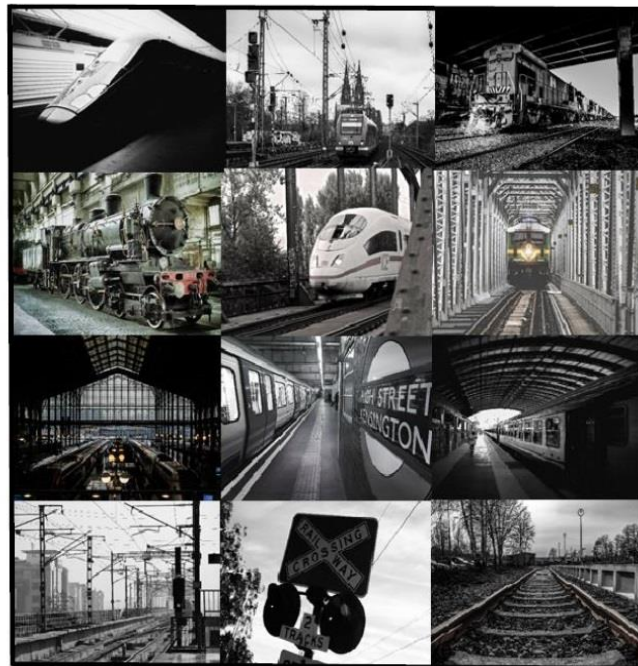




**Distance Learning Program 2020 for Railway Industry:
Title: RAMS & LCC Program for Railway Industry**

Material Content: Book

*RAMS and LCC Engineering for
Railway Industry: Analysis, Modelling
and Optimization*



Eduardo Calixto

Self-paced online training on virtual class – Second edition



Distance Learning Program 2020 for Railway Industry:

Title: RAMS & LCC Program for Railway Industry

Agenda:

Module 1: 5th -9th October 2020: RAM and LCC Program for Railway Industry.

Module 2: 12th-16th October 2020: RAM analysis for Railway Industry.

Module 3: 19th-23th October 2020: Lifetime Data Analysis for Railway Industry.

Module 4: 26th-30th October 2020: FMEA and RCM for Railway Industry.

Module 5: 2nd -6th November 2020: Safety and Risk Management for Railway Industry.

Module 6: 9th-13th November 2020: Human Reliability Analysis for Railway Industry.

Please contact us for more information: <https://www.eduardocalixto.com/contact/>

Bibliography: <https://www.amazon.de/RAMS-LCC-Engineering-Railway-Industry/dp/1986524701>

