

*Wherever safety and Security are Critical, Thales delivers. Together, we innovate with our customers to build smarter solutions. Everywhere.*

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**Position Title:** Software Analyst (C++)  
**Department:** UK Projects - Software Engineering  
**Location:** Toronto (Don Mills/York Mills)

### Job Purpose:

To provide design, analysis & programming in the development of software for train control systems of Thales Rail Signalling Solutions. To plan & direct work within the software team & provide technical guidance to other analysts

### Key Job Functions:

- Understands & follows the company's processes & procedures for developing vital software
- Implements real time systems in 'C++'
- Produces the software requirements analysis, designs, codes, debugs, write test procedures & tests software code.
- Reviews software requirements analysis, designs, code, test procedures & test results
- Chairs design reviews
- Analyses, implements correction & reviews defect reports
- Perform engineering testing in the field & investigates problems in the field.
- Provides input for cost estimates & bid estimates
- Provides on the job training of staff
- Assists in providing leadership & motivation to staff
- Prepares reports, giving findings on problems



- Prepares & implements low level plans, schedules & budgets for software projects

## Key Skill Requirements:

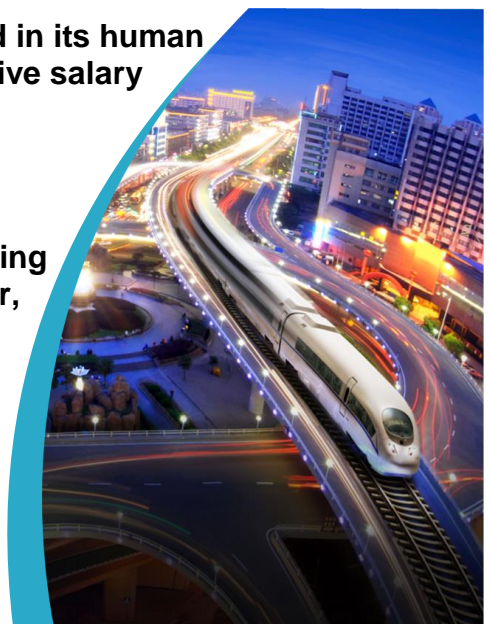
The successful candidate should possess an **Electrical Engineering / Computer Science** degree or equivalent.

- 2-5 years of relevant work experience
- Knowledge of software development environment (desktop simulator, target simulator, maccabe, etc)
- knowledge of software architecture
- Knowledge of standards and processes as described in the departmental Software Developer's Guide
- Knowledge of railway signalling techniques
- Business travel

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**Position Title:** Software Analyst (C)  
**Department:** Software Engineering  
**Location:** Toronto (Don Mills/York Mills)

### Job Purpose:

To perform design, analysis, programming & integration activities in the development of software for train control systems of Thales Rail Signalling Solutions.

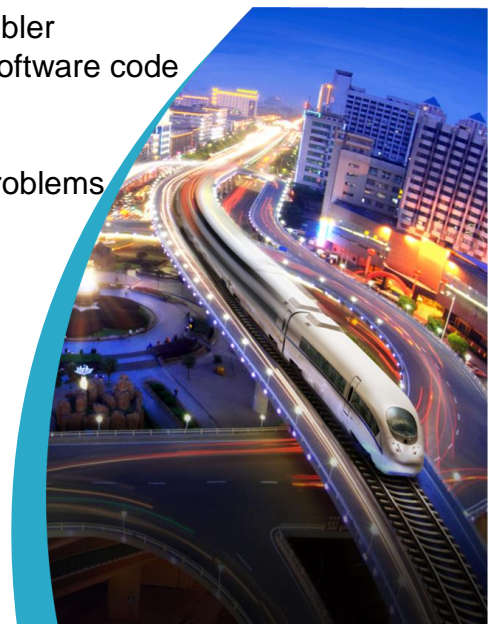
### Key Job Functions:

- Understands & follows the company's processes & procedures for developing vital software
- Implements real time systems in 'C' & with some Assembler
- Designs, codes, debugs, write test procedures & tests software code
- Reviews code, test procedures and test results
- Analyses & implements correction for defect reports
- Perform engineering testing in the field & investigates problems in the field
- Provides some input for cost estimates.
- Assists in on the job training of staff

### Key Skill Requirements:

The successful candidate should possess an **Electrical Engineer / Computer Science** degree or equivalent.

