



NW AB Regional Skills  
Canada Competition  
April 19 & 20, 2012



## NW AB Regional Skills Canada Competition GPRC Fairview Campus 2012 - Robotics, Scope Document

<b>EVENT:</b> ROBOTICS (TEAMS OF FOUR)	<b>LEVEL:</b> Secondary
<b>COMPETITION START TIMES:</b> Orientation : <b>April 19: 8:00 PM</b> <b>Competitor practice set-up: April 20 - 8:30 AM</b> Competition start time: <b>April 20: 10:30 AM</b>	<b>LOCATION:</b> GPRC Fairview Campus
<b>DURATION:</b> 5 hrs	<b>REGIONALIZED:</b> No
Number of Competitors That Will Qualify for the 2012 Provincial Skills Canada Competition:1	

### **GENERAL DESCRIPTION**

The intent of the NW AB Regional Skills Canada Robotics Challenge is to have teams of students independently Designing / Fabricating/ Operating Robots capable of completing the competition tasks in competition with other student-fabricated robots. Teams are not allowed to develop or implement strategies based on interfering with their opponent's ability to complete the competition task set. It is expected and acceptable that teams will use some newly purchased and recycled parts or components (motors, gears, etc.) to fabricate mechanisms, which will complete Robotics Challenge tasks. Robots will be inspected for adherence to this statement.

### **PURPOSE OF THE CHALLENGE:**

- To create an engineering project to encourage individuals with different skill sets to form co-operative teams to design, fabricate and operate a robot.

### **SKILLS AND KNOWLEDGE TO BE TESTED:**

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| <ul style="list-style-type: none"> <li>• Drafting</li> <li>• Mechanics</li> <li>• Electronics</li> </ul> | <ul style="list-style-type: none"> <li>• Metalwork</li> <li>• Woodworking</li> <li>• Communications</li> </ul> |
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### **PROJECT DESCRIPTION**

The NW AB Regional Skills Competition duplicates the Alberta Skills Canada (Provincial) challenge with the exception that the dimensions of playing field (court) will be smaller measuring 18' X18'. Home area dimensions and rules will remain the same.

**Note:** For detailed, challenge information see posted document with NW AB Regional Skills Canada Competition Robotics titled: ***Detailed Project Information***

## EQUIPMENT & MATERIALS

### **Equipment and Materials Competitors Must Supply:**

- Robots - Robot accessories (including batteries, battery charger, spare parts)
- Safety equipment including mandatory eye protection
- Various tools required to modify and repair robots
- Extension cord and power cord

### **Equipment and Materials Supplied by the Committee:**

- Playing Field including Team Home Area
- One worktable with access to a 120 V power outlet (minimum 100W) per team

## **SAFETY**

The health, safety and welfare of all individuals involved with Skills Canada Alberta are of vital importance. Safety is a condition of participation with Skills Canada Alberta and shall not be sacrificed for the sake of expediency. At the discretion of the judges and technical committees, any competitor can be denied the right to participate should they not have the required proper safety equipment and/or act in an unsafe manner that can cause harm to themselves or others.

## **JUDGING CRITERIA**

On the court performance of the robot in the set task.

## **RELATED CAREER AND TECHNOLOGY STUDIES COURSES**

Descriptions of all modules are located at the following website:

<http://www.education.gov.ab.ca/cts>

ELT1010: Electro-Assembly 1	CSE2110: Procedural Programming 1
ELT1130: Robotics 1	CSE2240: Robotics Programming 2
ELT1140: Robotics Applications 1	CSE3240: Robotics Programming 3
ELT2140: Robotics 2	DES1020: The Design Process
ELT2160: Robotics Sensor 1	DES1040: 3D Design 1
ELT2170: Robotics Sensor 2	DES1050: CAD 1
ELT3140: Motors	DES1060: Technical Design & Drafting 1
ELT3150: Robotics 3	DES2045: 3D Design 2
CSE1110: Structured Programming 1	DES2055: CAD 2
CSE1120: Structured Programming 2	DES2075: Technical Drafting 2
CSE1240: Robotics Programming 1	DES3105: Engineering Design

## **ADDITIONAL INFORMATION**

- Download NW AB Regional Skills Canada "***Detailed Project Information***" document

### **Special Demo Exhibition:**

- Pending number of teams registered to compete and time remaining after competition teams may be asked to have their robotics perform tasks based on former years' challenges. These games will not be used in the judges' criteria determining rankings of the robotics competition; however a separate prize will be awarded to the winning team of the additional challenges.

### **NW AB Regional Skills Canada Tech Committee:**

Archie Robinson  
Jeremy McCracken