SUBIR CHOWDHURY SCHOOL OF QUALITY AND RELIABILITY
सुबीर चौधरी गुणवत्ता एवं विश्वसनीयता विद्यालय
Indian Institute of Technology Kharagpur
भारतीय प्रौद्योगिकी संस्थान खड़गपुर
West Bengal/पश्चिम बंगाल – 721 302

Date: 6 October 2025

To

Mr. Aby Joseph
Scientist G, Power Electronics Group,
Joint Director (Testing) / Projects
C-DAC, Thiruvananthapuram

Subject: Training on RAMS for Rolling Stocks

Dear Sir,

We are pleased to submit our proposal for 24 hours of training in Reliability, Availability, Maintainability, and Safety (RAMS) Engineering with a focus on Railway Systems as per the terms mentioned below.

Course Contents

Please refer to the training program details in the modules in Appendix I. The lectures will be delivered by the faculty of IIT Kharagpur and industry experts of RAMS.

Cost

The amount for our services described above is:

- Training: INR 1,50,000.00 + GST per day
- Total Training Cost: INR 6,00,000.00 + GST
- Local hospitality and travel are to be arranged and paid by the client.

This fee includes IIT overhead which is a 20% deduction on the training fee. GST (18%) shall be charged as per government rules. Any bank transaction charges or commission shall be paid by the client. Payment shall be made to IIT Kharagpur bank account. The account details shall be communicated later.

Number of Participants

This training is applicable for up to 35 numbers of participants.

Training Material

- Language of training sessions will be English.
- Soft copy of training material shall be provided to trainees.

Schedule and time shall be worked out on mutually convenience and agreement.

With best regards,

(Dr. Neeraj Kumar Goyal)
Professor and Chairperson

Appendix I: Topics Covered

S. No.	Content
1.	System Assurance and RAMS for Rolling Stock
2.	RAMS terminology for Rolling Stock
3.	Reliability Prediction using standards and databases
4.	Failure time Distributions & Interpretations
5.	Failure Data Analysis (Non-Parametric)
6.	Failure Data Analysis (Parametric)
7.	System-Level Reliability Modelling and Calculation for Rolling Stock
8.	Rolling Stock Safety, Hazard, Risk & Risk Matrix
9.	SIL Allocation
10.	Specification & Demonstration of RAMS (EN 50126-1)
11.	Safety Assurance for Railway Systems: EN 50128 & EN 50129
12.	A case study on reliability analysis of Rolling Stocks Data
13.	Feedback and Discussions

Please Note:

- The participants need to actively engage in discussions with faculty.
- Short quizzes will be conducted at the end of each lecture.
- Participants attending the course for whole duration will be provided a certificate from IIT Kharagpur under the continued education programme.
- Dates of interactions will be decided mutually.
- Tentative List of Experts:
    - Dr. Ajeet Kumar, Alumni of IIT Kharagpur and RAMS Expert
    - Prof. VNA Naikan, IIT Kharagpur
    - Prof. Neeraj Kumar Goyal, IIT Kharagpur
    - Prof. Heeralal Gargama, IIT Kharagpur