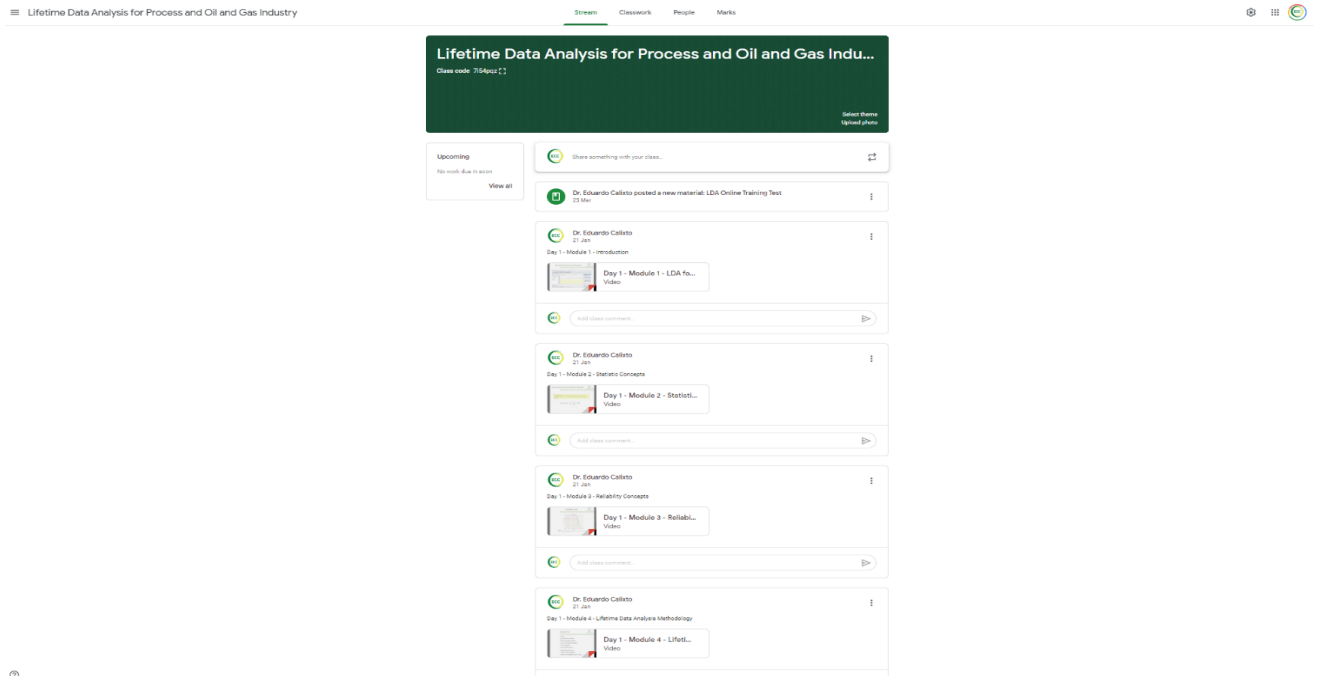
*RAMS and LCC Engineering for
Railway Industry: Analysis, Modelling
and Optimization*



Eduardo Calixto

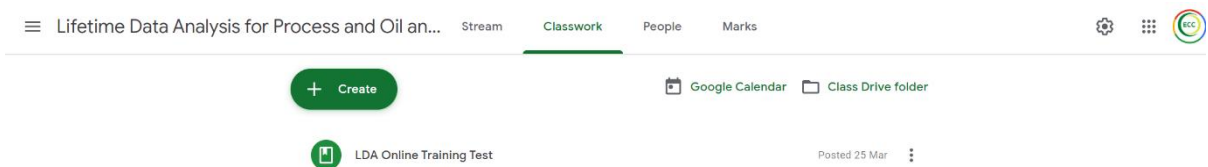
“How does It works in practice”

“**Self-Paced Training:** After your participation is confirmed, you get access to the virtual class and watch the videos, in case of doubt you type your question.”



The screenshot shows a virtual class interface for "Lifetime Data Analysis for Process and Oil and Gas Industry". The interface includes a navigation bar with "Stream", "Classwork", "People", and "Marks" tabs. The main content area displays a list of upcoming activities, including a "Share something with your class" prompt and several video lessons posted by Dr. Eduardo Calixto. The lessons are organized into modules: "Day 1 - Module 1 - Introduction", "Day 1 - Module 2 - Statistic Concepts", "Day 1 - Module 3 - Reliability Concepts", and "Day 1 - Module 4 - Lifetime Data Analysis Methodology". Each lesson entry includes a video player and an "Add class comment" button.

“**Learning Verification:** you will get a final test in the classwork and after you finish it and load in the Virtual Class it will be assessed by the Training Instructor (Dr. Eduardo Calixto)”.



The screenshot shows a classwork interface for "Lifetime Data Analysis for Process and Oil an...". The interface includes a navigation bar with "Stream", "Classwork", "People", and "Marks" tabs. The main content area features a "Create" button and a "Google Calendar" icon. Below these, there is a "Class Drive folder" section containing a "LDA Online Training Test" entry, which was posted on 25 Mar.

“**Certification:** After you final test is approved you will get the certification for each online training and if you complete the whole program an additional certification with the title “RAMS and LCC Reliability Engineering program Implementation “ will be released.”



