Australian Government

ANSTO
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POSITION DESCRIPTION

Position Title:	Mechanical Engineer
Cluster / Business Unit / Division	Clayton Campus
Section or Unit:	Engineering
Classification:	Band 4/5 (Linked Role)
Position Description Number:	PD-1846
Work Contract Type:	Professional, Technical

POSITION PURPOSE

The role of Mechanical Engineer is to take an active role in supporting the operational and project delivery needs of the facility. To succeed, the role will require sound skills in the development of engineering design concepts, detailed design skills utilising CAD and engineering analysis techniques - and excellent communication skills to interpret performance requirements into engineering specifications and designs. The role is required to take a hands-on approach in the implementation of assigned work into general operations.

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 Engineering Group at the Synchrotron provides comprehensive engineering, technical, safety, reliability, design, build and maintenance services, delivering engineering solutions to the Beamline Science Group including supporting the delivery of major capital programs and engineering upgrades. The Engineering Group comprises of the Mechanical Engineering Team, Mechanical Technicians Team, Electrical Engineering Team and the Facilities Team including Plant maintenance.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities – Band 5

- Develop engineering concepts and detailed designs of scientific instrumentation to be incorporated into the accelerator and beamline systems.
- A high degree of competency in the use of engineering software tools such as 3D CAD, finite element analysis software and the ability to quickly learn the use of software tools unique to synchrotron and beamline applications.

- Create appropriate engineering documentation to ensure design work is accurately specified, described, analysed and reviewed. This encompasses documentation such as technical specifications, 3D engineering models, engineering calculations, design review reports, risk assessments etc.
- Take ownership of assigned operational duties required of the Engineering Department such as designing hardware to improve the performance of beamline or accelerator equipment already in service.
- Be the assigned engineer to a project team and be responsible for the engineering input and deliverables. Where required, be the project point of contact to bring into the project team advice and expertise of other engineering staff.
- Support the work of other engineering staff by being assigned a subset of work or design tasks and working under their guidance; or be part of a review such as design or risk assessment reviews.
- Oversee and where required supervise the manufacture of parts and systems being manufactured externally or in-house.
- Ensure smooth and reliable integration of newly purchased systems or hardware into existing accelerator and beamline systems.
- Project manage small engineering projects.
- Ensure facility engineering standards are applied where practical and work collaboratively with other engineers, technicians and scientists for the purpose of developing and delivering fit for purpose solutions in an efficient manner.
- Develop and maintain collaborative relationships with internal and external subject matter experts in the interest of utilising their expertise in assigned work.
- Undertake additional duties as required and during period of leave of other staff.

Key Accountabilities – Band 4

- Develop engineering concepts and detailed designs of scientific instrumentation to be incorporated into the accelerator and beamline systems under direction from senior engineers.
- Develop proficiency in the use of engineering software tools such as 3D CAD, finite element analysis software and the ability to quickly learn the use of software tools unique to synchrotron and beamline applications.
- Create appropriate engineering documentation under supervision to ensure design work is accurately specified, described, analysed and reviewed. This encompasses documentation such as technical specifications, 3D engineering models, engineering calculations, design review reports, risk assessments etc.
- Be an assigned engineer to a project team and be responsible for the engineering input and deliverables. Where required, be the project point of contact to bring into the project team advice and expertise of other engineering staff.
- Support the work of other engineering staff by being assigned a subset of work or design tasks and working under their guidance; or be part of a review such as design or risk assessment reviews.

Decision Making (Band 5)

This role makes decisions related to:

- Utilise judgement and training to propose solutions to technically challenging scenarios.

- Decide implementation and engineering test and verification strategies of assigned work.
- Maintenance strategies for systems and equipment.
- Daily prioritisation of assigned operational and project tasks.
- Decisions on corrective technical solutions to manage engineering changes required in the course of project delivery or operational support.
- 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).

Decision Making (Band 4)

This role makes decisions related to:

- Utilise judgement and training to propose solutions to technically challenging scenarios.
- Propose implementation and engineering test and verification strategies of assigned work, seeking guidance from subject matter experts when required.
- Daily prioritisation of assigned operational and project tasks.
- Propose corrective technical solutions to manage engineering changes required in the course of project delivery or operational support.
- 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

- Propose engineering solutions requiring a sound understanding of a broad range of engineering topics and theory - often done in an environment of 'one offs' requiring an appropriate approach to engineering risk management such as use of simulation, prototyping, etc.;
- Propose solutions for technical systems that may impact aspects of facility wide on issues such as cost of ownership, standardisation, system function and performance. Proposed solutions may require the use of sound assumptions due to lack of clarity of requirements or information, proposals are generally reviewed prior to implementation.
- Interpretation of scientific requirements into engineering technical requirements from which solutions will be based. Often this will require a good understanding of the scientific principals associated with the beamline and accelerator systems.
- Developing a technical skill set in a given area and knowledge of beamline and accelerator technology suitable for delivery of the tasks/projects required of the Engineering Department.

