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Title	Feasibility Analysis of Dream Chaser Landing (Space Orbital Mission) in Nepalese Airport						

Who are we?

The space application department at NASO strives to bring the benefit of space data to the socio-economic development of Nepal. Under the department, we operate and manage three working groups- WG1- Global Navigation Satellite System (GNSS); WG2- Satellite Earth Observation; WG3- Satellite Communication.

The goal of WG2 is to facilitate the research & innovation in GNSS and GNSS enabled innovation and scientific applications. Within this framework, we at NASO envisage creating a strong research and education team in the next three years.

Inside of the WG2, we offer the following project for a university student:

Feasibility Analysis of Dream Chaser Landing (Space Orbital Mission) in Nepalese Airport

Reference No. SAWG2001

Your Mission:

For the WG2 under the space application theme, we would be delighted to have your support to study the feasibility of landing space orbital mission (and sub-orbital) flights in Nepalese airport. This is a conceptual and analytical study where the student will get an opportunity to learn how suborbital flights and space vehicles perform their flight operation from take-off to landing. The goal is also to enrich the technical understanding in the domain of CNS/ATM. This in turn will provide a basis for student to analyse how CNS/ATM system can help flight operations of sub-orbital flights. The specific focus is put on the Dream Chaser Orbital Mission. We are looking for an engineer (or equivalent in physics and mathematics major) motivated to learn continuously about aircraft avionics, spaceflights, ATM/CNS system and excited to bring the benefits of GNSS technology.

Your Learning Opportunities and Responsibilities:

1. Review of existing literature related to orbital and sub-orbital flights with a focus on Dream Chaser Space Orbital Mission
2. Theoretical understanding of ATM/CNS system in the context of aviation operation in Nepal (including VOR, DME, SSR...)



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3. Requirement elicitation of flight operation and entry of Dream Chaser in the terminal airspace
4. Map requirements to the existing capabilities of Nepalese airspace and its ATM/CNS systems
5. Analysis of the required interface between Space Traffic Management (STM) and Air Traffic Management (ATM)
6. Review and high level understanding of ANNEX and Standards and Recommended Practices (SARPs) from ICAO
7. Theoretical understanding of GNSS technology usages in ATM/CNS activities and its advantages over conventional technologies such as DME, VOR and ILS...
8. Propose the modernization of Nepalese airspace to support landing of Dream Chaser Space vehicle and similar sub-orbital flights
9. Hands-on experience in system engineering approach of conducting a project

Your Qualification:

1. At least a second year undergraduate student in engineering or equivalent, such as electrical, communication, computer science, mechanical, informatics, physics, geomatics or mathematics
2. Basic knowledge of ATM/CNS system
3. Basic knowledge of aerodynamics
4. Speaking and writing skills in English

Start Date: August 2021 (flexible)

Project Duration: Six months (flexible)

Our Offer:

University project definition and completion in an exciting field with supervision from an expert working in an international team in a German Space Agency and Galileo Satellite Operation company. Appropriate guidance for a further academic and professional career. Financial support to conduct the project for a motivated student. Possibility to present the project outcome at an international conference.

Contact:

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