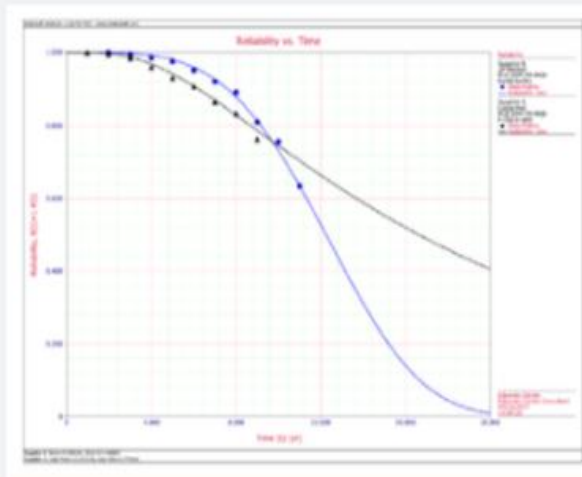
“Softwares”

During the program the attendees will have access to the following:

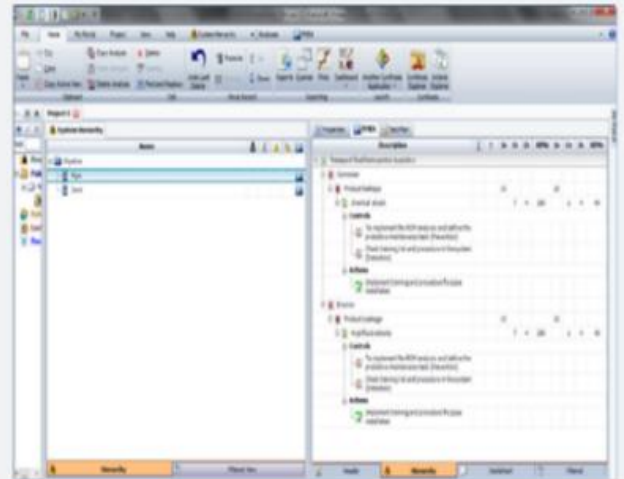
“Reliability Engineering”

HBM Prenscia: Software for Reliability Engineering

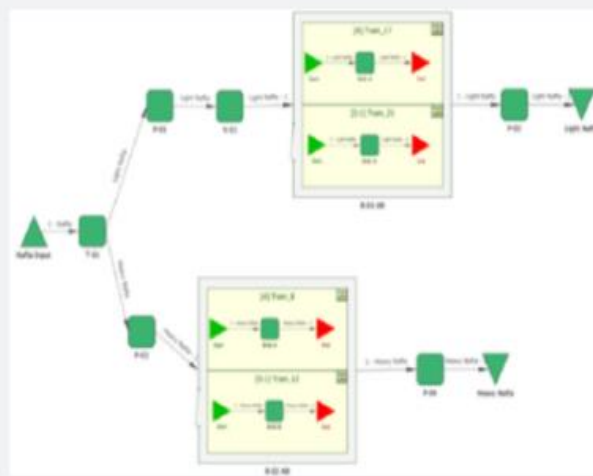
Weibull++Software



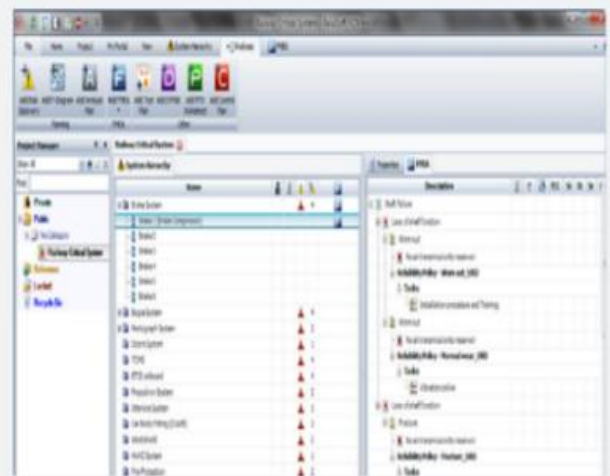
FMEA++Software



Blocksim++Software



RCM++Software



Please go to the link below to get more information:

<https://www.eduardocalixto.com/products/>



EDUARDO CALIXTO
CONSULTING

"RAM AND LCC Program Implementation for Railway Industry"

SECURE YOUR PARTICIPATION!

