1. *Title of the Special Session: Machine learning for reliability studies*

2. *Details of Session Chair and Co-Chair: Dr. N. Padmavathy*
(Include Name and Affiliation Details. Also, attached CV of Chair and Co-Chair)

3. *Aims & Scope (Theme of Session):*
System reliability is an old discipline which has been extensively studied for more than half a century. It covers a broad area, including embedded systems, power supply systems, automotive production, Communication networks, big data Health monitoring, aerospace, railways, software components and many industrial systems. Traditional approaches like reliability block diagrams, cutset method, pathet method and event enumerations method are more applicable for simple system reliability evaluation. While aforementioned are less applicable for complex systems. Many algorithms have been proposed for the system reliability evaluation of different domain problems which include dynamic programming as a tool in achieving the optimal design for series processing systems that operate in the presence of frequent failures of key processes.; the Bayesian method and its availability by analysing the assumptions and applicability of classical statistical methods (regressions, ARMA Models), Bayesian methods and soft computing methods (AI, ANN, Fuzzy rules-based system (FRBS)and Genetic algorithm) in reliability analysis, evaluation and failure prediction. Now-a-days, new advances in machine learning algorithms and computing power have provided opportunities for the development of more effective and efficient system reliability evaluation approaches.

Provide the brief description of your special session.

4. **Subtopics:**

i.	**Accelerated Life Testing**
ii.	**Big Data and IoT Applications in R&M**
iii.	**Binary decision diagrams and reliability**
iv.	**Business Process Improvement**
v.	**Communication Network reliability**
vi.	**Design Optimization Using R&M Techniques**
vii.	**Diagnostics and Prognostics**
viii.	**Discrete Event Modelling & Simulation**
ix.	**Economic Models for R&M Equipment**
x.	**Fault Tolerance and Safety Critical Systems**
xi.	**Fault Tree Analysis**
xii.	**FMEA**
xiii.	**Human factors and reliability**
xiv.	**Human Reliability**

xv. **Knowledge Based Training**
xvi. **Life Data Analysis**
xvii. **Maintenance Models and Methodologies**
xviii. **Multidisciplinary design optimization**
xix. **Multiphase reliability analysis**
xx. **Physical Reliability Models**
xxi. **Product reliability and safety evaluation**
xxii. **Prognostics and health management**
xxiii. **Quality Appl. in Electronics Design & Mfg.**
xxiv. **R&M and Quality Appl. in Communications Design & Mfg.**
xxv. **R&M Applications in Aerospace**
xxvi. **R&M Applications in Health Care**
xxvii. **R&M Applications in Infrastructure Management**
xxviii. **R&M Applications in Manufacturing**
xxix. **R&M Applications in Service**
xxx. **R&M Applications in Supportability**
xxxi. **R&M Management**
xxxii. **RAMS Reliability**
xxxiii. **Reliability analysis and prediction**
xxxiv. **Reliability centered maintenance**
xxxv. **Reliability engineering**
xxxvi. **Reliability Growth Analysis**
xxxvii. **Reliability Modeling**
xxxviii. **Reliability testing and statistics**
xxxix. **Repairable Systems**
xl. **Risk Analysis and Management**
xli. **Risk assessment methods**
xlii. **Safety critical systems**
xliii. **Software reliability**

- Provide at least 3-5 subtopics

5. Technical Programme Committee(s):

- Form your own TPC
    1. Dr. Sanjay Kumar Chaturvedi, Professor and Head, Subir Chowdhury School of Quality and Reliability, Indian Institute of Technology, Kharagpur
    2. Dr. VNA NAIKAN, Professor, Indian Institute of Technology, Subir Chowdhury School of Quality and Reliability, Kharagpur
    3. Dr. Neeraj Kumar Goyal, Associate Professor, Indian Institute of Technology, Subir Chowdhury School of Quality and Reliability, Kharagpur
    4. Dr. Dilip Kumar Yadav, Professor & Head, Dept. of Computer Application, NIT Jamshedpur
    5. Dr. Vivek Shrivastava, Associate Professor, Dept. of Electrical and Electronics Engineering, NATIONAL INSTITUTE OF TECHNOLOGY DELHI

6. Dr. Rajesh Mishra, Assistant Professor, Department of ICT, GBU, Greater Noida
7. Dr. Prof. AK Verma, Professor, Western Norway University of Applied Science, Norway
8. Dr. AK Pandey, Delivery Manager and Head, L & T Technology Services Ltd, Bangalore
9. Dr. Lalit Singh, Scientist, NPCIL-BARC, Department of Atomic Energy, Govt of India
10. Dr. Manjubala Bisi, Assistant Professor, Department of CSE, NIT Warangal
11. Dr. Heeralal Gargama, Group RAMS Manager, ALSTOM Transportation, Bangalore

- It should contain at least 3-5 renowned persons of specialized area.

6. **Submission Procedure:** Researchers and practitioners are invited to submit papers through the below given easy chair link:

Springer Author's Guidelines **EasyChair Submission**

All submissions must be original and may not be under review by another publication. The submitted papers will be reviewed on a double-blind and peer review basis.

7. Publications:

All accepted and registered papers under MISP 2021 will be considered for publication in Springer Book Series, "Advances in Intelligent Systems and Computing" (approval pending).

All inquiries should be directed to the attention of Session Chair/Co-Chair:

Name: Dr. N. Padmavathy **Designation: Professor and Head**

Email Id: **hodece@vishnu.edu.in** **Contact Number: 9441703866**

Submission Guidelines for Authors

- Prospective authors are invited to submit original research work that falls within the scope of the session. All submissions will be thoroughly peer-reviewed by experts based on originality, significance and clarity.
- Only papers presenting novel research results or successful innovative applications will be considered for publication in the conference proceedings.
- Authors are requested to submit their Manuscripts through the Easy Chair System. The paper must be in Springer AISC series format and of maximum 12 pages. Authors are requested to submit their Manuscripts through the Easy Chair System.
- Authors are requested to kindly strictly follow the paper format. Please visit conference webpage for paper format https://www.misp.nitap.ac.in.

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Special Session Timeline

Paper Submission Deadline: 1st April 2021
Notice of Acceptance: 1st May 2021
Camera Ready Due: 10th May 2021
Registration Due: 15th May 2021
Conference Date: 23rd -25th September 2021