

CEM PROGRAMS

Concordia University
Montréal, Québec, Canada

Purdue University
May 19-20

GLF- CEM 2012

Department structure for CEM

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- 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

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□ 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

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- 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

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- Areas
- Funding
- Students
- Industry collaboration

Areas of research

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- 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

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- 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

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- 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 +

Grad students

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- PhD 130 (56 Bldg + 74 Civil)
- MS (w/ thesis) 105 ((53 bldg + 52 civil)
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Industry collaboration

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- 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).

Industry collaboration

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- 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

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- 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

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- Support from 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

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- 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

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- 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

Thank you