Website: <http://www.eduardocalixto.com>

Email: ec@eduardocalixto.com

Why Shoud attend this training ?

- To understand the RAM and LCC program element such as RAM requirement, RAM organizational Infrastructure, Methods and deliverables, RAM Plan;
- To understand the RAM and LCC implementation barriers such leadership, culture, resources and organizational structure;
- To understand the different types of FMEA such as DFMEA, SFMEA, PFMEA,;FMEA and their implementation indifferent phases of rolling stock life cycle;
- To understand the RCM concepts and the link with FMEA as well as the link with the CMMS and Asset management system;
- To understand the FRACAS concepts, the link with FMEA analysis and it implementation before operation phase;
- To understand the Lifetime Data Analysis Concepts and application to be an input for RAM analysis as well as support the warranty verification and validation;
- To understand the RAM analysis concepts and application in different rolling stock life cycle;
- To understand the LCC concepts and application;

Who Shoud attend this training ?

Reliability Managers, Reliability Engineers, Asset Managers, Maintenance Managers, Maintenance Engineers. Mainteance

Training Outline:

Day 1:

- Module 1: Introduction
- Module 2: RAM and LCC concept
- Module 3: EN 50126 concepts
- Module 4: RAM program Implementation and barriers to implementation
- Module 5: FMEA concepts
- Module 6: FMEA application case studies
- Module 7: RCM concepts
- Module 8: RCM application case studies

Day 2:

- Module 1: FRACAS and Lifetime data analysis
- Module 2: LDA case studies
- Module 3: ALT/ Halt concepts
- Module 4: RGA concepts
- Module 5: RAM Analysis concepts
- Module 6: RAM Analysis case studies
- Module 7: LCC concepts Module
- Module 8: LCC case study



Trainer : Dr Eduardo Calixto, CRP, CFSE.,

He's Reliability and Safety Engineer Expert with over 18years experiences in Oil & Gas, Railway, Aerospace and Mining Industries. He has Doctoral Degree in Energy and Environmental, Master in safety System Management, Bachelor in Industrial Engineering. Author of the best seller Book Gas and Oil Reliability Engineering: Modeling and Analysis (material content of this training).





EDUARDO CALIXTO
CONSULTING

RAM Analysis Course for Railway Industry

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Website: <http://www.eduardocalixto.com>

Email: ec@eduardocalixto.com

Why Should attend this training ?

- To understand and apply the Reliability, operational availability and maintainability concept as basic of equipment specification and asset performance Index.
- To understand and apply the RAM methodology applied to different asset lifecycle phases.
- To understand and apply how to organize and assess the historical failure and repair database.
- To understand how to use specialist opinion to predict Reliability and maintainability.
- To understand and apply the methods to define type Probability Density function (PDF) in order to predict PDF parameters, reliability, failure rate, MTTF, MTBF, MTTR.
- To model the equipment in component level applying RBD and FTA.
- To understand and apply the effect of preventive maintenance and inspection in equipment reliability and operational availability.
- To understand and apply the concept of preventive maintenance optimization
- To understand how to integrate FMEA, RCM and RAM analysis to support asset management.

Who Should attend this training ?

Reliability Managers, Reliability Engineers, Asset Managers, Maintenance Managers, Maintenance Engineers.

Software: HBK/Reliasoft — Blocksim++

Training Outline:

Day 1:

- Module 1: Introduction
- Module 2: RAM concept
- Module 3: RAM methodology concept
- Module 4: Lifetime data analysis (LDA)
- Module 5: LDA case studies
- Module 6: RBD and FTA Models
- Module 7: RBD and FTA case studies

Day 2:

- Module 8: Preventive Maintenance Modeling
- Module 9: Inspection Modeling
- Module 10: Spare part Modeling
- Module 11: LCC Modeling
- Module 12: RAM Simulation
- Module 13: RAM critical equipment
- Module 14 RAM Sensitivity Analysis
- Module 15: RAM Modelling: Equipment Level
- Module 16: RAM Modelling: System Level



Trainer : Dr Eduardo Calixto, CRP, CFSE.,

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EDUARDO CALIXTO

Lifetime Data Analysis (LDA) for Railway Industry

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Website: <http://www.eduardocalixto.com>

Email: ec@eduardocalixto.com

Why Should attend this training ?

