

# Mobile Robotics

## Competition Brief

| Entry Requirements                     |   |
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| <b>Who can enter?</b>                  | <p>The competition is intended for a team of two competitors working and/or training towards relevant programmes of study in mobile robotics. Competitors can be in education and training or working in industry. The competition is open to the following levels:</p> <p><b>Advanced:</b> Those undertaking qualifications up to level 3 (for England, Northern Ireland and Wales), up to level 6 (for Scotland) or up to five years experience in a working environment.</p> <p><b>Higher:</b> Those undertaking qualifications up to level 7 (for England, Northern Ireland and Wales), up to level 10 (for Scotland) or up to seven years experience in a working environment.</p> <p><b>WorldSkills London 2011 eligibility criteria</b><br/>The rule for the WorldSkills Competitions states that competitors are required to be under the age of 23 in the year of the competition; This means that for the WorldSkills London 2011, competitors must be born on or after 1 January 1989.</p> |
| <b>Individual and/or team event?</b>   | Team event with TWO competitors.  |
| <b>How many competitors can enter?</b> | Up to TWO teams of TWO competitors can be entered per organisation.   |
| <b>Competition structure</b>           | <p><b>Stage one:</b> enter online at <a href="http://www.worldskillsuk.org">www.worldskillsuk.org</a> by <b>19 March 2010</b>.</p> <p><b>Stage two:</b> complete the competitor screening form by <b>19 March 2010</b> and email to <a href="mailto:jobrien@semta.org.uk">jobrien@semta.org.uk</a>. Subject to demand,, competition organisers reserve the right to hold a one-day event to determine the teams for the national final.</p> <p><b>Stage three:</b> successful competitors who meet the required standard will be invited to compete at the UK final at <b>Middlesex University on the 17<sup>th</sup> – 18<sup>th</sup> June 2010</b>.</p>  |

## Competition Description

**The skills that are tested in the practical competition include:**

- Mechanical/Electrical fault-finding and servicing
- Testing of mechanical/electrical components
- Mechanically assembling a given set of components to a specification
- Robot programming to achieve a desired industrial goal
- Creative problem solving using a standard set of components

To complete these tasks competitors are expected to apply their theoretical knowledge of fundamental principles, automation and electrical/electronic technologies.

The Mobile Robotics competition is designed for two individual competitors to work as a team and will test your logic, design and fault finding skills in a challenging environment.

The competition will use the Robotinos® manufactured by Festo. In addition to the standard mobile robot base, a manipulator arm will be provided

**The competition will run over two days and will involve THREE main tasks. A generic description of the tasks are shown below:**

**Task 1:** Demonstrate competency in fault-finding, component testing, disassembly and reassembly. Task duration is limited to 180 minutes.

**Task 2:** Program the Robotino to perform a set task involving precision movements, object recognition, sensor fusion and object manipulation. Task duration is limited to 180 minutes.

**Task 3:** Design, construct and test a creative solution to a given problem using only your imagination and a set of standard automation components. The design solution must perform as a stand alone system. Task duration is limited to 360 minutes.

## Marking and Assessment

The marks will be based on objective assessment criteria and will be allocated by judges as follows:

- Task 1: 25 marks
- Task 2: 25 marks
- Task 3: 50 marks

Breakdown of the marks for each task will be specified as part of the full brief.

## Competition Rules

**Conduct for competitors during live competitions :**

- All competitors will receive a health and safety briefing at the start of the competition and these rules must be adhered to throughout the competition
- Competitors who arrive late for the finals will not normally receive additional time.
- Competitors will start and finish work as instructed by the judges.
- During the competition competitors should not disturb other competitors or speak to members of the public.
- Any competitor who wishes to leave the area during the competition must seek the permission of the judges. Competitors will not be allowed contact with tutors/coaches during the live competition. Non compliance with this may result in deduction of points.
- If there is a power stoppage or accident, the competitors must act according to the instructions of the judges
- Competitors who break or damage equipment during the competition will not receive any additional time.
- Where a competitor is observed working in an unsafe manner s/he will be stopped and not permitted to continue unless willing to follow the judges' directions.
- The competition will be assessed and marked by a panel of judges (from industry, colleges or training providers) using the competition criteria and allocation of marks.
- The panel's decisions will be quality assured by UK Skills or a UK Skills representative before the winners are announced.

## Contact Details

For technical advice about the competition contact:

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For general information about competitions please contact the WorldSkills UK contact centre:

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