



CAIRO UNIVERSITY FACULTY OF ENGINEERING

CREDIT HOUR SYSTEM CONSTRUCTION ENGINEERING & MANAGEMENT PROGRAM



June 4th 2015

How is the CEM program different?

Bachelors of Science

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graph TD; A[Bachelors of Science] --> B[B.Sc. in Civil Engineering]; A --> C[B.Sc. in CEM];
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B.Sc. in Civil Engineering

CEM Graduation Project
(1 semester)

2 core CEM courses

2 elective CEM courses

B.Sc. in CEM

CEM Graduation Project
(2 semesters)

11 core CEM courses

Up to 4 elective CEM
courses

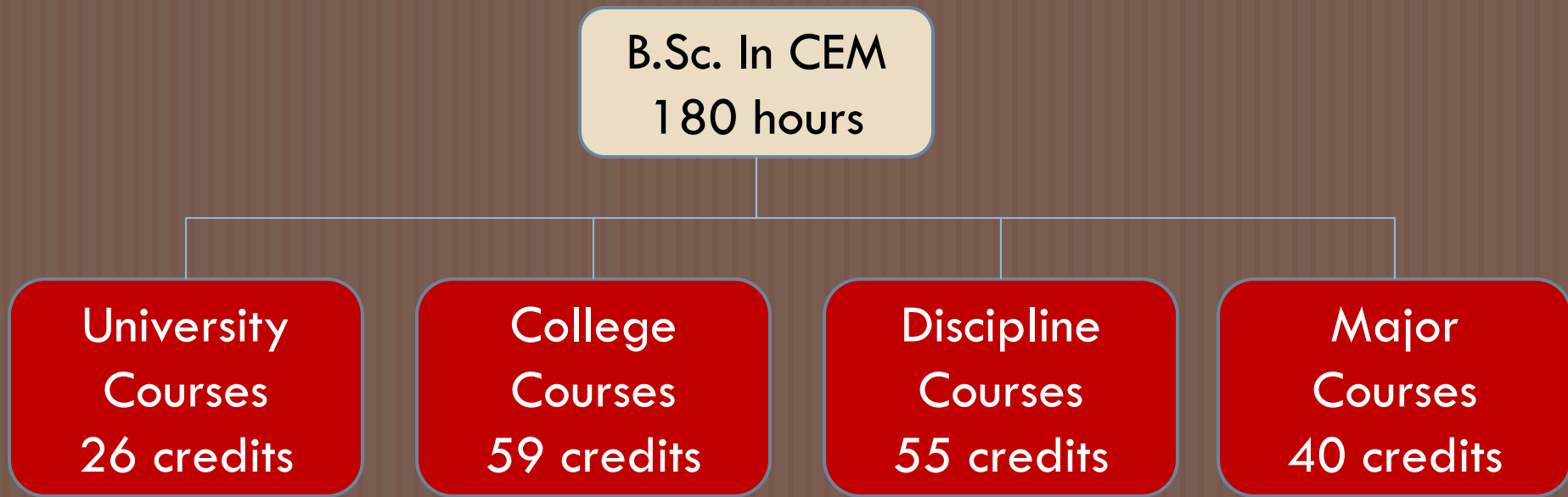
Basic Information: CEM Program

- First class enrolled in September 2006 – 45 students
- First class graduated in Spring 2010
- Student enrollment steadily increasing, currently 235 students (sophomore or higher)
- Students required to complete 180 credit hours for graduation, usually over 10 academic semesters