- 2-5 year of relevant work experience
- Knowledge of software development environment (desktop simulator, target simulator, mcsim, etc.)



- knowledge of software architecture
- Knowledge of standards & processes as described in the departmental software Developer's Guide and applicable to the development of safety critical software
- Knowledge of railway signalling techniques (*with exception of new hire – to be trained*)
- Some business travel required

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**Position Title:** Software Analyst  
**Department:** Research & Technology  
**Location:** Toronto (Don Mills/York Mills)

### Job Purpose:

Research & Technology is the process by which Thales derisks new technology for insertion into future products. As a Technical Specialist in this department, you bring your expertise in software development to build, test & evaluate prototypes supporting the proof-of-concept for R&T projects in the urban rail signaling domain.

- To understand the goal of a research project & support its execution
- To perform analysis of lab & field test results
- To document results, designs & tradeoffs
- To develop expertise in railway signaling & learn the product offering of Thales

### Key Job Functions:

- Design, code, integrate & test software applications required to support various R&T projects
- Conceptual & detailed designs of systems / portion of systems.
- Perform design implementation of programs & tests identifying errors & omissions in requirements & ensures that they are resolved
- Prepares reports, giving findings on problems
- Prepares low level plans, schedules & budgets for software projects.



- Provides assistance in developing software capabilities required to support design effort
- Provides support to product team & other departments as required
- Analyses & write requirements using Company standard methodology
- Designs software based on Company standard methodology
- Keeps abreast of relevant technology developments
- Understands & follows the company's processes & procedures for developing vital software
- Implements real time systems in 'C++' using Visual Studio
- Produces & reviews the software requirements analysis, designs, codes, debugs, write test procedures & tests software code
- Perform design reviews per R&T lifecycle
- Assists in providing leadership & motivation to staff

## Key Skill Requirements:

You will possess a Bachelor/Masters/PhD in **Computer Science**.

- 2-5 years relevant work experience / equivalent
- Knowledge of railway signalling techniques would be an asset
- Excellent command of English, both written & verbal
- Must have experience of the entire software development lifecycle
- Experienced in C++
- Knowledge of C#, Javascript, TypeScript, SQL an asset
- Proficiency with a least one scripting / productivity language such as Ruby / Python
- Knowledge of National Instruments / Labview an asset
- Experience with GPU acceleration using OpenCL / CUDA an asset
- Proficiency in Linux an asset

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**Position Title:** Safety Specialist  
**Department:** RAMS Engineering  
**Location:** Toronto (Don Mills/York Mills)

### Job Purpose:

- To provide RAMS engineering expertise & analysis in the development & implementation of Advanced Train Control Systems.
- To perform safety design, analysis, modeling & simulation to specify & verify train control systems developed at Thales are safe to operate
- To define ATC System Safety Requirements
- To analyze & evaluate designs to verify compliance with safety requirements
- To track & record the closure of all processes & tests that verify the safety of the delivered hardware & software

### Key Job Functions:

- Perform peer review of key safety deliverables & artifacts
- Review of all Safety Risk; Safety Hazard, Pending Hazard SCRs related to their product and/or projects to ensure consistent & thorough assessment & analysis by Project Safety Specialists & to ensure safety defects with broader implications are cloned & managed correctly.
- Represent Safety in technical meetings involving safety-related issues. Participate in, influence & approve design decisions impacting / potentially impacting safety.
- Attend the bi-monthly Systems Technical Review for their respective Product and/or Project areas.



