



## POSITION DESCRIPTION

<b>Position Title:</b>	Senior RF Engineer
<b>Cluster / Business Unit / Division</b>	NSTLI - Clayton Campus
<b>Section or Unit:</b>	Accelerator Physics and Operations
<b>Classification:</b>	Band 6
<b>Position Description Number:</b>	PD-1834
<b>Work Contract Type:</b>	Technical

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### POSITION PURPOSE

The Senior RF Engineer will contribute to the design, development and troubleshooting of the accelerator RF systems to enhance capabilities of the accelerator systems and will support the research activities of the Accelerator group. The role work closely with the Principal RF Engineer to support the maintenance and reliability of the RF systems and conceptualise engineering solutions in collaboration with the Synchrotron engineering groups.

### ORGANISATIONAL ENVIRONMENT

ANSTO leverages great science to deliver big outcomes. We partner with scientists and engineers and apply new technologies to provide real-world benefits. Our work improves human health, saves lives, builds our industries and protects the environment. ANSTO is the home of Australia's most significant landmark and national infrastructure for research. Thousands of scientists from industry and academia benefit from gaining access to state-of-the-art instruments every year.

The Australian Synchrotron (AS) is a division within the Australian Nuclear Science and Technology Organisation (ANSTO) and one of the nation's premier science facilities that provides a vibrant focal point for researchers from Australia, NZ and further afield. The facility provides world-leading technical capability that delivers better and faster experimental techniques that enhance current fundamental and applied research. The facility promotes international collaboration to enable leading edge R&D that will greatly benefit Australia and our regional neighbours.

The Accelerator Physics and Operations group is responsible for the operation, maintenance and development of the accelerator systems and performs research and development aimed at improving their reliability and performance.

### ACCOUNTABILITIES & RESPONSIBILITIES

#### Key Accountabilities

- Provide specialised advice and skills on the accelerator RF Systems to the group to ensure that knowledge is transferred within the group and to allow for the timely and efficient rectification of problems
- Support the reliable operation of the RF systems to ensure beam availability.
- Develop the capability and capacity of the RF systems in order to meet future machine requirements
- Continuously review and optimise the existing systems with regards to factors such as running cost, ease of maintenance, availability of spares and reliability.
- Work closely with the accelerator operations group to implement advanced technologies, diagnostic tools or modes of operation.
- Understand the applicable safety regulations and ensure the RF systems are compliant and associated risks are identified.

- Support and participate in group research activities, particularly where it relates to development of RF technology.
- Regularly communicate with national and international organisations and industries to stay abreast of developments in the field.
- Participate in scientific conferences workshops and meetings and publish results in internal notes, proceedings and journals.
- Develop, document, maintain and ensure availability of procedures, drawings, standards, specifications and other required documentation including continuous improvement.
- Ensure engineering drawings are kept accurate and up to date for the accelerator RF Systems to allow for the provision of a more streamlined drawing retrieval system and to reduce the length of unplanned maintenance works.
- Supervise, educate and mentor other engineers, physicists, technicians and operators in works relating to the RF systems to ensure knowledge transfer of RF systems within the facility.
- Undertake additional duties as required and during period of leave of other staff.

### Decision Making

- Day to day priorities on assigned projects and tasks.
- Technical decisions which do not affect other members of the group or the project's deliverables.
- Determining the adjustment of operational systems in response to changes in performance.
- The position is fully accountable for the accuracy, integrity and quality of their work.
- The position works within a framework of legislation, policies and professional standards. Within this framework the position has independence in determining how to achieve objectives, including deciding on methods and approaches, project planning and allocation of resources.
- The levels of authority delegated to this position are those approved and issued by the Chief Executive Officer. All delegations will be in line with the ANSTO Delegation Manual AS-1682 (as amended or replaced).

### Key Challenges

- Keeping abreast of recent developments in field, ensuring continual improvement and implementation of best practise.
- Improving customer service, response times and delivery efficiencies; and troubleshooting complex systems in short periods of time to minimise disruption to users
- Making complex engineering decisions based on many factors which are unique to this facility and therefore may require modifications to proven engineering solutions.
- Maintain effective relations and communication with clients, vendors, team members, engineers in other teams, and collaborators
- Requirement to communicate across engineering and scientific disciplines. Interpret scientific requirements and translate them to a system specification. Develop, apply and maintain standard solutions
- Carrying out work in a heavily regulated environment ensuring the successful completion of tasks whilst managing conflicting priorities and deadlines

