

“Introduction to Geothermal Engineering and Energy Modelling” - March 6 and 9, 2023

Course Handout

Provided as part of the Manitoba Climate Resilience Training (MCRT) Infrastructure Project. Course presented by Ed Lohrenz and Melanie Chatfield, P.Eng.

Energy Modelling Resources:

Natural Resources Canada: **Tools and software for new buildings**

- <http://www.nrcan.gc.ca/energy/efficiency/buildings/eenb/16596>

IBPSA: International Building Performance Simulation Association

- <http://ibpsa.ca/>

Onebuilding.org: building performance forum

- <http://onebuilding.org/index.html>

Energy Modeling Glossary

- <https://energy-models.com/glossary>

Efficiency Manitoba incentives for energy modelling

- Commercial Deep Energy Retrofit Programme - Up to \$12,000 available for Energy Modelling: <https://efficiencymb.ca/business/deep-energy-retrofit/>
- New Buildings Program - Up to \$10,000 available toward energy modelling. <https://efficiencymb.ca/business/new-buildings/>

Some **additional training opportunities related to energy modelling and/or geothermal** that may be of interest to you as next steps:

1. Building Energy Modelling and Simulation. Offered by University of British Columbia Institute of Technology (BCIT). Offered part-time as a micro credential and offered online – synchronous. Cost is \$698.83. Link for more information and to register: <https://www.bcit.ca/programs/building-energy-modelling-and-simulation-microcredential-part-time-0829cm/#delivery>
2. Building Energy Modelling and Performance Analysis. Offered by University of British Columbia Institute of Technology (BCIT). Offered part-time as an advanced certificate course and offered online – synchronous. Cost is \$698.83. Link for more information and to register:

<https://www.bcit.ca/programs/building-energy-modelling-and-performance-analysis-advanced-certificate-part-time-5235adcert/>

3. Geothermal Energy Basics. Offered by training provider CPD Engineer. Offered as informal professional development training online. Cost is \$39.99. Link for more information and to register:
https://cpdengineer.com/catalog/index.php?route=product/product&product_id=892
4. Introduction to Energy Credits and Commissioning Energy Metering and Demand Response (LEED) Credits. Offered by Canada Green Building Council. Offered as informal professional development training online. Cost is \$55.00. Link for more information and to register: https://portal.cagbc.org/ProductDisplay?iProductCode=ODC_CC_C5M1
5. Introduction to Thermal Energy Demand Intensity. Offered by Canada Green Building Council. Offered as informal professional development training online. Cost is \$55.00. Link for more information and to register:
https://portal.cagbc.org/ProductDisplay?iProductCode=ODC_CC_TDI
6. Why do EUI and Peak Demand Matter for Zero Carbon Buildings?. Offered by Canada Green Building Council. Offered as informal professional development training online. Cost is \$70.00. Link for more information and to register:
https://portal.cagbc.org/ProductDisplay?iProductCode=ODC_CC_EUI
7. Certified GeoExchange Designer (CGD) Live Online. Offered by GEOptimize and Endurant Energy. Offered live online starting Tuesday, April 18 – June 20, 2023, noon – 1:30 pm. Two types of courses access options, one includes C-448 Standard, Design of GSHP Systems (ASHRAE). Cost is US \$1850.00. Other includes online course only. Cost is US \$1,600.00. (NOTE that CGD testing and accreditation is offered by the Association of Energy Engineers - cost is US \$400 on application to write the test). Links for more information and to register:
More information: <https://www.geoptimize.ca/cgd-courses-online.html>
To register: https://www.geoptimize.ca/store/c1/Featured_Products.html
8. Certified GeoExchange Designer (CGD) Videos (view anytime). Offered by GEOptimize and Endurant Energy. Offered online. Two types of course access options. One includes C-448 Standard, Design of GSHP Systems (Kavanaugh Rafferty). Cost is US \$1,700.00. Other includes videos only. Cost is US \$1,450.00. (NOTE that CGD testing and accreditation is offered by the Association of Energy Engineers - cost is US \$400 on application to write the test). Links for more information and to register:
More information: <https://www.geoptimize.ca/cgd-courses-online.html>
To register: https://www.geoptimize.ca/store/c1/Featured_Products.html