- Review of the Hazard Log & associated Hazard Analysis performed on the CBTC equipment;
- Trains, leads & supervises more junior members of the Rams Engineering Group.
- identify with adequate anticipation risks & opportunities & propose mitigation actions
- Prepares system & subsystem safety requirement specifications, interface requirements & test requirements by analyzing & decomposing customer requirements.
- Technical trade off evaluations are performed to identify the system safety engineering design choices with associated advantages & disadvantages.
- Evaluates the compliance & safety of designs with safety engineering requirements by review of technical specifications, designs & designs changes for both HW & SW & suggests design alternatives where appropriate to enhance safety based on a knowledge of design feasibility & the safety requirements. Represent RAMS Engineering & provides evaluations & recommendations with respect to safety in formal design reviews.
- Define safety requirements by evaluating & defining railway operational hazards that could be caused by the ATC system.
- Verifies the safety of both hardware & software products & the system by performing:
  - 1. Failure Modes Effects & Criticality Analysis (FMECA) - Fault Tree Analysis (FTA)
  - 2. Hazard Analysis - Event Tree Analysis - Operating & Support Hazard Analysis (O&SHA).
- Assures that safety requirements are met by participating in hardware, software & field testing (as required).
- Supervises other Safety Engineers & consultants by defining their work, coaching them on how & what to prepare, monitoring their progress & directing them on priorities
- Supervises consultants by defining their work, coaching them on who & what to prepare, monitoring their progress & directing them on priorities.
- Resolves safety related issues by participating in the Safety Committee, as required.
- Ensures that safety can be verified. Approval of test documentation
- Prepares Safety Reports that document that Project Safety requirements have been met. Safety test procedures & test results are reviewed & checked to confirm compliance with the requirements. Software process records, operational restrictions & safety analyses are similarly reviewed, checked & identified in the report.



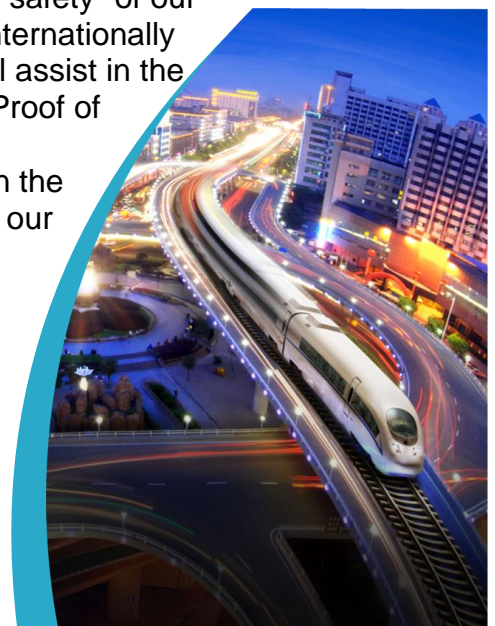


- Reporting directly to the Manager RAMS Engineering, having direction from the Group Lead RAMS Engineering & Technical Safety Specialist & work closely with other team members, both inside the Safety team & from other functional teams, to meet the project objectives.

## Key Skill Requirements:

The successful candidate should possess an **Electrical Engineering / Computer Science** degree or equivalent.