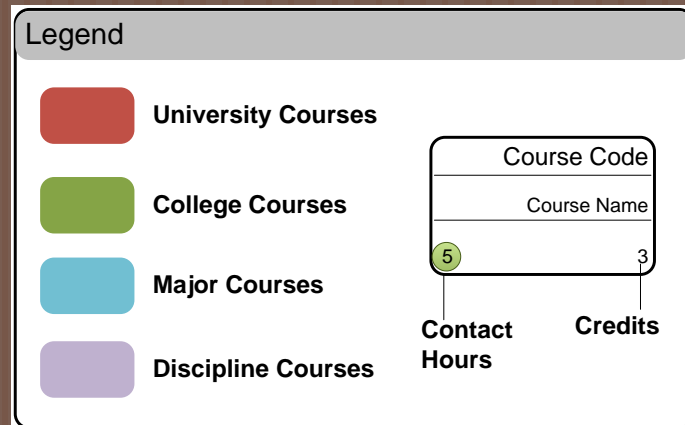


CEM Program courses

Program Design

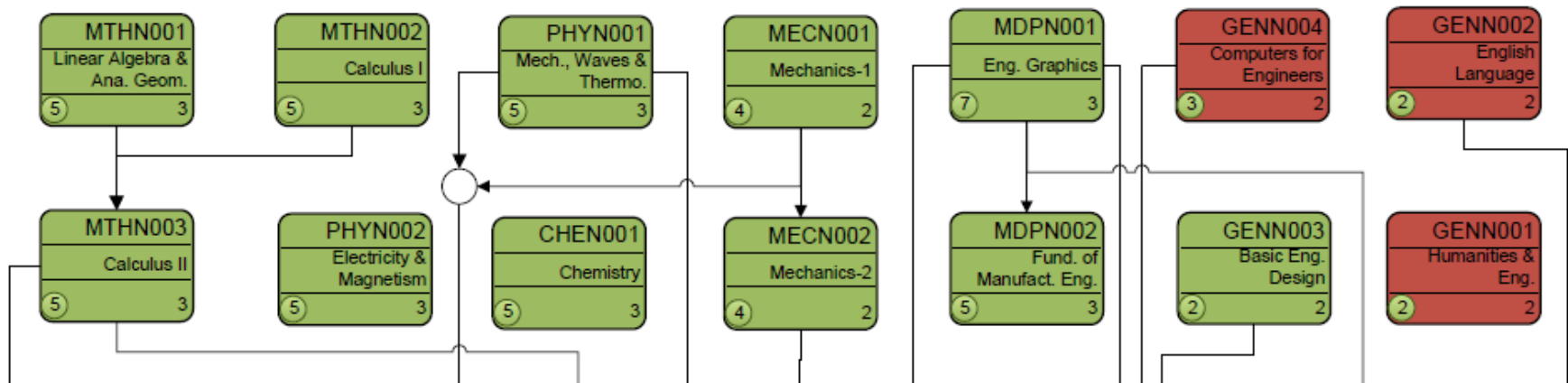


Course Map



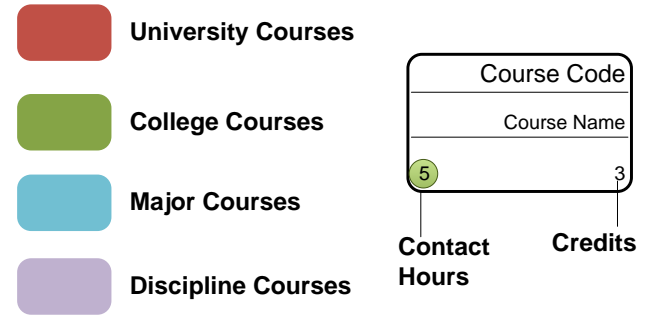
Course Map – Construction Engineering & Management (CEM) 2010 / 2011

