Space Robotics ECA Club

From coding robots to launching missions — this is real STEM.

LAB OF FUTURE
Be Curious

Activity	What Your Child Will Do	Key Skills Developed	Learning Outcome
Lunar Navigation Challenge	Program a robot to navigate a simulated Moon surface	Block coding, logic building, problem-solving	Strong foundation in robotics navigation & computational thinking
Space Communication with Morse Code	Encode & decode signals using transmitter-receiver setup	Analytical thinking, signal understanding, communication	Understanding of how space missions transmit data
Virtual Rocket Mission Simulator	Design and launch a virtual rocket mission	Strategic planning, trajectory understanding, mission design	Exposure to aerospace mission planning concepts
ISS Docking Simulation Mission	Practice spacecraft docking in a simulator	Spatial awareness, precision control, focus	Understanding of real orbital docking procedures
CubeSat Assembly Workshop	Build a mini satellite using structured components	Systems thinking, structural design basics	Understanding of satellite architecture & subsystems
CubeSat Programming & Telemetry	Wire sensors and program satellite controller	Coding, electronics integration, data monitoring	Exposure to onboard computing & real-time telemetry
Mars Rover Mechanical Build	Construct a rover with mechanical components	Mechanical design, engineering fundamentals	Understanding mobility design for extraterrestrial terrain
Mars Rover Coding & Navigation	Program rover movement using sensors	Autonomous navigation, sensor integration	Integration of coding + mechanical engineering concepts
Lunar Robotic Arm Construction	Assemble a robotic arm with servo systems	Mechanical assembly, actuator understanding	Introduction to robotic manipulators used in space
Robotic Arm Control & Programming	Write control code for precision movements	Coordination, control systems logic	Practical understanding of robotics actuation & control
VR Exploration of ISS Robotics	Explore ISS robotic systems through immersive VR	Visualization, systems understanding	Real-world exposure to astronaut robotics operations
Satellite–Ground Station Communication Lab	Build and test a satellite communication link	Wireless communication basics, data transmission	Understanding how satellites exchange mission data

12 activtities - 12 sessions - 60 mins each   Fee: **AED 1560/-**
1 session / week (Mondays)   Age Group: **11yrs-14yrs**
Time: **14:15 to 15:15**

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