

### **Registration:**

Course registration is to be performed on ERP of IIT Kharagpur website link:

<https://erp.iitkgp.ac.in/CEP/courses.htm>

### **Registration Fee:**

**For Indian Nationals**

**INR: 35,000+GST (18%)**

**For Foreign Nationals**

**USD: 1,200 (including GST)**

Current GST rate 18%. The GST will be added as applicable.

The course fee is to be paid online through registration and payment gateway.

<https://erp.iitkgp.ac.in/CEP/courses.htm>

**Limited Seats: 30 (Thirty only)**

### **Address for Correspondence:**

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**Dr. Ajeet Kumar Pandey** (Co-coordinator)

System Assurance Expert

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### **Participating Organizations (Earlier Editions):**

- AECOM India Pvt. Ltd.
- Alstom Transportation
- Atkins, Bangalore
- Bangalore Metro Rail Corporation
- Bombardier Aerospace, Bangalore
- Bureau Veritas
- Central Electronics Limited
- Dedicated Freight Corridor Corporation
- DB International GmbH (Kochi Metro Rail Project)
- Delhi Metro Rail Corporation Limited, Delhi
- DNV GL Business Assurance India Private Limited
- Dubai Metro
- Expolink Route 2020
- FCC - Riyadh Metro
- G. G. Tronics
- Geometric Global
- Hyderabad Metro Rail Ltd
- Indian Railways
- Kochi Metro Rail Ltd,
- Keolis Hyderabad Metro Rail Transit System
- L&T Construction - Transportation Infrastructure IC
- L & T Metro Rail
- L&T Technology Services Ltd
- Louis Berger
- Maharashtra Metro Rail Corporation, Nagpur
- MEGA Company Ltd., Gandhinagar
- Metro One Operation
- Motorola Solutions India
- Mott MacDonald India
- Mumbai Metro Rail Corporation Ltd
- National High Speed Rail Corporation Ltd
- RAMPED (Riyadh Advanced Metro Package Execution & Delivery)
- Rapid Metro Gurgaon South Limited
- Rail Vikas Nigam Limited
- RITES Ltd
- QDVC (Qatari Diar Vinci Construction)
- Saudi Arabian Parsons Limited, Riyadh
- Saudi Railway Company
- Scmi Engineering Bhd. – Mumbai Monorail
- Systra MVA Consulting
- Siemens, Riyadh
- Shimizu Corp., Singapore
- ThyssenKrupp Elevator Saudi Ltd., Riyadh
- TVM Signalling and Transportation System
- Walmart

### **Short-term Course on RAMS for Railway Systems**

(Online)

**Dec 14 - 18, 2020**



*Organized By:*  
**Subir Chowdhury School of  
Quality and Reliability,  
IIT Kharagpur, WB, INDIA**

## About Subir Chowdhury School of Quality and Reliability, IIT Kharagpur

IIT Kharagpur is the largest technical institution in India and gets ranked among best institutions in the country imparting technical education and research. The Subir Chowdhury School of Quality and Reliability was formerly known as Reliability Engineering Centre, which came into existence in 1983. The school offers M Tech, MS and PhD degrees in Quality and Reliability Engineering. Besides, the school is actively engaged in sponsored research and offers consultancy services to various public and private organizations.

## Brief of the Programme

## Earlier Courses:

The first, second, third, fourth, fifth and sixth short term programs on RAMS for Railway Systems were conducted during July 21-25, 2014; July 27-31, 2015; July 11-15, 2016; July 10-14, 2017; July 9-13, 2018; and July 8-12, 2019. The programs received good response from industries in terms of participation and on completion of the course the feedbacks were highly positive. Based on the feedbacks and multiple requests received, the program is proudly being offered again. We look forward to benefit railways authorities and rail support industries through bringing awareness about RAMS concepts and provide basic training in these concepts.

## Who Should Attend?

Practicing Professionals, Engineers and Managers in the fields of design, development, consulting, manufacturing, audit, operations, maintenance, and QA/QC in the rail or metro rail industry

## Industry Problem Discussions

If your organization or project is facing any challenge or problem related to RAMS, please feel free to write to us in the form below. This can be used during the program for discussion and resolution.

Name: \_\_\_\_\_

Organization: \_\_\_\_\_

### Problem Statement:

This image shows a blank sheet of white paper with horizontal blue ruling lines. A single vertical red margin line runs down the left side of the page. The paper is oriented vertically and appears to be a standard notebook or ledger page.

**Program Coordinators:**

**Coordinator:**

**Prof. Neeraj Kumar Goyal**

Associate Professor

Subir Chowdhury School of

Quality and Reliability, IIT Kharagpur

**Co-coordinator:**

**Dr. Ajeet Kumar Pandey**

System Assurance Expert

**Faculty:**

The program is designed and delivered by experts with years of experience in System Assurance & RAMS immersed on railway industries with cross-functional domain knowledge of transportation sectors. Almost all faculty members are currently associated with the industry in a consulting role.

## Program Contents:

- Introduction to System Assurance & RAMS,
- RAMS Parameters & Reliability Prediction
- Accelerated Life Testing
- Failure Data Analysis
- Failure Mode Effects and Criticality Analysis
- Fault Tree Analysis
- System Reliability Modelling
- Apportionment of RAM Parameters
- Basics of V&V and Software Reliability
- Basics of Functional Safety: Hazard, Risk, Risk Matrix, Risk Acceptance Principle and Criteria
- Safety Analysis & Management: PHA, SHA, IHA, O&SHA, Hazard Log, Safety Case
- Concept of THR & SIL
- Railway RAMS Standards - EN 50126 (IEC 62278), EN 50128 (IEC 62279) and EN 50129 (IEC 62425)
- Content List of RAMS Deliverables
- RAM and Safety Demonstration during O&M
- New Trends and Technologies