



POSITION DESCRIPTION

Position Title:	Principal Mechanical Engineer
Cluster / Business Unit / Division	NSTLI, Clayton Campus
Section or Unit:	Engineering - Mechanical
Classification:	Band 7
Job Family	Engineering and Technical
Position Description Number:	1847
Work Contract Type:	Technical, Professional
STEMM/NON-STEMM:	STEMM

POSITION PURPOSE

The Principal Engineer is responsible for providing technical leadership, subject matter expertise and consultancy services to internal stakeholders, team members and management across the facility. The area of specialist expertise may be associated with a particular skill, technical area or knowledge required in the delivery of engineering projects or initiatives. The Principal Engineer may be responsible for the ongoing development and support of a technical system or sub system in which case they will assume facility wide technical accountability of the system.

The particular area of technical expertise of the Principal Engineer will generally be considered unique in the context of general industry and ANSTO.

ORGANISATIONAL ENVIRONMENT

ANSTO is the national organisation for nuclear science and technology. We focus on undertaking leading edge research, delivering innovative scientific services and providing specialised advice to government, industry, academia and other research organisations.

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

- Providing subject matter expertise, focus and leadership for a specialist skill, technology or knowledge base unique to industry required across the facility, to support the development and ongoing operation particle accelerators and beamlines.
- Technical system ownership and responsibility encompassing long term strategy development, asset management, lifecycle planning and budget planning. Providing expert technical advice to

users of the system and creating technical concepts in the interest of developing new technology or functionality

- Employing engineering best practice, selecting technology solutions and ensuring standard solutions are implemented across the facility, including responsibility for documentation of the options considered, selection criteria and assessment against criteria.
- Develop and maintain mutually beneficial collaborative relationships with subject matter experts, peers in industry and other synchrotron facilities in the interest of keeping informed of latest advancements and industry trends, applying this knowledge to improve the facility, transferring knowledge and ensuring the AS remains competitive internationally.
- Ensure the technical safety of a technical system for which the Principal is responsible for. Responsibilities may include verification by calculation, adherence to Australian Standards and other legal/regulatory requirements, developing safe work procedures, education and training of staff and appropriate record keeping.
- Carry out advanced engineering analysis more akin to a purely scientific role in the interest of solving advanced technical challenges often involving knowledge of X rays, magnetics, precision mechanics and advanced metrology techniques.
- Develop, maintain and deliver conceptualize advanced engineering solutions, detailed design of scientific instrumentation to be used in a radiation environment and to take the concept through to delivery encompassing analysis, design, hands on build, commissioning, testing and implementation.
- Project management including planning, delegation and execution of large scale projects with multi-disciplined engineering aspects to ensure timely delivery
- Mentoring and coaching of junior members of the team and in the context of a facility wide initiatives in the interest of contributing to their professional and technical skills development.

Decision Making

This role makes decisions related to:

- Priorities on assigned projects and tasks e.g. technical design direction, implementation and testing strategies.
- Daily delivery of knowledge specific to their area of expertise.
- Prioritisation of project and non-project (operational) tasks
- Policy, process and procedure decisions within the area of expertise.
- Technical system responsibilities or subject matter expertise which will have impact at the facility wide level and be a major influence in technical aspects of the facility into the future.
- Definition of roles and responsibilities for safety aspects of their technical system. Including levels of authorization for work with safety implications.
- Identification of future developments, conceptual designs and projects in the interest of advancing the reliability of systems they are accountable for.
- Decisions on corrective actions to deal with incidents that have caused disruption to operations
- Influencing the decisions of senior managers e.g. resourcing of projects and solutions to problems.
- 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

- Make complex technical engineering decisions which may have high impact based on advanced engineering techniques and theory. Often this will be done in an environment of 'one offs' requiring an appropriate approach to risk management strategies such as simulation, prototyping, etc;
- Propose solutions for technical systems which may impact facility wide on issues such as cost of ownership, standardisation, system function and performance.
- 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 challenge being set by the beamline or accelerator.
- Maintain a position of technical expert while maintaining a wide breadth of knowledge in beamline and accelerator technology suitable for tasks/projects to be assigned which may sit within their expert knowledge.

KEY RELATIONSHIPS

Who	Purpose
Internal	
Department Head / Manager	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • As required to provide expert technical advice and guidance depending on the scope of work carried out
Beamline scientists	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Monthly, or as required to seek specialist services or advice to purchase specialist equipment

POSITION DIMENSIONS

Staff Data	
Reporting Line	Principal Engineer reports to the Senior Manager, Engineering
Direct Reports	This role has no direct reports
Indirect Reports	The Principal Engineer may be assigned a delivery / project team or an individual to deliver a scope of work and will be required to monitor progress, quality of work and take ultimate responsibility for the outcomes. Leadership responsibilities also extends to management and responsibility for contractors, interns, work experience students and their work.

Financial Data (2015/2016)	
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 to travel to ANSTO sites interstates May be required 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) 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

AS Organisation Chart

KNOWLEDGE, SKILLS AND EXPERIENCE

A Degree level or higher qualification in an Engineering discipline

Essential

1. A minimum of 10 years demonstrated and relevant engineering industry experience, at least 5 years of which would have involved working at the level of recognized expert
2. Demonstrated experience in a technical environment with advanced skills in complex design and development of complex and precision mechanical instrumentation.

3. Project management skills with proven ability and experience to lead sizable development projects.
4. Ability to quickly understand scientific concepts in X Ray and Accelerator physics to a sufficient level where design decisions can autonomously be made knowing and understanding the physics of the problem.
5. The ability to effectively communicate with, influence and collaborate with people at all levels including various technical groups and other experts in their field.
6. The ability to work autonomously

Desirable

1. Experience in a science environment or expert knowledge and skill unique to partial accelerators and X ray environments
2. Formal Project Management qualification

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:	Brad Mountford	Name:	Andrew Peele
Title:	Senior Manager, Engineering	Title:	Director , Clayton Campus
Signature:		Signature:	
Date:		Date:	