- To define the probability density functions such as exponential, lognormal, logistic, loglogistic, Weibull, Normal, Gumbel, Gama, others based on LDA;
- To apply the goodness of fit test such as Plot method, Regression, likelihood, Chi-square, Komogorov Smimov and Cramer von mises during LDA;
- To implement a FRACAS that enable the LDA;
- To understand the QALT methods fooncepts or equipment under different stress level;
- To understand the RGA Concepts to measure the effect of maintenance and operation on equipment performance;
- To apply PDA methods to predict reliability based on equipment degradation such as corrosion and, crack;
- To apply Warranty Analysis to assess vendors products;
- To learn how to create a reliability database.

Who Should attend this training ?

Reliability Managers, Reliability Engineers, Asset Managers, Maintenance Managers, Maintenance Engineers.

Software:

HBK/Reliasoft: Weibull++

Training Outline:

Day 1:

- Module 1: Introduction
- Module 2: Statistic concept
- Module 3: Reliability Concepts
- Module 4: LDA Methodology
- Module 5: Goodness of Fit tes
- Module 6: Probability Density Functions
- Module 7: Probabilistic Degradation Analysis
- Module 8: Preventive Maintenance effect on Reliability
- Module 9: - Reliability Generic Database

Day 2:

- Module 1: Accelerated test data analysis Model
- Module 2: Reliability Growth Analysis
- Module 3: Warranty Analysis
- Module 4: FRACAS concept and application
- Module 5: LDA Case Studies
- Module 6: RGA Case Studies
- Module 7: PDA and WA Case Studies



Trainer : Dr Eduardo Calixto, CRP, CFSE.,

He's Reliability and Safety Engineer Expert with over 18years experiences in Oil & Gas, Railway, Aerospace and Mining Industries. He has Doctoral Degree in Energy and Environmental, Master in safety System Management, Bachelor in Industrial Engineering. Author of the best seller Book Gas and Oil Reliability Engineering: Modeling and Analysis (material content of this training).





EDUARDO CALIXTO
CONSULTING

FMEA and RCM Analysis for Railway Industry

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Website: <http://www.eduardocalixto.com>

Email: ec@eduardocalixto.com

Why Should attend this training ?

- To understand the failures, risk and criticality concepts.
- To understand and implement the different application of FMEA and FMECA concepts
- To understand and implement the Design Failure Mode and Effect analysis (DFEMA).
- To understand and implement the Process Failure Mode and Effect analysis (PFMEA).
- To understand and implement the System Failure Mode and Effect analysis (FMEA).
- To understand the FMEA application to FRACAS.
- To understand the Maintenance concepts.
- To understand and apply the Reliability Centered Maintenance (RCM) concepts.
- To understand the RCM input to RAM analysis, LCC and spare part definition.
- To understand and implement the RCM output to LCC analysis.
- To understand and implement the RCM out put to spare parts modeling and output to RAM analysis.

Who Should attend this training ?

Reliability Managers, Reliability Engineers, Safety Engineer, Asset Managers, Maintenance Managers, Maintenance Engineers.

Software: HBK/Reliasoft — FMEA/Blocksim++

Training Outline:

Day 1:

- Module 1: Introduction
- Module 2: FMEA concept and Standards
- Module 3: Risk, RPN and Criticality
- Module 4: SFMEA/DFMEA/ PFMEA/ FMEA concept
- Module 5: FMEA Management
- Module 6: FMEA applied to FRACAS
- Module 7: FMEA Case Studies

Day 2:

- Module 1: Maintenance Concepts
- Module 2: RCM concepts and standards
- Module 3: RCM input to RAM analysis
- Module 4: RCM input to LCC
- Module 5: RCM input to Spare parts
- Module 6: RCM Management
- Module 7: RCM input to Asset Management
- Module 8: RCM application cases
- Module 9: FMEA and RCM application software case studies



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RAM/LCC Professional



by SOS-TUV Saar





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CONSULTING

Functional Safety and Risk Analysis for Railway Industry

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Website: <http://www.eduardocalixto.com>

Email: ec@eduardocalixto.com

Why Should attend this training ?