### KEY RELATIONSHIPS

Who	Purpose
<b>Internal</b>	
Manager Accelerator Physics	<ul style="list-style-type: none"> <li>• Receive guidance and direction</li> <li>• Provide expert, authoritative and evidence based advice</li> <li>• Staff engagement and quality recruitment</li> </ul>

	<ul style="list-style-type: none"> <li>• Negotiate and report on budgets and resources consistent with strategic plans and goals</li> <li>• Recommend and gain endorsement for plans and goals and other initiatives</li> </ul>
Accelerator Physicists and Operators	<ul style="list-style-type: none"> <li>• Daily/weekly or as required to deliver engineering solutions as and when required, to be mentored/trained in accelerator technology and new conceptual designs review of any operational issues as required</li> </ul>
Engineers and Technicians	<ul style="list-style-type: none"> <li>• Engineers, frequently as required to provide technical support and specification of interdisciplinary technologies and integrity, including electronic designs, controls, electrical and mechanical areas</li> <li>• Technicians, frequently as required to provide technical support and guidance for supply, manufacture, testing and implementation of technical solutions</li> </ul>
<b>External</b>	
National and International science facilities and universities	<ul style="list-style-type: none"> <li>• As required, to collaborate in specific projects, conferences and workshops, technical advice and maintain professional contacts/networks Purpose</li> </ul>
Students	<ul style="list-style-type: none"> <li>• Support students experiments and assist in supervision of students</li> </ul>

## POSITION DIMENSIONS

### Staff Data

Reporting Line	Reports to the Manager, Accelerator Physics
Direct Reports	Nil
Indirect Reports	Visiting students

### Financial Data (2017/2018)

Revenue / Grants
Operating Budget
Staffing Budget
Capital Budget
Assets

### Special / Physical Requirements

Location:	Clayton Working in different areas of designated site/campus as needed
Travel:	May be required travel to ANSTO sites from time to time Some travel both internationally and nationally
Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Standing for long periods Frequent movements (climbing, stooping, kneeling, crouching, crawling) Working in a loud environment Public speaking Wearing personal protective equipment for the handling of hazardous and/or radioactive materials Working in confined space environment including wearing respiratory equipment

Radiation areas:	May be required to work in radiation areas under tightly regulated conditions Perform duties in an area where radioactive materials are handled under tightly controlled safety conditions Perform duties with and in an area where hazardous chemicals or materials are handled under tightly controlled safety conditions
Hours:	Willingness to work extended and varied hours based on operational requirements After hours work may be required for short and infrequent periods
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements Obtain and maintain appropriate federal government clearance

### **Workplace Health & Safety**

Specific role/s as specified in <u>AG-2362</u> of the ANSTO WHS Management System	All Workers Officer (definitions found in appendix 1 of AG-2362) Group Executive / General Manager Managers / Leaders / Supervisors Other specialised roles identified within the guideline a position holder may be allocated to in the course of their duties
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### **ORGANISATIONAL CHART**

Ref published Organisation Chart

### **KNOWLEDGE, SKILLS AND EXPERIENCE**

1. Degree level or equivalent experience in RF, telecommunication and Electronics / Electrical Engineering or Physics
2. Several years demonstrated practical experience working with RF systems for particle accelerators.
3. Ability to maintain and troubleshoot RF systems and pro-actively solve problems in a logical, systematic and methodical way, using an innovative approach.
4. Demonstrated experience in low and high power RF, RF diagnostics, measuring techniques and simulation.
5. Demonstrated experience delivering small to medium RF projects.
6. Well developed, effective oral and written communication skills together with demonstrated ability to work and communicate effectively with others.
7. Proven track record in maintaining a safe and respectful environment that fosters open collaborations, innovation and a productive exchange of ideas.
8. The ability to work autonomously and flexibly, adapting quickly to respond to unforeseen events.
9. Demonstrated ability to read complex and detailed electrical design schematics
10. Knowledge in any of the following fields will be considered desirable: accelerator physics, RF simulation tools and accelerating structures, analogue and digital processing, microprocessor applications, low level RF, high voltage measuring techniques, system engineering

**VERIFICATION**

This section verifies that the line manager and appropriate senior manager/executive confirm that this is a true and accurate reflection of the position.

<b>Line Manager</b>		<b>Delegated Authority</b>	
Name:	Rohan Dowd	Name:	
Title:	Manager, Accelerator Physics	Title:	
Signature:		Signature:	
Date:		Date:	