecture, Case Studies, written reports and certification exams (LEED & OSHA 10).** |
| How does this course support Programmatic Learning Outcomes?**Program-Specific Student Learning Outcomes (ABET)*** an ability to utilize principles, hardware, and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering;
* an ability to conduct standardized field and laboratory tests related to civil engineering;
* an ability to utilize surveying methods appropriate for land measurement and/or construction layout;
* an application of fundamental computational methods and elementary analytical techniques in sub-disciplines related to civil engineering.
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| Is this course designed to be partially or fully online? If so, describe how this benefits students and/or program.**N.A.** |