- To understand and implement the concept of EN50128 and EN 50129.
- To understand and implement the Preliminary Hazard analysis application.
- To understand and implement the HazLog concepts.
- To understand and implement the Functional Hazard analysis .
- To understand and implement the Hardware Hazard Analysis.
- To understand and implement the Software Hazard Analysis.
- To understand and implement the SIL concepts.
- To understand and implement the hardware hazard analysis.
- To understand and implement the software hazard analysis.
- To understand and implement the FMECA concepts.
- To understand and implement the FTA, ETA, BTA concepts and model.

Who Should attend this training ?

Reliability Managers, Reliability Engineers, Safety Engineer, Asset Managers, Maintenance Managers,

Training Outline:

Day 1:

- Module 1: Introduction.
- Module 2: EN 50128 and EN 50129 concepts .
- Module 3: Safety program Implementation.
- Module 4: Preliminary Hazard Analysis (PHA).
- Module 5: Preliminary Hazard Analysis (PHA) cases.
- Module 6: System Hazard Analysis and HAZlog concepts
- Module 7: System Hazard Analysis and HAZlog case.
- Module 8: Functional Hazard Analysis and SIL.
- Module 9: Functional Hazard Analysis and SIL case..

Day 2:

- Module 10: HAZOP Analysis.
- Module 11: FMECA analysis concept .
- Module 12: FMECA analysis hardware and software
- Module 13: Faut Tree Analysis (FTA) concepts
- Module 14: .FTA cases
- Module 15: .Bow tie Analysis (BTA)
- Module 15: .Human Reliability Analysis (HRA)
- Module 16: Safety Case concept .



Trainer : Dr Eduardo Calixto, CRP, CFSE.,

He's Reliability and Safety Engineer Expert with over 18years experiences in Oil & Gas, Railway, Aerospace and Mining Industries. He has Doctoral Degree in Energy and Environmental, Master in safety System Management, Bachelor in Industrial Engineering. Author of the best seller Book Gas and Oil Reliability Engineering: Modeling and Analysis (material content of this training).



Human Reliability Analysis for Railway Industry

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 Website: <http://www.eduardocalixto.com>
 Email: ec@eduardocalixto.com

Why Should attend this training ?

- To understand the Human factor concepts.
- To understand the human performance factors influencing in human error.
- To understand the human error probability prediction.
- To predict Human Error Probability and Human error rate
- To understand and implement different Human reliability analysis methods.
- To understand the influence of human error in incident and accident.
- To understand the application of human error in qualitative risk analysis (PHA and FMEA).
- To understand the application of human error in qualitative risk analysis (FTA and Bow Tie).
- To understand the application of human error influence in operation and maintenance activities.

Who Should attend this training ?

Reliability Managers, Reliability Engineers, Safety Engineer, Asset Managers,

Training Outline:

Day 1:

- Module 1: Introduction.
- Module 2: Human Factor concept.
- Module 3: Human reliability standards.
- Module 4: Human Performance error.
- Module 5: Technique for human Error Prediction (THERP).
- Module 6: Operation Action Three (OAT).
- Module 7: Accident Sequence Evaluation Program (ASEP).
- Module 8: Human Error Reduction Technique (HEART).
- Module 9: Social technical analysis of Human Reliability (STAH-R).

Day 2:

- Module 10: Success Likelihood Index (SLIM).
- Module 11: Systematic Human Error Reduction and Prediction approach (SHERPA).
- Module 12: Standardized Human Error Reduction and Prediction Approach (SPAHR).
- Module 13: Bayesian network.
- Module 14: Human factor influences in Safety (risk analysis).
- Module 15: Human factor influences in operation.
- Module 16: Human factor influences in Maintenance.
- Module 17: Human factor influences in Maintenance.



Trainer : Dr Eduardo Calixto, CRP, CFSE.,

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