Australian National University

Position Description

College/Division:	College of Science
Faculty/School/Centre:	Research School of Astronomy and Astrophysics
Department/Unit:	Advanced Instrumentation and Technology Centre (AITC)
Position Title:	Systems Specialist
Classification:	ANU Officer Grade 6/7 (Specialist)
Position No:	TBC
Responsible to:	AITC Systems Engineer Discipline Lead
Number of positions that report to this role:	
Delegation(s) Assigned:	

PURPOSE STATEMENT:

The Research School of Astronomy and Astrophysics' (RSAA) research program maintains a high-level specialist team to develop innovative state-of-the-art ground-based and space-based optical/infrared instrumentation and telescope systems, as well as for helping support existing telescope facilities at Siding Spring Observatory. The Systems Specialist oversees the system synthesis during the full project life-cycle: managing interfaces, requirements, system architecture, system validation and verification, system performance modelling. They are also expected to maintaining an up-to-date knowledge of awareness of state-of-the-art in the field.

KEY ACCOUNTABILITY AREAS:

Position Dimension & Relationships:

The Systems Specialist is supervised by the AITC Systems Discipline Lead, and enable the realisation of successful systems for approved RSAA technical projects and activities. A close working relationship is required with the Project Manager, Optical, Mechanical, Electronics, Software, Detector and Controls Specialists, as well as the science teams both within ANU and with external collaborators/consortia (National and International).

The Systems Specialist is deployed to work as part of project teams under the direction of the Project Manager on project related matters and has primary responsibility for oversight of the requirements definition, design synthesis and system validation during the full life-cycle. The AITC manages a large and diverse project portfolio and the Systems Specialist may be deployed on several projects simultaneously.

Role Statement:

Under broad direction, working with a degree of autonomy, the Systems Specialist focuses on requirements analysis, interface definition, compliance, design synthesis and system validation while considering the operational, cost and schedule, performance, training and support, test, manufacturing, and disposal constraints, i.e. ensuring delivery of a quality product that meets the user needs.

The Systems Specialist will:

- Collation, assessment, control of the system requirements, interfaces and system/subsystem specifications;
- Contribute to the management of system level architecture and engineering processes to ensure the full lifecycle requirements are met, including the design, development, manufacture, assembly, integration, testing, shipping, commissioning, operations, maintenance/repair and disposal phases;
- Manage the system function and performance verification and validation.
- Contribute to the development of an end-to-end system performance model, used to assist with technical trade-offs and performance expectation management;
- Applying systems engineering knowledge in contributing to new project proposals;

- Provide systems engineering advice to project managers and facilitate interdisciplinary design solutions;
- Develop knowledge both of best-practice procedures in the context of prototype and one-off constructions, and an awareness of relevant state-of-the-art technologies that might be applied to astronomical or space research within the context of AITC operations management procedures;
- Contribute to the preparation of technical documentation, presentations and contribute to publications;
- Comply with, maintain an awareness of and help promote all ANU policies and procedures and in particular those relating to work health and safety and equal opportunity, including a demonstrated high level of understanding of equal opportunity best practice and a commitment to their application in a university context;
- Perform other duties as requested, consistent with the classification level of the position and in line with the practice of multi-skilling.

SELECTION CRITERIA:

- Degree in Science, Engineering, or related discipline, OR an equivalent combination of relevant experience and/or education/training. Qualifications and experience working in structured systems engineering environments and/or the field of astronomical instrumentation would be favourably regarded.
- Demonstrated experience in instrument or aerospace systems design including; requirements development, prototyping, build/manufacture and system validation.
- Experience with Model Based Systems Engineering processes and software (such as MagicDraw) would be highly regarded.
- Excellent interpersonal and liaison skills with demonstrated effective communication skills. Experience working with customers, industry partners, suppliers and contractors.
- Proven good written communication skills with the ability to develop and contribute to material for publication.
- Proven ability to work flexibly, prioritise work to meet conflicting deadlines, and to quickly adapt to new environments including a demonstrated ability to use initiative, apply sound judgement and work with minimum supervision individually and within a team environment.
- A demonstrated high level of understanding of equal opportunity (EO) best practice and a commitment to the application of EO policies in a university context.

ANU Officer Levels 6 and 7 are broad banded in this stream. It is expected that at the higher levels within the broadband occupants, through experience, will have developed skills and expertise enabling them to more independently perform the full range of duties at a higher level, and that more time will be spent on the more complex functions of the position.

The ANU conducts background checks on potential employees, and employment in this position is conditional on satisfactory results in accordance with the Background Checking Procedure which sets out the types of checks required by each type of position.