Freshman



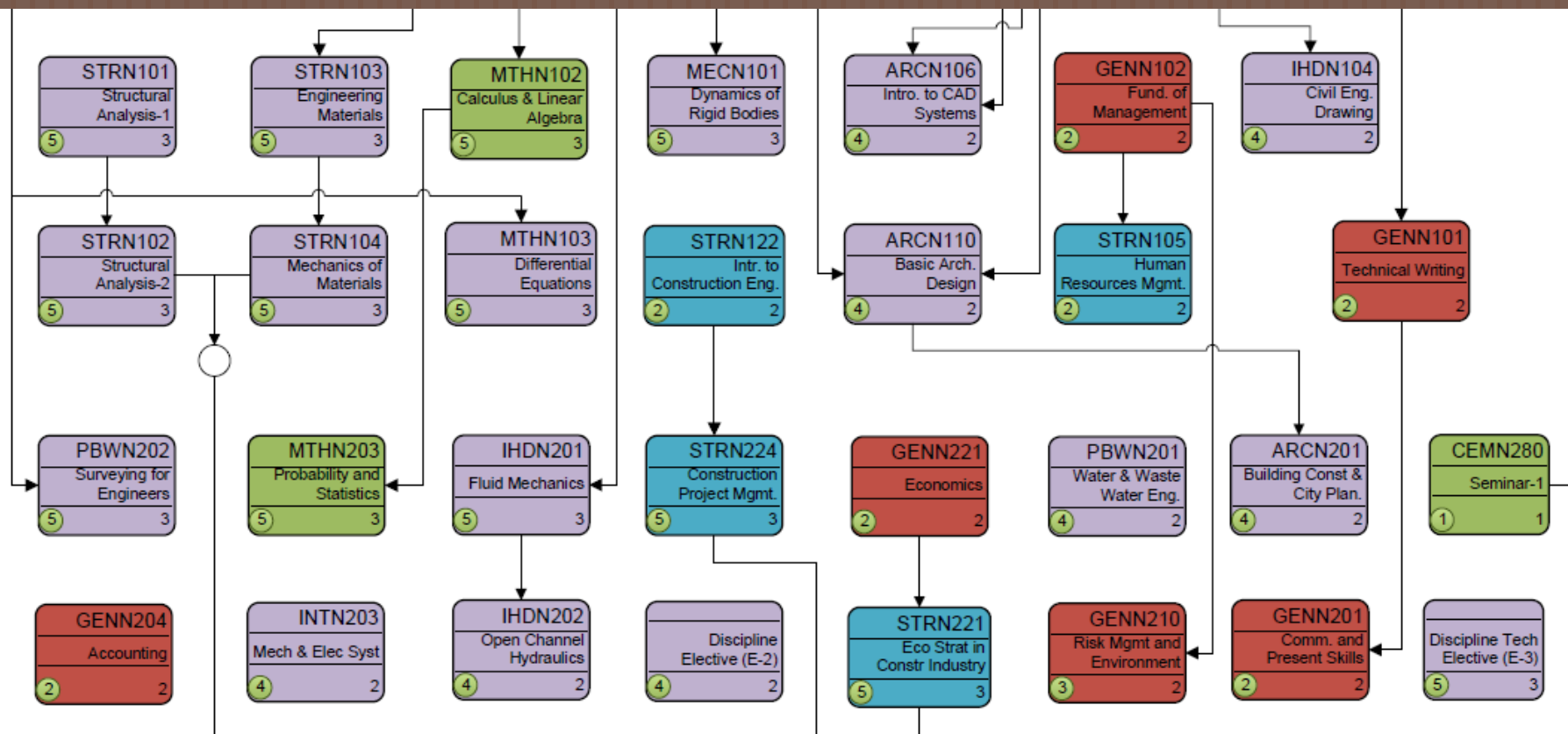
Course Map

Legend

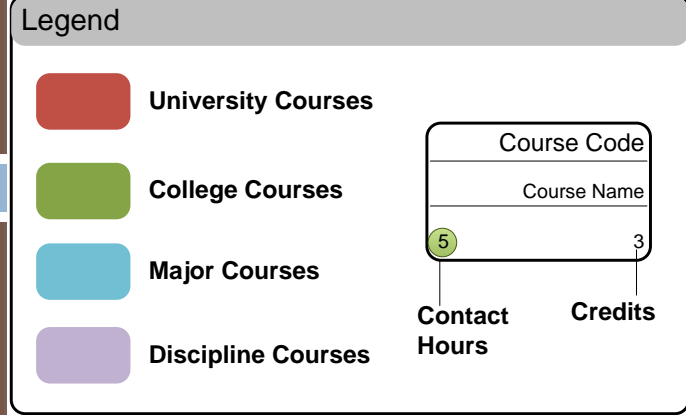


Sophomore

Junior

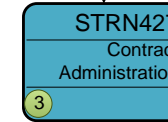
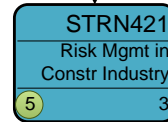
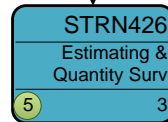
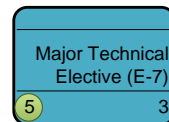
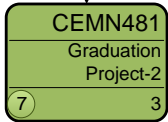
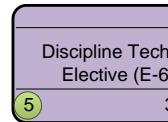
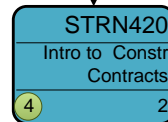
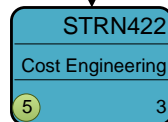
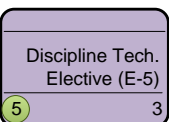
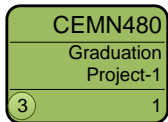
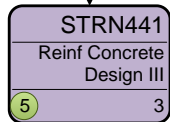
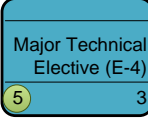
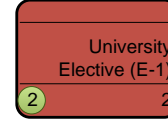
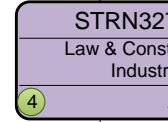
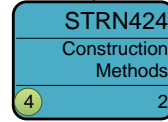
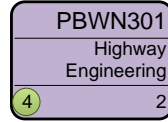
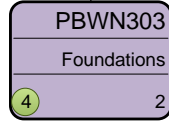
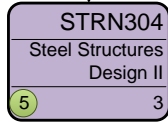
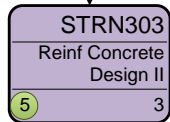
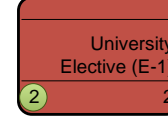
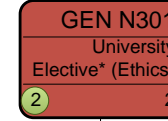
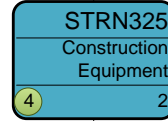
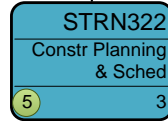
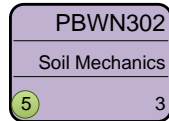
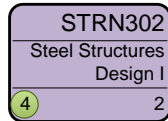
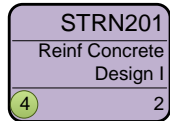


