



Career in Railway Engineering

1. What is Railway Engineering?

Railway Engineering is the construction, maintenance and rehabilitation of the railway infrastructure due to the heavy train loads imposed on it. Every component (formation, ballast, sleepers, fastenings and the rail) is important in load distribution and must adhere to its design standards to allow for the safe passage of the trains without structural failures, and train derailments.

2. What does a Railway Engineers/ Planners do?

The overall objective for Railway Engineers, Technicians is to provide a safe, economic and available railway infrastructure by applying their engineering skills. The graduates must expect to do railway infrastructure condition assessment, identify various critical engineering problems, classify the problem, establish an engineering solution using principles learned at Academia level, and manage projects.

3. What are the challenges in Railway Engineering?

The major challenges for rail engineering are deviations from design standards and structural failures on the railway infrastructure components (drainage failure, formation failure, bridge and tunnel defects, soil erosions on embankments etc.), geometrical (rail wear, rail stresses, broken sleepers, missing fastenings, fouled ballast), which may result in major breakdowns and train derailments which have a negative impact on the safe operation of trains. Railway engineering is a much needed skill as the rail network in South Africa is great and new rail networks are being constructed and existing closed lines have reopened for business. This indicates rail networks are an integral part of our country's economic growth.

4. What does the future of Railway Engineering entail?

Entering the 4.0 industrial revolution the Railway Engineering is welcoming the industrial strategy to add digital capability to our rail networks. The vision is to create a Modern, reliable and efficient freight rail market in order to facilitate robust business and aid economic growth for the dawning Intra-Africa trading.

5. Can you list a few typical projects that I might work on as a Railway Engineer?

- Asset condition assessment
- Design
- Contract Management
- Financial management
- Projects (Ballast screening, sleeper replacement, turnout replacement, rail grinding, rail stress management, rail replacement, bridge maintenance, formation, embankment rehabilitation, access road rehabilitation, and drainage rehabilitation)
- Preventative and Routine maintenance

6. How do I become a Railway Engineer?

BSc in Civil Engineering; B-Tech Degree Civil Engineering

7. I do not have a degree in Civil Engineering. What next, if I'm interested in Transportation Engineering?

One would need to enrol at a University or Technical college and study Civil Engineering, which may take about a minimum of three years.

8. Contact details of the division.

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