Certificate ID: 25NNRRW3

CERTIFICATE HOLDER INFORMATION	
ISSUED TO:	AARISH PATEL
ISSUED BY:	EUROPEAN SPACE FOUNDATION
DATE ISSUED:	SEPTEMBER 29, 2025
EDITION:	EUROPEAN ROVER CHALLENGE 2025 ON-SITE
STATUS:	VALID

TEAM INFORMATION	
TEAM NAME:	MARS ROVER MANIPAL
COUNTRY:	INDIA
UNIVERSITY:	MANIPAL INSTITUTE OF TECHNOLOGY
TEAM RECOGNITIONS:	NONE
TEAM RESULT:	1530.2PTS OUT OF 3000PTS

THE PARTICIPANT HAS BEEN CERTIFIED IN THE FOLLOWING MODULES:

Senior Electronics Engineer

MODULE GROUP: FUNCTION-RELATED AVAILABLE LEVELS: JUNIOR, MID, SENIOR

MODULE DESCRIPTION:

This module evaluates a participant's contribution to electronics and electrical engineering tasks. An Electronics Engineer works on designing and building specific electronic circuits, such as custom PCBs for motor control or sensor signal conditioning. They are involved in the entire process from schematic design to soldering and testing the final boards.

CANDIDATE PROFILE:

• Design and layout Printed Circuit Boards (PCBs). • Select electronic components for specific applications. • Solder, assemble, and test electronic hardware. • Contribute to the design of the overall power delivery and wiring system.

Navigation-Droning Task Leader

MODULE GROUP: TASK-RELATED AVAILABLE LEVELS: LEADERSHIP POSITION – SINGLE LEVEL ONLY

MODULE DESCRIPTION:

This module assesses leadership in planning and performing the autonomous Navigation-Droning Task. The leader is responsible for ensuring the drone is prepared for its mission, overseeing the pre-flight safety checks, and managing the execution of autonomous flights inside the cage. The role requires a strong understanding of the drone's autonomous capabilities and the ability to manage a repetitive, precision-focused task under pressure.

CANDIDATE PROFILE:

• Plan and prepare for the Droning Sub-Task, including software readiness and hardware checks. • Lead the team through the pre-flight safety feature demonstration. • Oversee the execution of the autonomous mission, monitoring the drone's performance. • Define the technical approach for probe detection and position estimation. • Manage the workflow of the task, ensuring all flights are attempted within the allotted time.

Leader of UAV System

MODULE GROUP: DESIGN-RELATED AVAILABLE LEVELS: LEADERSHIP POSITION – SINGLE LEVEL ONLY

MODULE DESCRIPTION:

This module assesses leadership in the overall development of the drone system, encompassing all its components. The leader is responsible for the entire drone project, including its mechanical construction, electronic design, control systems, and camera integration. This role also covers all Assembly, Integration, and Testing (AIT) activities to ensure the drone is fully prepared for the autonomous Navigation-Droning Sub-Task.

CANDIDATE PROFILE:

• Lead the comprehensive, multidisciplinary development of the drone. • Oversee all drone-related AIT activities, from initial assembly to final flight readiness reviews. • Manage the integration of all drone subsystems to create a cohesive and functional aerial platform. • Ensure the final UAV system meets all technical and safety requirements of the competition. • Direct the team's efforts during the Droning Sub-Task at the competition.

Head of Control

MODULE GROUP: STRUCTURE-RELATED AVAILABLE LEVELS: LEADERSHIP POSITION – SINGLE LEVEL ONLY

MODULE DESCRIPTION:

This module evaluates leadership in the development of the system's control strategies, ensuring seamless and precise command over all moving parts. The Head of Control is responsible for designing and implementing the control loops and algorithms for the rover's drive system, the robotic arm's joints, and the drone's flight stability. This role is key to achieving the fine motor skills needed for the Maintenance Task and the smooth mobility required for the Navigation-Traverse and Navigation-Droning Sub-Tasks.

CANDIDATE PROFILE:

• Design and tune control algorithms (e.g., PID controllers, motion planners) for optimal performance. • Integrate sensor feedback (e.g., encoders, IMUs) into control loops for closed-loop operation. • Oversee the implementation of control software that translates high-level commands into low-level actuator signals. • Collaborate with Mechanical, Electrical and Software teams to ensure the control system is well-matched to the hardware capabilities.

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