Role Description
Senior Design Engineer Protection & SCADA

Agency	**Sydney Trains**
Division/Branch/Unit	Engineering & Maintenance / Engineering System Integrity (ESI)
Location	Clyde Hub, Auburn NSW
Role Grade or Band	RC6
Senior Executive Work Level Standards	Not Applicable
Kind of Employment	Permanent Full Time
Role Number	51015750
ANZSCO Code	233311
PCAT Code	1229192
Job Code	81000316
Health Assessment Category - Safety	Category 3
Vision	Nil
Hearing	Category 3
Date of Approval	
Agency Website	www.sydneytrains.info

Agency overview

Sydney Trains provides train services throughout the Sydney metropolitan area and was established in July 2013. It's vision is to keep Sydney moving by putting the customer at the centre of everything it does and delivering safe, reliable and clean rail services to the people of Sydney. The organisation is focused on providing sustainable, efficient and cost effective services.

Primary purpose of the role

Senior Engineers provide Sydney Trains with technical expertise and development of effective, timely, and evidence based technical solutions to engineering issues identified. They provide engineering advice and technical solutions consistent with current standards to a variety of internal and external interfaces in order to maximise the safety and reliability of relevant Sydney Trains asset classes throughout the asset lifecycle.

The Senior Design Engineer Protection & SCADA develops all protection and control concept designs, review of internal protection designs, the review for acceptance of external protection designs and review of SCADA I/O schedules for use on RailCorp's electrical network. The role is responsible for the electrical protection and condition monitoring of RailCorp assets. Electrical protection ensures the safety of staff and the public in the event of faults, ensures that protection equipment operates when and as required to minimise interruptions to electrical supplies and train services. Condition monitoring enables engineers and system operators to make decisions using reliable and accurate real time and historical data. The senior engineer initiates investigations of all protection related incidents and provides advice on all protection designs, current and proposed. The role is required to provide verification and validation of protection designs and maintain integrity in the protection and condition monitoring of the Electrical network.

Key accountabilities

- Execute safety responsibilities, authorities and accountabilities consistent with Sydney Trains safety management system requirements which are defined in SMS document number SMS-02-RG-3058;
- Provide authoritative engineering advice on high voltage AC and DC traction power protection systems, SCADA I/O and power system analogs and prepare design briefs for high voltage protection and SCADA designs;
- Design high voltage protection concepts and review high voltage protection designs and SCADA I/O schedules produced by external designers;
- Assess and recommend approval of high voltage and DC protection equipment for use on the Sydney Trains network;
- Provide technical input to the production and maintenance of related engineering standards and in the preparation of RFT documents;
- Develop commissioning plans and methods for high voltage AC and DC traction power equipment to enable design validation;
- Contribute to high voltage power systems planning and solution development, assess tenders for substation equipment and investigate all major electrical system incidents involving protection;
- Evaluate concessions to standards for proposed protection configurations which do not comply with ASA standards.

Key challenges

- High level of network change;
- Interfacing and communicating with multiple organisations/divisions/groups within the Transport cluster ;
- Managing limited resources and competing priorities;
- Maintaining continuous self-development, technically and professionally.

Key relationships

Who	Why
Internal	
Technical Specialist Protection	• Reporting, advice sharing, planning
Principal Engineer, Power Systems	• Technical advice, planning
Principal Engineers across ESI	• Technical advice, planning
Senior Protection Engineer, NMD	• Technical advice, Commissioning support
Protection Technicians, NMD	• Technical advice, Commissioning support
Design Delivery Managers	• Planning
Interface Managers	• Planning
External	
ASA, I&S, TfNSW	• Reporting, advice sharing, planning
Energy companies such as Ausgrid, Transgrid and Endeavour Energy	• Planning

Role dimensions

Decision Making:

The position is fully accountable for the formulation of advice and coordination across all operational objectives.

Independent decision making requirements of the position include:

- Electrical network technical advice

Collaborative decision making requirements of the position include:

- Electrical network protection strategy;
- Electrical protection resource allocations;
- Electrical network operating instructions;
- Sydney Trains Engineering Instructions development.

Reporting line: This position reports to the Technical Specialist Protection, Electrical Engineering

Direct Reports: Nil

Budget/Expenditure: Nil

Essential Requirements

- Degree in electrical engineering;
- 10 years' experience in a relevant engineering discipline within a comparable public or private sector organisation;
- Knowledge of electrical AC and DC protection systems;
- Knowledge of SCADA systems;
- Knowledge of codes of practice, standards, policy, procedures and guidelines, relevant to power systems engineering;
- Demonstrated experience in Engineering design softwares;
- Demonstrated experience in AC & DC fault calculations, HV protection design, network operation, protection grading studies, and relay setting for AC and DC electrical networks;
- Demonstrated experience in construction and commissioning of HV protection systems and control;
- Demonstrated experience in interpretation and review of protection schematic diagrams

Capabilities for the role

The NSW Public Sector Capability Framework applies to all NSW public sector employees. The Capability Framework is available at www.psc.nsw.gov.au/capabilityframework

Capability summary

Below is the full list of capabilities and the level required for this role. The capabilities in bold are the focus capabilities for this role. Refer to the next section for further information about the focus capabilities.

NSW Public Sector Capability Framework		
Capability Group	**Capability Name**	**Levels**
	Display Resilience and Courage	Intermediate
	Act with Integrity	**Adept**
	Manage Self	Adept
	Value Diversity	Intermediate
	**Communicate Effectively**	**Advanced**
	Commit to Customer Service	Intermediate
	Work Collaboratively	**Adept**
	Influence and Negotiate	Intermediate
	Deliver Results	Adept
	Plan and Prioritise	Adept
	Think and Solve Problems	Adept
	Demonstrate Accountability	**Advanced**
	Finance	Intermediate
	Technology	**Adept**
	Procurement and Contract Management	Intermediate
	Project Management	Intermediate