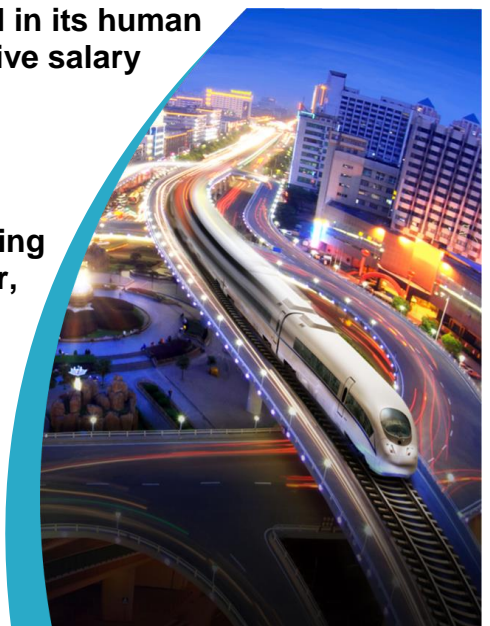
- 2-5 years train control experience and/or automatic control in the other industry, such as aircraft, industry
- A detailed knowledge of system requirements definition / design, safety & risk analysis
- Good technical writing skills, good communication & analytical skills
- Computer skills - MS Office, DOORS, Modeling, Data Bases
- Knowledge of railway systems is an asset
- Knowledge of reliability & safety analysis techniques
- Knowledge of Railway System Operations & Thales Transport Automation products is fundamental
- Familiarity with military specifications
- Experience with / exposure to safety / mission-critical systems & exposure to hazard, fault-tree & failure modes & effects analysis, plus statistical modeling & analysis of complex software / hardware / human systems are assets
- Works with the Systems Engineering Dept. & other departments as a team player with the view that others are your customers
- Defines work methods & techniques for more junior group members
- Manages & schedules daily activities within budget & time allowances given
- Participate in engineering activities ensuring the "built-in safety" of our communications-based train control systems. Utilizing internationally recognized hazard & safety analysis techniques, you will assist in the development & follow through to completion the formal Proof of Safety for specific project applications of our products
- Assist in the development & follow through to completion the formal Proof of Safety for specific project applications of our products
- Be part of a team that is responsible for the timely & effective execution of the combined tasks & activities of safety management & safety engineering to achieve the system safety requirements throughout the system life cycle



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**Position Title:** HW Designer  
**Department:** Hardware Engineering  
**Location:** Toronto (Don Mills/York Mills)

## Job Purpose:

To assist in the design of new / revised products, equipment & installations, utilizing processes based on established engineering principles to meet requirements. Involved with designs of moderate complexity.

## Key Job Functions:

### MANAGEMENT SKILLS

- Keeping track of progress on all assigned tasks
- Short-term planning of all assigned tasks
- Verifying that all assigned work has been completed accurately
- Providing accurate estimates of labor & material costs for current technology
- Ensuring that all tasks proceed according to schedule, within budget & in accordance with all requirements
- Good understanding of Work Instructions & the QMS requirements. Contribute to their improvements.

### TECHNICAL SKILLS

- Formulating / contributing to the development of new designs



- Implementing designs using good design practice & applicable standards & guidelines
- Devising & running tests to verify functionality & identifying & solving problems
- Being proficient in the skills & current with the technology of the discipline
- Reviewing any applicable specifications, standards, rules, etc & ensuring that the appropriate actions resulting from this review have been taken
- Making efficient re-use of existing designs
- Demonstrating a good degree of initiative & resourcefulness in solving problems
- Interpreting, identifying & documentation of requirements such that customer needs are met within the budget & schedule constraints
- To ensure both the safety & quality of hardware products while reducing the deployment cost of those products. To contribute to the heightened reuse of product hardware & contribute to improvements in hardware quality.
- Preparing specifications for hardware and/or software components / devices
- Being proficient with the use of development tools

## **COMMUNICATION SKILLS**

- Well-developed verbal skills to allow clear communication without ambiguity
- The ability to follow directions and work instructions & to use good judgment in the performance of assigned work
- The ability to effectively present pros & cons for various courses of action
- Well-developed writing skills to prepare effective documents, etc in a clear & concise format
- The ability to present the department's position & effectively represent its interests

## **SOFT SKILLS**

- Working harmoniously in a team environment while maintaining a high degree of professionalism in the job & in relations with others
- Providing assistance to more junior members of the department

## **APTITUDE**

- Locating and researching source information for design activities, extracting the pertinent data & using it to provide recommendations
- Contributing effectively to decisions made either individually / in a team environment





- Identifying any problems / inefficiencies in the department's operation & suggesting improvements

## Key Skill Requirements:

The successful candidate should possess an **Electrical / Mechanical Engineering** degree, **Technologist** diploma or equivalent.

- 2-4 years of related worked experience
- Good technical knowledge of the discipline & good understanding of related disciplines
- Computer literate with experience using development tools such as Engineering Development Tools, Parts List system (SAP), a Configuration Management tool (DDTS) & Microsoft Office suite
- Good interpersonal & technical writing skills
- Ability to work within a proposal team
- Registration with PEO required

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