ITCA's Initiative

Competency Building Programme to Develop Student-Built Satellites

The Maz Israel Satellite and Aerospace Technologies Ltd

INDIAN TECHNOLOGY CONGRESS

Engineer Your Satellite Launch

ITCA has envisioned a unique initiative for Indian Academia to design, develop and launch student-built satellites under the programme **"75 Student Satellites' Mission 2022"** to galvanise the expansion of the space technology ecosystem in the country.

Globally, Israel has been a pioneer in developing and successfully launching student-built satellites into orbit, and ITCA has built strong alliances and synergy with Israeli institutions and organisations to leverage this expertise. ITCA's consortium partners can utilise this framework of indigenousness for replication and progression of their Institutional Student Satellite programmes to complete within projected schedule & budgets and successful launch.

To enlighten the Indian Academia, an exploratory visit is organised to Israel with the objective of facilitating interaction with Israeli organisations which are into space technologies including successful student satellite development and launch. The expected takeaways of the visit include a comprehensive understanding of the student satellite development life-cycle, the associated best practices, networking opportunities with experts and exploring funding opportunities.

The Scope of the Programme

ITCA's National Programme for the development of 75 Student satellites is to commemorate India's Independence during 2022. To strengthen the mentoring process and inspire confidence for the partnering institutions, ITCA has built a profound and wide-ranging network of leading international experts who would support the institutions during various phases of the satellite development life-cycle. The process of creating the framework for achieving the mission objectives by the partnering Institutions of developing, launching and deploying satellites into orbit by their teams is progressing well with International space-tech organisations including Israeli institutions.

The scope of the exploratory visits is to adopt best practices for building the credence of Indian Academia that the student satellite development initiatives can be successful and protect the investments made by stakeholders. This inter-disciplinary programme would also help to build global alliances for knowledge-based institutions to establish linkages with best-of-class international institutions and organisations. The blended study visits will as well augment Indian Academia's research and development facilities precisely in space-tech by attracting Israeli diaspora of institutional enterprises.

Engagement Tracks

Institutions intending to participate in the exploratory visit to Israel will have two thematic tracks opportunities.

The **EYS Indo-Israel Space-Tech Leadership Programme** of the Student Satellite activity are for senior faculty, management and decision-makers to explore the possibilities and build confidence to take up such complex technology development missions in their institutions.

The **EYS Indo-Israel Space-Tech Competency Programme** focused on blended training cum immersion visits to the teams associated with student satellite development missions of the institutions and expected to learn best practices and hands-on experience on critical technologies associated with student satellite development missions.

The study cum training blended visits will have all-embracing content delivered by universities, research and development labs, and industrial centres with illustrative case studies of successful Satellite Development Missions.

India-Israel Initiatives on Satellite Technology and Space Systems

Through collaborations with ITCA's Indo-Israeli Nanosatellite Programme, academic institutions in India will be able to leverage the end-to-end life-cycle expertise including design, development, manufacture, integration, testing, launch services facilitation and satellite operations, thereby building a high-performance Space-Tech ecosystem at their institution.

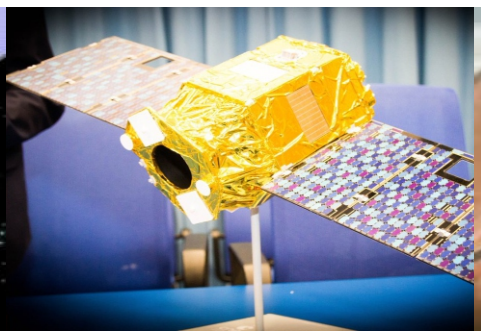
ITCA embarked on satellite development ecosystem in academia has prearranged two international programmes in association with Israeli organisations along with partnering institutions and knowledge-based industry in September 2018 and November 2018. To leverage, this unique offering for up-scaling academia's satellite technology competency, ITCA has partnered with TMISAT and other Israeli organisations to progress this exemplary initiative using specially planned collaboration models besides network-focused engagement tracks through "Engineer Your Satellite Launch" Programme.

75 Student Satellites' Mission

Student Satellites gained prominence globally and has emerged as a trend to build experiential learning and demonstrate enhanced practice-based outcomes in engineering institutions. Indian Technology Congress Association (ITCA), a platform for technology adherents working to stimulate multi-disciplinary capabilities in tomorrow's workforce is actively partnering with Academic Institutions, Industry, and Research Labs to conceptualise, develop and launch a distinctive programme of "75 Student Satellites' Mission 2022" in the consortium model.