Supervisor/Delegate Name:	David Brodrick	**Date:**	February 2023

References:

General Staff Classification Descriptors

Academic Minimum Standards

Australian National University

Pre-Employment Work Environment Report

Position Details

College/Div/Centre	**College of Science**	**Dept/School/Section**	**RSAA, AITC**
Position Title	**System Specialist**	**Classification**	**ANU Officer 6/7 (Specialist)**
Position No.		**Reference No.**	

In accordance with the Work Health and Safety Act 2011 (Cth) the University has a primary duty of care, so far as reasonably practicable, to ensure the health and safety of all staff while they are at work in the University.

- This form must be completed by the supervisor of the advertised position and appended to the back of the Position Description.
- This form is used to advise potential applicants of work environment and health and safety hazards prior to application.
- Once an applicant has been selected for the position they must familiarise themselves with the University WHS Management System via Handbook guidance https://services.anu.edu.au/human-resources/health-safety/whs-management-system-handbook
- The hazards identified below are of generic nature in relation to the position. It is not correlated directly to training required for the specific staff to be engaged. Identification of individual WHS training needs must be in accordance with WHS Local Training Plan and through the WHS induction programs and Performance Development Review Process.
- 'Regular' hazards identified below must be listed as 'Essential' in the Selection Criteria - see ' Employment Medical Procedures' at http://info.anu.edu.au/Policies/_DHR/Procedures/Employment_Medical_Procedures.asp

Potential Hazards

- Please indicate whether the duties associated with appointment will result in exposure to any of the following potential hazards, either as a **regular** or **occasional** part of the duties.

TASK	regular	occasional	TASK	regular	occasional
key boarding	☒	☐	laboratory work	☐	☒
lifting, manual handling	☐	☐	work at heights	☐	☐
repetitive manual tasks	☐	☐	work in confined spaces	☐	☐
Organizing events	☐	☐	noise / vibration	☐	☐
fieldwork & travel	☐	☐	electricity	☐	☐
driving a vehicle	☐	☐			
NON-IONIZING RADIATION			**IONIZING RADIATION**		
solar	☐	☐	gamma, x-rays	☐	☐
ultraviolet	☐	☐	beta particles	☐	☐
infra red	☐	☐	nuclear particles	☐	☐
laser	☐	☐			
radio frequency	☐	☐			
CHEMICALS			**BIOLOGICAL MATERIALS**		
hazardous substances	☐	☐	microbiological materials	☐	☐
allergens	☐	☐	potential biological allergens	☐	☐
cytotoxics	☐	☐	laboratory animals or insects	☐	☐
mutagens/teratogens/ carcinogens	☐	☐	clinical specimens, including blood	☐	☐
pesticides / herbicides	☐	☐	genetically-manipulated specimens	☐	☐
			immunisations	☐	☐

OTHER POTENTIAL HAZARDS (please specify):

Supervisor/Delegate Name:		**Date:**	

Australian National University

Position Description

College/Division:	College of Science
Faculty/School/Centre:	Research School of Astronomy and Astrophysics
Department/Unit:	Advanced Instrumentation and Technology Centre (AITC)
Position Title:	Senior Systems Specialist
Classification:	ANU Officer Grade 8 (Specialist)
Position No:	TBC
Responsible to:	AITC Systems Engineer Discipline Lead
Number of positions that report to this role:	N/A
Delegation(s) Assigned:	N/A

PURPOSE STATEMENT:

The Research School of Astronomy and Astrophysics' (RSAA) research program maintains a high-level Specialist team to develop innovative state-of-the-art ground-based and space-based optical/infrared instrumentation and telescope systems, as well as for helping support existing telescope facilities at Siding Spring Observatory. The Senior Systems Specialist oversees the system synthesis during the full project life-cycle: managing interfaces, requirements, system architecture, system validation and verification, system performance modelling. They are also expected to maintaining an up-to-date knowledge of awareness of state-of-the-art in the field.

KEY ACCOUNTABILITY AREAS:

Position Dimension & Relationships:

The Senior Systems Specialist is supervised by the AITC Systems Discipline Lead, and enable the realisation of successful systems for approved RSAA technical projects and activities. A close working relationship is required with the Project Manager, Optical, Mechanical, Electronics, Software, Detector and Controls Specialists, as well as the science teams both within ANU and with external collaborators/consortia (National and International)

The Senior Systems Specialist is deployed to work as part of project teams coordinating closely with the Project Manager on project related matters and has primary responsibility for oversight of the requirements definition, design synthesis and system validation during the full life-cycle. The AITC manages a large and diverse project portfolio and the Senior Systems Specialist may be deployed on several projects simultaneously..

