MSc studentships at the National Space Science and Technology Center

The National Space Science and Technology Center (NSSTC) at UAE University (UAEU) in Al Ain, UAE, invites applications for MSc studentships for the period 2020-22. These positions are for enthusiastic, ambitious, and hard-working Emirati national MSc candidates to work on various projects in the Center and to complete their MSc studies.

If accepted, the MSc candidate may be supported by UAE University for two years with full tuition, fee waiver, and health insurance. Stipends of about 5,500 AED/month may also be provided. Students will be expected to work at NSSTC during their MSc program, to obtain knowledge and practical experience as well as fulfil the thesis requirements for their degree. Supervision of the MSc thesis will be done jointly between NSSTC and one of the academic Colleges, and NSSTC will support the cost of conducting the research, if required.

Students will have the opportunity to take part in various existing NSSTC projects such as Emirates Mars Mission science, the design of the 813 pan-Arab Earth observation satellite, the RF Technology Demonstrator Nanosatellite, and the UAE Land Cover Land Use project.

NSSTC is a research and development institute of some 50 staff located on the UAE University campus in Al Ain, about 90 minutes' drive from Abu Dhabi and Dubai. The Center's priorities are excellence in Space Science, leadership in Space Technology, and providing innovative solutions to a broad spectrum of societal challenges. It has expertise in spacecraft communications and precision positioning, on-board real-time systems, space situational awareness, global navigation systems, space resource utilization, geospatial information systems, Earth observation, and planetary science. NSSTC's new Assembly, Integration, and Testing facility will include a cleanroom, thermal vacuum chamber, vibration system, and anechoic chamber for satellites up to 200 kg. Its other upcoming facilities include a Global Navigation Satellite System, a Radio-Array Observatory for Astronomy, Space Situational Awareness and multidisciplinary space science research, and In Space Resources Utilisation laboratories.

Candidates for these studentships should be accepted onto a UAEU MSc program in a relevant area, for example Space Science, Physics, Engineering, GIS, or Remote Sensing. The minimum requirements to be accepted onto the UAEU MSc program are:

- A Bachelor's degree in a relevant field with a minimum cumulative GPA of 3.0 out of 4
- A minimum IELTS score of 6.0, assessed in the last two years

While these are minimum requirements, NSSTC will allocate studentships based on academic merit and on applicants' interests and fit with a specific project area. In partiuclar, existing programming and data analysis skills will be looked upon favourably.

Applicants interested in further information about projects should contact NSSTC Administrator Latifa Alkhyeli on latifa.alkhyeli@uaeu.ac.ae or +971 3 713 4049 in the first instance.

Project areas

Potential MSc thesis areas cover several research themes of interest to NSSTC staff and faculty. The list below is indicative of potential projects in each area. Students with their own ideas in any of these areas are very welcome to suggest them.

Earth observation

- Assessment of various classifiers for characterizing UAE's land cover
- Improving land use land cover classification using index-based approaches.
- Ground validation and review of habitat (land use land cover) class hierarchy based on open source Volunteered Geographic Information (VGI)

Planetary science

- Various projects related to data analysis from the Emirates Mars Mission
- Remote sensing and modelling of the Martian atmosphere and surface
- Using data assimilation to estimate poorly-constrained physical parameters about the Martian atmosphere
- Cloud tracking using MRO-MARCI, Mars Express-HRSC, or EMM-EXI data to obtain Martian wind fields

Space technology

- Simulation and analysis of a hybrid LEO-MEO based navigation augmentation system aiming for high accuracy positioning
- Satellite Thermal Control System: Design, Analysis and Test of Thermal Control Subsystems for Earth Observation Microsatellite
- Mission design and attitude and orbit control system (AOCS) design for GRSS satellite project
- Design and implementation of the electrical power and communication subsystems for the IEEE GRSS satellite

Radio-Array Observatory

- Space Situational Awareness: Orbital trajectories of bright Resident Space Objects.
- Radio Astronomy: Observations and imaging of celestial radio sources.
- Radio Astronomy Instrumentation: Observations and Measurements for Radio-Array Commissioning.