The inspiration for this activity is the democratisation of space that is taking place thanks to the advances in multiple domains and the miniaturisation of components and systems. For a nation that is growing at a fast pace, student satellite mission presents a unique opportunity to develop innovative public-private partnerships to enhance education at all levels.

Partnering Institutions of this mission are expected to enhance student skills, employability, International technology culture, entrepreneurship mindset through start-up and collaborative incubations within Institution in partnership with Industry & R&D Organisations. These transferable skills can be utilised by students to achieve success in any engineering projects they would be involved in during their extended career. **To become consortium member, please contact ITCA Secretariat.**


Programme Schedule of Exploratory Visits

Date	Indo-Israel Space-Tech Leadership Programme	Indo-Israel Space-Tech Competency Programme
Day 1 Sunday Arrive in ISRAEL	Arrive in Israel and Night Stay & Settling-in	Arrive in Israel and Night Stay & Settling-in
Day 2 Monday	• Welcome and Orientation on Small and Student Satellites' development programmes in Israel • Interaction with eminent Israeli Space Scientists • Networking with Ministry of Science, Technology and Space, Israel • Presentations by Space-Industry, Israel **Visits to / Interaction with** • Ben-Gurion University - BGU-SAT • Tel Aviv University – Space Centre • Technion University (Israel Institute of Technology) - Asher Space Centre – International Space University • Israel Space Agency (ISA) • Herzliya Science Centre – High School Student Satellite Development Programme • SpaceIL • Adelis-Samson Foundation	• Opening Session: Intro to the 75 Student Satellites' Program. History of Space Flights, Nano-Satellites and the New Space Age • Introduction to Small Student Satellites and Space • Nano-satellite Structure • Nano-satellites Program Management • Space Orbits and Outer Space • Attitude Determination and Control • Remote Sensing and S&T Applications • Space Environment and Thermal Control • Onboard Computing • Flight Software • Electrical Power System • Space Communications • Ground Control Station • Nano-Satellite Integration Process – System Engineering • Facility – Visits Clean Room and Ground Station • Visiting Industry, Academia, and R&D Labs
Day 3 Tuesday		
Day 4 Wednesday		
Day 5 Thursday	Venue-specific sightseeing opportunities planned including Jerusalem & others and also social events in the evenings	
Day 6 Friday	Arrival to India	Venue-specific sightseeing opportunities planned including Jerusalem & others and also social events in the evenings
Day 7 Saturday		
Day 8 Sunday Arrive India		Arrival India
Who should participate	Management, Decision-makers and key team members of the Institution who represent the Institution's Satellite Development Mission	Faculty members and students representing the Institution's Satellite Development Mission
Learning Outcomes	• Understanding the Feasibility • Overview of Life-Cycle of Student-Satellite Development • Best Practices in successfully developing Student-built Satellites • Networking opportunities with Israeli Space-Technologists and experts • Professional engagement with Israeli Space-Tech Organisations	• Familiarising the Technologies Associated • System Design and Engineering Processes • Learning Best Practices for Successful Mission • Competency Building on Satellite Development • Gain Hands on experience

Places of Industry / Site visits mentioned are tentative and will be covered according to availability of time.



Why Engineer Your Satellite (EYS)?

Engineer Your Satellite (EYS) is the up-skilling and certification initiative of ITCA to augment the flagship programme "75 Student Satellite Mission 2022". EYS initiatives expected to enhance the faculty & the student competencies and effectively contribute to their envisioned ambitious project missions of student-satellite-development which will in-turn precisely advance the sat-ecosystems in the country.

ITCA has carefully fostered a serious capacity building programmes including international visits, practiced based learning, on-campus skilling, workshops etc. to maximize the learning outcomes of the stakeholders for excellent contributions to project missions.

EYS designed exploratory visits to Israel are bespoke of the industry standards for addressing immediate competency-based Space skill enhancement in pursuit of long-term success of the mission.

Certification

All **EYS Global Certifications** will augment the competency of participants and positively contribute to the development of student satellites by the academia. Certification will be accredited by participating in Indian and International organisations. The EYS Indo-Israel Space-Tech Certification will be given to participants of both the tracks.

Indo-Israel Space-Tech Leadership Programme
for Management, Decision Makers, key faculty members of the Institution

Indo-Israel Space-Tech Competency Programme
for Key faculty members and Students of the Institution

Glimpses of First & Second International Programmes on
75 Student Satellites' Mission 2022
September 2018 & November 2018, Bengaluru

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