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Title	Satellite Navigation Technology for Aircraft Communication, Navigation and Surveillance (CNS)						

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:

Satellite Navigation (GNSS) for Aircraft Avionics and ATM/CNS

Reference No. SAWG2001

Your Mission:

For the WG2 under the space application theme, we would be delighted to have your support to analyze the performance of different satellite navigation systems in line with the Performance Based Navigation (PBN) identified by the ICAO and the CAAN. You will get an opportunity to increase your theoretical knowledge in the field of aircraft avionics, navigation and the cutting-edge GNSS technology for ATM/CNS system. In addition, you will get a practical experience to design, develop, and validate the GNSS performance monitoring system for different flight phases and types of aircraft navigation (i.e, RNP, RNAV, SBAS, GBAS...). We are looking for an engineer (or equivalent in physics and mathematics major) motivated to learn continuously about aircraft avionics, ATM/CNS system and excited to bring the benefits of GNSS technology.

Your Learning Opportunities and Responsibilities:

1. Review of existing literature related to satellite navigation systems (GNSS)
2. Theoretical understanding of ATM/CNS system in the context of aviation operation in Nepal (including VOR, DME, SSR...)
3. Review and high level understanding of ANNEX and Standards and Recommended Practices (SARPs) from ICAO
4. Theoretical understanding of GNSS technology usages in ATM/CNS activities and its advantages over conventional technologies such as DME, VOR and ILS...



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5. Analysis of the sample GNSS data to compute the performance in terms of PBN feasibility (supporting RNAV, RNP, SBAS, GBAS...)
6. 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. Experience in script writing and UNIX system (advantage)
3. Good knowledge of electromagnetism and signals & system theory
4. Basic knowledge of avionics
5. 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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