IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Enabling the Future: Developing the Space Workforce (5)

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CAPABILITY DEVELOPMENT THROUGH THE EMIRATES MISSION TO THE ASTEROID BELT

Abstract

The Emirates Mission to the Asteroid Belt (EMA) is the UAE's most ambitious interplanetary exploration mission to date, designed not only to push the frontiers of deep-space science but also to serve as a national training platform for Emirati engineers, scientists, and industry partners. A cornerstone of the mission is the Emirates Capability Development (ECD) program, which leverages EMA as a real-world, on-the-job training environment to cultivate an independent space workforce capable of leading future exploration efforts. Unlike traditional space programs, EMA embeds UAE talent directly into mission-critical roles, accelerating their development through hands-on experience, structured mentorship, and progressive responsibility. Emirati engineers and scientists are actively leading key domains, including Flight Dynamics, Mission Systems, and Spacecraft Design. Through the Knowledge Transfer Program, national team members have transitioned from trainees to decision-makers, taking on leadership roles in spacecraft design and development. EMA is also a collaborative capability building platform, engaging multiple UAE entities such as universities, research institutions, and industry partners to expand national expertise in space technology. By integrating these organizations into mission workflows, EMA provides direct exposure to deep-space mission execution, ensuring the growth of a competitive space sector. This strategic workforce development approach is reinforced through structured performance assessments, milestone-based learning, and industry collaboration, creating a self-sustaining pipeline of highly skilled professionals. This paper presents a replicable model for emerging space nations seeking to build independent space capabilities through hands-on mission involvement. As the UAE advances toward sustained deep-space operations, EMA exemplifies how a national space program can leverage real missions as training grounds, transforming space exploration from a scientific pursuit into a driver of long-term economic and technological growth.