

## Vacation Work Opportunities - RTSA Undergraduate Challenge 2016

The RTSA Undergraduate Challenge 2016 is a rail engineering competition hosted by the NSW chapter of the Railway Technical Society of Australasia (RTSA) for university students in New South Wales. Teams will be required to submit a 5-8 page project proposal within three weeks for a hypothetical rail project. Winners will be offered an interview for a summer vacation work placement at a reputable engineering company in the rail industry. See below for this year's vacation work sponsors.

**Students must register their teams of up to four by email to [rtsaunichallenge@gmail.com](mailto:rtsaunichallenge@gmail.com) by 1pm on the 5<sup>th</sup> August 2016. The email must include Team Name, Full Names of Team Members, Universities, Degree, and Intended Year of Graduation. The competition will run for 3 weeks commencing on the 8<sup>th</sup> August 2016.**

### Who Should Apply?

Students from a university in New South Wales who are studying an engineering degree of any discipline and in their penultimate or final year of study are encouraged to apply.

### What is Rail Engineering?

Rail engineering includes a variety of engineering disciplines that work together serving the design, construction, operation and maintenance of different types of railway systems. Some of the typical engineering disciplines are:

**Electrical Engineering** is responsible for high voltage substations, overhead power infrastructure and electrical services to all facilities such as train depots and stations.

**Rolling Stock Engineering** is responsible for the mechanical (brakes, wheels, bogies, etc) and electrical (wireless communications, electric traction, etc) components on board the railcars.

**Signalling, Communications and Control System Engineering** is responsible for the safety critical train authorisation system on the field, centralised train control systems and the communications network. Other engineering work also includes Public address systems, CCTV and radio.

**Civil Engineering** is responsible for the planning, design, construction and maintenance of track and structures infrastructure, tunnels, bridges and stations.



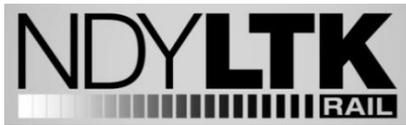
## What Are the Career Prospects in Rail Engineering?

### Working for Owner and Operators



Identify and establish business needs to develop business cases and budgets. Produce concept design to validate optioneering. Project manage infrastructure and maintenance works. Maintain and improve standards and practices.

### Working for Designers and Consultants



(Challenge Sponsor for 2016)



(Challenge Sponsor for 2016)



(Challenge Sponsor for 2016)

Explore options and develop business cases for clients. Identify inputs, limits and design criteria for safe and efficient operation and maintenance. Provide design for rail infrastructure including rail route and alignment, civil design, structural design, electrical/signalling and communications design. Validate and verify designs.

### Working for Contractors and Constructors



(Challenge Sponsor for 2016)



Deliver quality and cost effective construction on time and to budget. Project manage rail construction works including rail works, civil works and support services works. Provide ongoing maintenance and replacement works.

## What is RTSA?

The Railway Technical Society of Australasia (RTSA) is a joint Technical Society of Engineers Australia and The Institution of Professional Engineers New Zealand (IPENZ), formed to further the interests of the rail industry at large and its individual participants. The RTSA is a non-profit organization and was established in 1998 for the purpose of promoting the co-operation of academic, industrial, commercial and governmental organizations in relation to the practice and advancement of rail technology and management in Australasia.

The RTSA arranges an on-going program of events both nationally and regionally. These events include major initiatives such as the biennial Conference on Railway Engineering (CORE) and international study tours; scholarships and awards, as well as technical meetings, discussion groups, seminars, workshops, lectures, site visits and networking events. Membership is free for students. For more information, and to register, please visit <http://www.rtsa.com.au/>.