



## 2018 21<sup>st</sup> ANNUAL SKILLS MANITOBA COMPETITION CONTEST DESCRIPTION

**CONTEST NAME:** Geographic Information Systems

**CONTEST NO:** N/A

**LEVEL:** Secondary and Post-Secondary

**NOTE:**

Secondary Level: 2 competitors per school.

Post-Secondary Level: 4 competitors per school.

**CONTEST LOCATION:** Room J1-14 – Red River College – Notre Dame campus

**CONTEST START TIME AND DURATION:**

April 12, 2018

5.5 hrs 8:15 am orientation 8:30 – 12:00 12:30-2:00

**PURPOSE OF CHALLENGE:**

To evaluate each contestant's preparation for employment in the field of Geographic Information Systems and to recognize outstanding students for excellence and professionalism in their field.

**SKILLS AND KNOWLEDGE TO BE TESTED:**

The challenge will consist entirely of practical Digital Map Generation, Data Analysis and Presentation - there will be no written exam. Contestants will demonstrate their ability to efficiently perform essential GIS and computer-assisted mapping skills selected from the following list of competencies as determined by the technical committee:

### **GIS Data Creation and Management Skills**

1. Determine and set geographical data parameters, such as scale, projection, coordinate systems, etc.
2. Create new geographical datasets based on digital aerial image.
3. Create new fields in an attribute table and populate with appropriate data.
4. Create and use metadata.
5. Evaluate various GIS file and image formats from a variety of sources and implement most applicable.

### **GIS Analysis Skills**

1. Using a variety of querying methods to perform analysis on the constructed regions.
2. Implement basic geoprocessing functions including; buffer, clip, merge, union, erase, intersect.
3. Create or implement a GIS model in order to complete analysis workflow
4. Achieve the highest accuracy possible in final results.

### **GIS Presentation Skills**

1. Produce presentation layouts using proper cartographically sound mapping techniques and cartographic conventions such as:
  - text insertion and editing commands
  - layer control and manipulation
  - accurate legend generation
  - colouring
  - formatting and inserting scale, legend, title and symbols
2. Using GIS as a tool to analyze geographic data and produce one or more cartographically sound maps showing the results of the analysis
3. Construct a flow-chart or GIS Model showing the steps to be taken to solve a specific problem using GIS.
4. Present results of analysis in a clear and comprehensive manner.

### **POINT BREAKDOWN / 100% TOTAL:**

- GIS Data Manipulation and Management Skills (20%)
- GIS Analysis Skills (40%)
- GIS Presentation Skills (40%)

### **EQUIPMENT, TOOLS, MATERIALS TO BE PROVIDED BY COMMITTEE:**

- A Pentium PC workstation running Windows 7 with Microsoft Office 2007 pre-loaded. ArcGIS versions 10.x will be pre-loaded on each workstation.
- Appropriate data sets and other materials required to answer the Competition Question.
- Note: Other GIS software **may** be made available for the competition. Please advise the technical committee as soon as possible if there is specific GIS software packages you would like to use. Every effort will be made to arrangement to have the specific software packages made available to all competitors.

**EQUIPMENT, TOOLS, MATERIALS TO BE SUPPLIED BY COMPETITOR:**

- Competitors will **not** be allowed to install their own data sets, extensions, or other software themselves.

**WORKSITE SAFETY RULES / REQUIREMENTS:**

- No food or beverages at workstations

**SPECIAL CONDITIONS / ADDITIONAL INFORMATION:**

- No outside resources, books, or data storage devices allowed.
- Competitors will be allowed to use the help of the ArcView / ArcMap software as installed.
- Portable audio players allowed, subject to inspection. No devices of any kind may be connected to workstations.
- No headwear, no logos or trademarks on clothing. See provincial competitor guidelines.

**FOR MORE INFORMATION PLEASE CONTACT:**

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