Requirements for transition from Band 4 to Band 5

- In addition to the relevant qualification a minimum of 3 years performing Band X accountabilities.
- Demonstrated technical competency through successful delivery of project based work.
- Demonstrated capability to responsibly deliver design work including supporting calculations and simulations by exercising sound technical judgement with an increasing level of independence.
- Ability to apply knowledge and experience relevant to the design of precision mechanical systems.
- Demonstrated ability to conform to all ANSTO business management policies and procedures.

- Demonstrated commitment to provide feedback and contributions to the process of continual improvement.

KEY RELATIONSHIPS

Who	Purpose
Internal	
Department Sr. Managers / Manager	• Regularly, or as required to discuss 'beyond the norm' needs to complete a project or task, priorities where higher level input is required and to provide advice on technical feasibility/practicality on challenges relevant to their areas of responsibility.
Members of the team and other engineering groups	• As required to provide expert technical advice and guidance depending on the scope of work carried out
Beamline scientists	• Weekly or as often as required to provide expert technical advice; discuss assigned projects and keep them informed on progress, challenges, and request clarification of performance requirements. Identify possible solutions; communicate perceived technical problems on a Beamline before they happen; provide suggestions, solutions and troubleshoot as required
External	
Experts/colleagues at other facilities	• As required depending on requirements to maintain knowledge of technical developments at other facilities which may be relevant and transferrable. Seek and provide advice as required
Specialist contractors/suppliers	• Monthly, or as required to seek specialist services or advice to purchase specialist equipment

POSITION DIMENSIONS

Staff Data	
Reporting Line	• The role of Mechanical Engineer reports to Senior Manager Engineering
Direct Reports	• This role has no direct reports
Indirect Reports	• The Mechanical Engineer may at times be required to support technicians in the provision of technical advice or technical priorities during the implementation phase of a project.

Special / Physical Requirements	
Location:	Clayton Working in different areas of designated site/campus as needed
Travel:	May be required to travel to ANSTO sites interstates May be required to travel internationally
Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Labour intensive physical requirements (sitting, standing, frequent manual handling up to 20kg) Working in a loud environment Public speaking Industrial facility physical requirements (lifting, standing for long periods, operating machinery, equipment and manipulators) Wearing personal protective equipment for the handling of hazardous and/or radioactive materials

Radiation areas:	May be required to work in radiation areas under tightly regulated 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 AG-2362 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

ORGANISATIONAL CHART

Ref published org chart

KNOWLEDGE, SKILLS AND EXPERIENCE

Band 4- Essential

1. Degree level in Mechanical Engineering, Mechatronics Engineering or equivalent
2. Basic understanding of engineering software tools such as 3D CAD and Finite Element Analysis packages.
3. General understanding of effective engineering design concepts applicable to precision mechanics and their automation.
4. Basic understanding of engineering materials and their suitable applications
5. The ability to effectively communicate with other engineers, subject matter experts including workshop staff.

Band 5 - Essential

1. Degree level or higher in Mechanical Engineering, Mechatronics Engineering or equivalent with demonstrated industry experience.
2. Trained in the use of engineering software tools such as 3D CAD and Finite Element Analysis packages.
3. Sound understanding of effective engineering design concepts applicable to precision mechanics and their automation.
4. Sound understanding of engineering materials and their suitable applications
5. Ability to identify suitable manufacturing techniques of custom components.
6. Ability to quickly understand scientific concepts in X-ray and accelerator physics to a sufficient level where design decisions can made understanding pros, cons and consequence.
7. The ability to effectively communicate with, influence and collaborate with people at all levels including various technical groups and other experts in their field.

8. The ability to work autonomously
9. Basic knowledge of project management methodologies.

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.

Line Manager		**Delegated Authority**	
Name:	NA	Name:	Brad Mountford
Title:	Manager Mech Eng	Title:	Senior Manager, Engineering
Signature:		Signature:	
Date:		Date:	