

Research Opportunities at the University of Regina

Post Doctoral Fellows and Graduate Students

The study of soils and rocks is central to economic prosperity, environmental stewardship, and social viability of everything that is constructed in, on, or with earthen materials. The general area of our research group is Geotechnical and Geoenvironmental Engineering with projects focusing on the development of sustainable management options for a variety of engineering applications. We strive to address issues pertaining to (i) aging infrastructure systems such as pipelines (for oil, gas, and water supply and sewage collection), land transportation (roads, highways, railways, and bridges) as well as commercial, industrial, and civic facilities and (ii) large volumes of solid wastes that must be contained for decades, even perpetuity, in facilities such as tailings dams, thickened slurry deposits, waste rock dumps, landfills, and nuclear waste repositories. Of particular interest are the following:

- **Soil Characterization:** Fundamental understanding of the geotechnical properties of expansive clays, collapsible soils, mine tailings, waste rock, and dredged materials
- **Soil Modification:** Use of natural materials and synthetic reagents to improve the engineering behavior of marginal soils for construction and mine tailings for waste management
- **Soil Structure Interaction:** Development of soil-structure interaction models (numerical techniques and field monitoring) under cyclic saturation-desaturation conditions

We have a world-class geotechnical research laboratory housing state-of-the-art facilities for the determination of soil properties: (i) Meso-scale Odometer Test System for 3-D volume change of geomaterials; (ii) four conventional odometer cells for swelling and consolidation of clays; (iii) soil water characteristics curve apparatus with suction values of up to 10,000 kPa, (iv) two direct shear test and one triaxial shear test apparatus; (v) three manual and one automatic compactor; (vi) two Guelph permeameters for field measurement of hydraulic conductivity; and (vii) multiple sets for determining index properties (specific gravity, grain size, and consistency limits). Most of the test equipment is duly connected to computers for automated data acquisition. In addition, we use the SoilVision Systems Inc. software for seepage, contaminant transport, stress deformation, and slope stability modeling.

Applications are invited from highly motivated and interested individuals to fill several research positions in 'Environmental Systems Engineering' at the University of Regina as follows:

- **Post Doctoral Fellows:** Ph.D. degree in civil, geological, or mining engineering with a strong research record and 3 years field experience is required
- **Doctoral Students:** Master degree in civil, geological, or mining engineering with good research record and 1 year field experience is required
- **Master Students:** Bachelor degree in civil, geological, or mining engineering with potential for research is required

A strong academic background; work experience in construction, consulting, or regulatory capacity; computer proficiency in MS Office, SoilVision, MATLAB, AutoCAD, Grafer, and gINT; and excellent oral and written communication skills in English (TOEFL for international candidates) are required. Candidates are encouraged to submit (i) cover letter; (ii) curriculum vitae; (iii) copy of transcripts of all earned degrees; (iv) statement of research interests; and (v) contact information of three references to:

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