CEM PROGRAMS

Concordia University
Montréal, Québec, Canada

Purdue University
May 19-20

GLF- CEM 2012
Department structure for CEM

- Established first in mid-70s within Bldg Engr. Program (center for building studies)
- Later introduced to the civil engineering program (BCEE department)
Number of students

- **UG 200**
  - 120 Civil
  - 80 Building

- **Grad 500**
  - PhD 130 (56Bldg + 74 Civil)
  - MS (w/ thesis) 105 ((53 bldg + 52 civil)
  - MS (course-based) 234 (127Buldg +107 civil)
Faculty

- 32 tenure track (4 in CEM)
- 2 non tenure track (1 in CEM)
- Part-time instructors from industry

Admin:
- Department Chair
- Associate Chair
- Graduate Program Director
- Undergraduate Program Director
- Co-op Program Director
- 1st year Program Director
Research

- Areas
- Funding
- Students
- Industry collaboration

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Areas of research

- Asset Management for Sustainable Civil Infrastructure Systems (including non-invasive non destructive condition assessment, estimation of remaining useful life, optimized budget allocation, etc.)
- Productivity studies and modeling (including change orders impact and weather impact on construction productivity)
- Automated site data acquisition for tracking and progress reporting, material management and safety on jobsites
Areas of research

- Construction claims’ management (including delay analysis and quantification of damages)
- Facility Management using BIM Technology
- Risk management (including risk identification, quantification and mitigation strategies)
- Decision support systems using computer simulation and IT-based modeling (including applications in building construction and large earthmoving operations)
Funding

- NSERC
  - Individual Discovery av $26,000/year
  - Network
  - Special funds
- FQRNT (individual + team)
- Industry
- International (e.g. Qatar Foundation)
- Internal
  - Faculty: $5-8,000/y for each MS student & $10-12,500 for each PhD student
  - ORS: seed funds +

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Grad students

- PhD 130 (56Bldg + 74 Civil)
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Industry collaboration

- Hydro Quebec: Integrated Automated Site Data Acquisition and Project Schedule Updating
- Hydro Quebec (vulnerability of nuclear power plants against man introduced hazards).
- SNC-Lavalin (Management of EPC projects on remote sites).
- Revay & Associates (Impact of change orders on labor productivity in building construction).

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Industry collaboration

- GUAY Inc. (selection and location of cranes on construction jobsites).
- CANAM/MANAC (Parametric cost estimating of low rise structural steel buildings).
- Transport Canada (management system for multiple-small projects).
Teaching

- Program requirements – attached factsheet
- Curriculum - attached factsheet
- Availability of teaching staff (4 to 2, 1 min)
- Industry collaboration
  - Course developed collaboratively with SNC-L
  - Industry professionals (legal issues in construction, labor and industrial relations, trenchless rehabilitation of municipal infrastructure, etc)
  - P-T instructors
Academic management

- Support for the faculty & the Univ: internal funding of research projects/ matching $ support for grad students

- Strategic plan

- Structure:
  - Not independent
  - Part of BE
  - Part of CE
Issues and concerns

- Research:
  - High tuition fees for international students
  - Space

- Teaching:
  - Large number of grad students/class
  - projects

- Administration
  - Supply-demand balance
  - Timely recognition, resources and support

- Collaboration with other universities: (shared credit/$)
Uniqueness of the program

- Multidisciplinary environment (BE+ CE Students)
- Collaborative research with colleagues in structural health monitoring, environmental engineering, transportation etc.
- Industry participation in teaching and research
- Grad and undergrad reach

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Thank you