

Position Description

Space Systems Engineer – Concurrent Design

Never Stand Still

School of Engineering and Information Technology

Date:	January 2017
Position Number:	***
Level:	7 / 8
Reports To:	Dr Douglas Griffin, and in turn to Professor Russell Boyce (Chair for Space Engineering, UNSW Canberra)

Background

The University of New South Wales is one of Australia's leading, research-intensive universities. UNSW has more than 50,000 students, and campuses in Sydney and Canberra – the latter at the Australian Defence Force Academy (ADFA). It has more industry links, and more top technology entrepreneurs, top CEOs and millionaires amongst its alumni than any other Australian university.

As part of significant investment in the flagship research initiative UNSW Canberra Space, the university has developed the in-house capability to carry out innovative, routine and affordable in-orbit space research. The initial focus is on CubeSat-class spacecraft as single satellites but is quickly moving to the development of distributed, networked experiments and sensors across formations or assemblies of such spacecraft, and to the development of microsat-class spacecraft. The goal is to use that capability to perform high impact science and technology development that will in turn make a significant contribution to meeting Australia's need for safe and secure access to space-based technologies for economic, social and strategic benefit.

UNSW Canberra and the ACT Government have decided to jointly invest in the development of a Space-Mission Concurrent Design Facility (CDF) co-located on the UNSW Canberra campus at the Australian Defence Force Academy, for the preliminary design and assessment of new space mission concepts. This facility will rapidly assess the technical, programmatic and financial/commercial feasibility of candidate space mission concepts in order to provide early-stage input to the planning and development of the portfolio of future missions for UNSW Canberra Space. Once fully commissioned, the facility is expected to become a key national asset available to the wider Australian space community to encourage and foster collaboration and the adoption of high quality professional approaches to space engineering thereby helping the growing sovereign space capability grow and mature.

The development of the UNSW Canberra CDF is scheduled to commence in Q1 2017 and to complete the initial rollout with the completion of three studies of candidate missions in Q4 2017.

Job Purpose

The purpose of the position is to lead the planning, development and rollout of the UNSW Canberra Space Mission CDF in order for the research group to acquire the capability to rapidly assess the technical, programmatic and financial/commercial feasibility of candidate space mission architectures using internationally accepted best-practice for Concurrent Space Mission design.

Duties

1. Project Manage the development of the UNSW Canberra Space Mission CDF
2. Critically apply Space Systems Engineering methodologies (e.g. Requirements management, configuration control, Verification and Validation) to the design and development of the facility
3. Delivery of individual Work Packages for the development of the facility
4. Technical management of subcontractor and UNSW Canberra staff Work Packages
5. Status reporting to line management and external stakeholders
6. Planning and leading the first three mission studies to commission the facility

Statistics

The UNSW Canberra CDF is to be a high-profile, flagship facility for the UNSW Canberra space programme. Once operational, each study is expected to involve in the order of 10-15 professional engineers, scientist and stakeholders.

Reporting Relationships

This position reports to Dr Doug Griffin (Space Mission Lead, UNSW Canberra Space) and Professor Russell Boyce (Chair for Space Engineering and Director, UNSW Canberra Space).

Principal Accountabilities

- Delivery of the UNSW Canberra CDF composed of:
 - the setup of the physical facility,
 - the software, and design database,
 - the baselining of the concurrent design procedures / methodologies
- Completed CDF study reports for the three candidate missions used to commission the facility
- Produce reports on the progress of the CDF development to UNSW Canberra line management and funding bodies, and manage allocated funds to successfully pursue projects to completion.
- Cooperate with the employer and comply with all relevant legislation and UNSW Canberra health and safety policies, procedures and instructions.
- Work and act safely and take all reasonable care to protect personal health and safety and the health and safety of others.

Selection Criteria

Experience

1. A degree in Engineering or related discipline
2. Demonstrated application of Space Concurrent Design methodologies to space missions
3. Experience in Project Management and Systems Engineering related to the development and delivery of spacecraft systems and missions
4. Working in a Project Team of engineers and scientists, to deliver challenging technical projects
5. Proven Acquisition/development, assembly, integration, testing, and operation of spacecraft systems
6. Demonstrated ability to Liaise with industry and academic project partners

Knowledge and Skills

1. Strong understanding of spacecraft and payload design, development, implementation and operation
2. Design and development / procurement of secure IT systems for networked applications (including those hosted on a public cloud computing facility)
3. Ability to manage and deliver successful project outcomes on time and budget
4. Communication skills for preparation of technical documents and presentation of results in technical review meetings and public presentations
5. Personal drive to take responsibility for the delivery of complex projects
6. Ability contribute to a talented and diverse team, resulting in high team cohesion, performance and outcomes
7. Ability to work independently with minimal supervision as part of a team whose activities overlap and are interdependent;
8. Ability to work collaboratively with colleagues from different disciplines as well as with administrative and technical staff in the School;
9. Ability to maintain focus in the direction instructed, but will be expected to show imagination and creativity in solving the problems at hand
10. Knowledge, understanding and commitment to equity and diversity principles, and workplace health and safety (WHS) responsibilities

Note: Appointment at Level 8 is for staff with more than 10 years' experience relevant to the position delivering successful projects.

Progression Criteria

Progression to a higher level within a broad banded position is not automatic and requires support of the supervisor and approval by Senior Management.

The following is required before progression can be approved;

- The incumbent will be expected to have reached the top step of Level 7 prior to progression to Level 8, and
- The incumbent will be expected to have been at the top step of Level 7 for 12 months prior to progression to Level 8; and
- Criteria for progression to Level 8 will be based on satisfactory performance of all duties and accountabilities at Level 7, and a demonstrated capacity and ability to take on the duties and accountabilities of the position at Level 8, and
- Work at Level 8 is available and required by the work unit on an ongoing basis.

It is not the intention of the position description to limit the scope or accountabilities of the position but to highlight the most important aspects of the position. The aspects mentioned above may be altered in accordance with the changing requirements of the role.