

Skill P07: Unmanned Aerial Systems



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ROBOTICS



Unmanned Aerial Systems (UAS)

Unmanned Aerial Systems (UASs) are emerging into prominence in multifaceted environments and applications, including military, societal, agricultural and environmental purposes, disaster recovery, infrastructure assessment, and wildlife monitoring. Their industrial applications are growing rapidly.

Within design and development frameworks and applications led by engineers, the UAS Technician builds, installs, tests, and maintains UAS equipment. For this they may use a combination of mechanical, electronic, and computer engineering knowledge and skills.

WorldSkills Occupational Standards

The WorldSkills Occupational Standards (WSOS) specify the knowledge, understanding and specific skills that underpin international best practice in technical and vocational performance. The following are the general competencies or standards that a worker in this occupation should know and understands.



Work organization and management



Communication and interpersonal skills



Assemble/Repair, and maintain an unmanned aerial system (UAS/RPAS)



Setup, program, and operate the UAS



Manual flight demonstration and emergency procedures



Autonomous flight planning and demonstration



UAS Advanced Piloting and Embedded Vision

Assessment and Test Project

The WSOS will be used to develop several modules to be tested throughout the competition.



Assembling the UAS and Manual Flight Test

Building and testing a quadcopter UAS using the provided kit



Drone Diagnostics and Repair

Use provided scenarios to solve industry-based problems and prove competency in troubleshooting and recommending corrective repairs common to UASs



Autonomous Programming and Flight Planning

Using a provided mission scenario, complete the planning and execution all aspects of a flight and provide documentation showing calculations and decision-making strategies.



Advanced Piloting and Vision Skills

Incorporate advanced sensor systems and use vision technology



Drone Prototyping, Modelling and Mounting

Design and manufacture a drone replacement part, part enhancement or a new add-on for use in one of the other modules

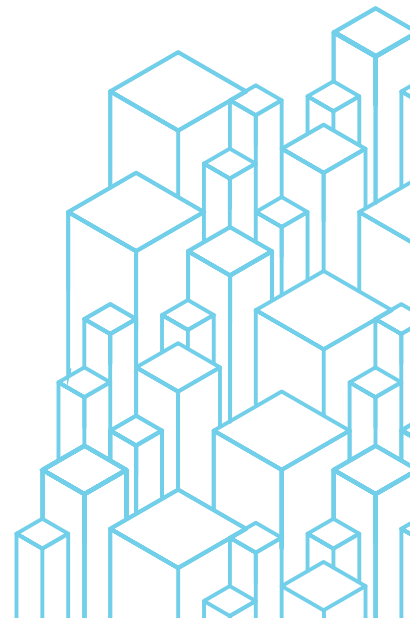


Operational Challenges

The competitor will showcase their UAS skills with actual flight scenarios based on real-world applications

The Competitor

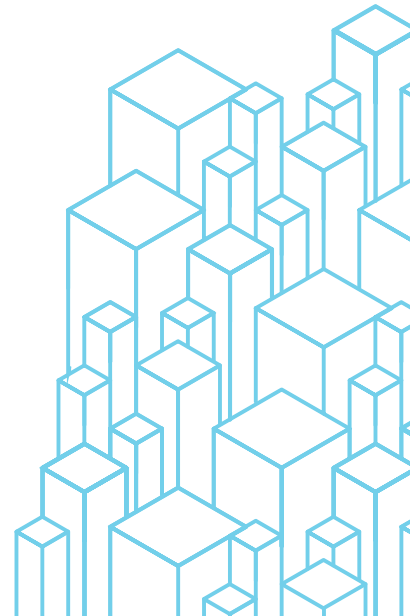
- *Each member country may enter 1 competitor for the skill.*
- *Competitors must not be older than 22 in the year of the Competition.*
- *Competitors must conduct themselves in an honest and honorable manner.*
- *Immediately before the start of competition, the competitor will be given the test project, explanatory material and instructions on the assessment system.*



The Competitor

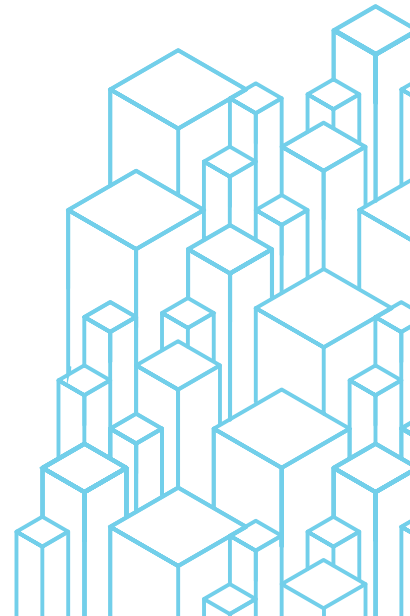
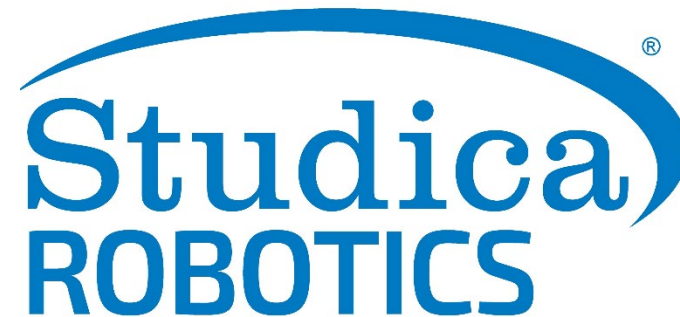
Potential competitors should have a background in electronics, mechanics, or related technical fields and can come from the following skill sectors:

- Mechanical/Electrical Engineering Technician
- Drone Technician or Drone Technologies
- IT or Programming
- Robotics and Electronics
- Aerospace Manufacturing Engineering Technology



Key Infrastructure

- Educational Drone Kit (1 Per competitor)
- Drone Repair Kit
- VTOL Drone (1 Per skill for scenario assessment)
- Commercial Drone (1 Per skill) (Agricultural, Delivery, Hydroelectric – for scenario assessment)
- 3D Printer and CAD Software





Thank you