Role Statement:

Under broad direction, working with a degree of autonomy, the Senior Systems Specialist focuses on requirements analysis, interface definition, compliance, design synthesis and system validation while considering the operational, cost and schedule, performance, training and support, test, manufacturing, and disposal constraints, i.e. ensuring delivery of a quality product that meets the user needs.

The Senior Systems Engineering will:

- Manage complex technical development projects and tasks from concept through to implementation and be responsible for the subsequent assembly, integration and test;
- Development, assessment, oversight, control of the system requirements, interfaces and system/subsystem specifications;
- Manage the system level architecture, design, development and technical processes to ensure the full lifecycle requirements are met, including the design, development, manufacture, assembly, integration, testing, shipping, commissioning, operations, maintenance/repair and disposal phases;
- Manage the system function and performance verification and validation. Also contribute to the commissioning, enhancement, and optimisation of instrumentation;
- Oversee the development of an end-to-end system performance model, used to assist with technical trade-offs and performance expectation management;

- Contribute to the development of budgets and schedules for assigned project tasks, ensuring budget is meet and risks are mitigated whilst ensuring that systems are delivered within cost, schedule and meeting technical requirements;
- Contribute to new project proposals, applying system engineering knowledge to develop work plans covering; cost, resource implications and test needs;
- Provide systems advice to project managers, facilitate interdisciplinary design solutions, and provide solutions guidance and mentoring to design specialists and technical support staff;
- Maintain a working knowledge both of best-practice procedures in the context of prototype and one-off constructions, and an awareness of relevant state-of-the-art technologies that might be applied to astronomical or space research within the context of AITC operations management procedures;
- Prepare technical documentation and contribute to the preparation of descriptive articles for general publication;
- Comply with, maintain an awareness of and help promote all ANU policies and procedures and in particular those relating to work health and safety and equal opportunity, including a demonstrated high level of understanding of equal opportunity best practice and a commitment to their application in a university context;
- Perform other duties as requested, consistent with the classification level of the position and in line with the practice of multi-skilling.

SELECTION CRITERIA:

- Progress towards postgraduate qualifications Science, Engineering or related discipline and a minimum of four years relevant experience OR an equivalent combination of relevant experience and/or education/training. Qualifications and experience working in structured systems engineering environments and/or the field of astronomical instrumentation would be favourably regarded.
- Demonstrated proficiency and experience in complex instrument or aerospace systems design including; requirements development, prototyping, build/manufacture and system validation. Experience in commissioning and maintenance of complex systems, preferably in the context of astronomical instrumentation is highly desirable.
- Experience with Model Based Systems Engineering processes and software (such as MagicDraw) would be highly regarded.
- High level of interpersonal, liaison and negotiation skills with demonstrated effective communication skills and experience with demonstrated experience working with customers, industry partners, suppliers and contractors.
- Proven high level of written communication skills with the ability to develop and contribute to material for publication in technical literature
- Experience in project cost development including; resource estimation, project timelines and dependencies, and risk estimation and mitigation.
- Proven ability to work flexibly, prioritise work to meet conflicting deadlines, and to quickly adapt to new environments including a demonstrated ability to use initiative, apply sound judgement and work with minimum supervision individually and within a team environment.
- A demonstrated high level of understanding of equal opportunity (EO) best practice and a commitment to the application of EO policies in a university context.

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Position No.	**TBC**	**Reference No.**	

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lifting, manual handling	☐	☐	work at heights	☐	☐
repetitive manual tasks	☐	☐	work in confined spaces	☐	☐
Organizing events	☐	☐	noise / vibration	☐	☐
fieldwork & travel	☐	☐	electricity	☐	☐
driving a vehicle	☐	☐			
NON-IONIZING RADIATION			**IONIZING RADIATION**		
solar	☐	☐	gamma, x-rays	☐	☐
ultraviolet	☐	☐	beta particles	☐	☐
infra red	☐	☐	nuclear particles	☐	☐
laser	☐	☐			
radio frequency	☐	☐			
CHEMICALS			**BIOLOGICAL MATERIALS**		
hazardous substances	☐	☐	microbiological materials	☐	☐
allergens	☐	☐	potential biological allergens	☐	☐
cytotoxics	☐	☐	laboratory animals or insects	☐	☐
mutagens/teratogens/ carcinogens	☐	☐	clinical specimens, including blood	☐	☐
pesticides / herbicides	☐	☐	genetically-manipulated specimens	☐	☐
			immunisations	☐	☐

OTHER POTENTIAL HAZARDS (please specify):

Supervisor/Delegate Name:	*David Brodrick*	**Date:**	*February 2023*