CEM Graduate Program Structure

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Structure of MS and PhD

• What would be an ideal program structure for MS/PhD?
  • MS (course based with a project)
    • One year of graduate courses in CEM (e.g. 8).
    • Research project with a report
    • Exposure to construction industry
  • PhD
    • 3 to 4 courses past MS in area they intend to research.
    • Exposure to construction industry through courses and research work or preferably internships.
    • TA work (to learn teaching) and RA work exposure other than their research area. 1 year.
    • Thesis research 2 to 3 years.
Body of Knowledge

- Construction management courses
  - Construction Management topics:
    - Planning and control (including scheduling, resource analysis, WBS, EVA etc.)
    - Estimating
    - Administration
    - Legal aspects of construction, contract documents, claims, disputes resolution etc.
    - Project delivery
    - Financial management
    - Project delivery
    - Value engineering, Risk analysis, Constructability
    - Organization of project teams, personality theory and related topics
    - ....
  - Construction Engineering
    - Production systems
    - Construction methods and equipment
    - Construction systems
    - Temporary structures
    - Material handling and various systems (cranes, hoists etc.)
    - Logistics planning (site layouts, transportation and product delivery).
- Analytical background
  - Operations research (simulation queuing theory, optimization etc.)
  - Research methods
  - Applied mathematics and Statistics
  - Computer modeling
  - Other topics in area of specialization
TA and RA Experience

- **TA experience:**
  - Preparation of new material for class delivery
  - Interacting with students
  - Planning HW, exams, and marking
  - Delivering lectures
  - Resolving issues that come up in the course of class delivery.

- **RA experience:**
  - Industry experience especially in intended area of application.
  - Proper academic background
  - Preparation of conference papers, journal papers, proposals
  - Supervision and administration
  - Understanding of scoping of work, contributions, experimentation, verification, validation, and documentation.
  - Thesis experience
Graduate Degree Structure

- Course based masters with research project
- Research based masters with thesis
- PhD
How to Teach

• Courses in teaching offered at Universities
• Apprenticing
Questions and Discussion