Course Map



Senior 1

Senior 2



University Courses

| | | | |
|----|---------|---------------------------------------|---|
| 1 | GENN001 | Humanities and Engineering | 2 |
| 2 | GENN002 | English Language | 2 |
| 3 | GENN004 | Introduction to Computers | 2 |
| 4 | GENN101 | Technical Writing | 2 |
| 5 | GENN102 | Fundamentals of Management | 2 |
| 6 | GENN201 | Communication and Presentation Skills | 2 |
| 7 | GENN204 | Accounting | 2 |
| 8 | GENN210 | Risk Management and Environment | 2 |
| 9 | GENN221 | Economics | 2 |
| 10 | GENN301 | Ethics and Legislation | 2 |
| 11 | GENN326 | Marketing | 2 |
| 12 | GENN327 | Selections of Life Long Skills | 2 |

Common College Courses

| | | | |
|----|----------|---|---|
| 1 | GEN N003 | Basic Engineering Design | 2 |
| 2 | MTH N001 | Algebra and Analytic Geometry | 3 |
| 3 | MTH N002 | Calculus I | 3 |
| 4 | MTH N003 | Calculus II | 3 |
| 5 | MEC N001 | Mechanics-1 | 2 |
| 6 | MEC N002 | Mechanics-2 | 2 |
| 7 | PHY N001 | Mechanics, Waves and Thermodynamics | 3 |
| 8 | PHY N002 | Electricity and Magnetism | 3 |
| 9 | CHE N001 | Chemistry | 3 |
| 10 | MDP N001 | Engineering Graphics | 3 |
| 11 | MDP N002 | Fundamentals of Manufacturing Engineering | 3 |
| 12 | MTH N102 | Multivariable Calculus and Linear Algebra | 3 |
| 13 | MTH N203 | Probability and Statistics | 3 |
| 14 | CEM N280 | Seminar-1 | 1 |
| 15 | CEM N281 | Industrial Training-1 | 1 |
| 16 | CEM N380 | Seminar-2 | 1 |
| 17 | CEM N381 | Industrial Training-2 | 2 |
| 18 | CEM N480 | Graduation Project-1 | 1 |
| 19 | CEM N481 | Graduation Project-2 | 3 |

Non-Common College Courses

| | | | |
|---|---|--|---|
| 1 | ARC N106 | Introduction to CAD Systems | 2 |
| 2 | MEC N101 | Dynamics of Rigid Bodies | 3 |
| 3 | MTH N103 | Mathematics-4 (Differential Equations) | 3 |
| 4 | ARC N110 | Basic Architectural Design | 2 |
| 5 | ARC N201 | Building Construction & City Planning | 2 |
| 6 | INT N203 | Mechanical & Electrical Systems | 2 |
| 7 | See Sample Study Plan and Course Contents | Non Elective | 2 |

Discipline Courses

| | | | |
|----|----------|-----------------------------------|---|
| 1 | STR N101 | Structural Analysis-1 | 3 |
| 2 | STR N103 | Engineering Materials | 3 |
| 3 | IHD N104 | Civil Engineering Drawing | 2 |
| 4 | STR N102 | Structural Analysis-2 | 3 |
| 5 | STR N104 | Mechanics of Materials | 3 |
| 6 | PBW N202 | Surveying for Engineers | 3 |
| 7 | IHD N201 | Fluid Mechanics | 3 |
| 8 | IHD N202 | Open Channel Hydraulics | 2 |
| 9 | PBW N201 | Water and Waste Water Engineering | 2 |
| 10 | STR N201 | Reinforced Concrete Design I | 2 |

Discipline Courses (cont...)

| | | | |
|----|-------------------|--------------------------------|---|
| 11 | STR N302 | Steel structures Design I | 2 |
| 12 | STR N303 | Reinforced Concrete Design II | 3 |
| 13 | STR N441 | Reinforced Concrete Design III | 3 |
| 14 | STR N304 | Steel structures Design II | 3 |
| 15 | STR N327 | Law and Construction Industry | 2 |
| 16 | PBW N301 | Highway Engineering | 2 |
| 17 | PBW N302 | Soil Mechanics | 3 |
| 18 | PBW N303 | Foundations | 2 |
| 19 | See Sample | Elective (1) | 3 |
| 20 | Study Plan | Elective (3) | 3 |
| 21 | & Course Contents | Elective (4) | 3 |

Major Courses

| | | | |
|----|--|--|---|
| 1 | STR N122 | Introduction to Construction Engineering. | 2 |
| 2 | STR N105 | Human Resources Management | 2 |
| 3 | STR N221 | Economic Strategies In Construction Industry | 3 |
| 4 | STR N224 | Construction Project Management | 3 |
| 5 | STR N322 | Construction Planning and scheduling | 3 |
| 6 | STR N324 | Construction Methods | 2 |
| 7 | STR N325 | Construction Equipment | 2 |
| 8 | STR N420 | Introduction to Construction Contracts | 2 |
| 9 | STR N421 | Risk Management in Construction Industry | 3 |
| 10 | STR N422 | Cost Engineering | 3 |
| 12 | STR N426 | Estimating & Quantity Surveying | 3 |
| 13 | STR N427 | Contract Administration | 3 |
| 14 | See Sample Study Plan and Course Contents | Elective (2) | 3 |
| 15 | | Elective (5) | 3 |
| 16 | | Elective (6) | 3 |

Elective courses with CEM concentration

Students can take up to 4 other electives with a CEM concentration

| | |
|---------|--|
| STRN342 | Project Resources Management |
| STRN447 | Strategic Planning |
| STRN453 | Project Specifications and Bids |
| STRN448 | Quality and Safety Management |
| STRN449 | Organization Management |
| STRN456 | Claims In Construction Industry |
| STRN452 | Information Technology in Construction |
| STRN454 | Special Problems in Construction |
| STRN455 | Feasibility Studies and Project Evaluation |

Distribution of Course Categories

Humanities: 22 cr hrs
 Basic Sciences: 33 cr hrs
 Eng. Sciences: 52 cr hrs
 Applied Eng. : 73 cr hrs

| c | Freshman | Sophomore | Junior | Senior I | Senior II |
|----|--------------------------------------|--------------------------------------|--|--|--|
| 1 | Humanities 4 cr hrs | Humanities 6 cr hrs | Humanities 4 cr hrs | Humanities 8 cr hrs | Applied Engineering Science 35 cr hrs |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | Basic Sciences 22 cr hrs | Basic Sciences 9 cr hrs | Basic Sciences | Engineering Sciences 4 cr hrs | |
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| 29 | | | | | |
| 30 | Engineering Sciences 10 cr hrs | Engineering Sciences 18 cr hrs | Engineering Sciences 20 cr hrs | Applied Engineering Science 25 cr hrs | |
| 31 | | | | | |
| 32 | | | | | |
| 33 | | | | | |
| 34 | | | | | |
| 35 | | | | | |
| 36 | | | | | |
| | | Applied Engineering Science | Applied Engineering Science 11 cr hrs | | |

Special Courses – Industrial Training

- Industrial Training Courses:
 - Training on industrial establishments relevant to the program.
 - The program training advisor pays (1-2) follow up visit to the training venue and formally reports on performance of trainee(s).
 - A Mentor in the industrial establishment provides a formal report on the student's performance during training.
 - The student submits a formal report and delivers a presentation to be evaluated by a panel of three members with one member being an external examiner appointed from industry or other colleges of engineering.
 - The course is graded on a Pass/Fail system.
 - Industrial Training 1: 90 hours (at least 3 weeks)
 - Industrial Training 2: 180 hours (at least 6 weeks)

Special Courses - Seminars

□ Seminar-1

- ▣ Talks and presentations are invited from industrial establishments relevant to the program. The guest speaker should shed some lights on the organization, management, and recent technologies implemented in his industrial establishment. Students should exercise writing a report on the guest presentation and some students are asked to give a presentation on the same subject. The course is graded as Pass/Fail system.

□ Seminar-2

- ▣ All students will be required to present seminars in a subject assigned to (or chosen by) them on latest technology relevant to the program. The grade depends on the quality, the contents and the organization of both the presentation and the report prepared by the student and a final exam worth 30% of the grade based on the technical content presented during the term.