

## Condition Monitoring Laboratory

**Laboratory Coordinator: Dr. N. S. Vyas**

**Associated Faculty Members (if any):**

**List of Major Equipment:**

- Automotive Brake-Testing Test Bed
- Automotive Steering System Test Bed
- Instrumented 4-wheeler (Indica Car)
- Multi-Channel Instrumentation System for Vibration, Pressure, Temperature sensing
- Rotor Test Beds
  - Bentley-Nevada
  - Spectraquest
  - Local make
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**Brief description of the laboratory:**

The laboratory has been involved with the National Programs in Automotive, Railways and Rotor Dynamic Research. Major areas include

- analytical modelling
- simulation studies on industrial platforms
- experimental validation and parameter estimation
- inverse problems
- neural networks for condition monitoring
- deep learning for big system level data

**Laboratory research keywords:**

Vehicle Dynamics, Rotor Dynamics, Condition Monitoring, Neural Networks, Deep Learning, Integrated Vehicle Health Monitoring

**Major Research and Development Contribution of the Laboratory**

Year	Major research and development activity
2020-2021	▪ Industry 4.0 for Rail Coach Manufacturing
2019-2020	▪ Deep Learning Protocols for Rotor Bearing Systems
2018-2019	▪ Rail-Wheel Dynamic Studies for Indian Railways

<b>2017-2018</b>	<ul style="list-style-type: none"><li>▪ RuTAG Projects on Portable Food Processing Units</li></ul>
<b>2016-2017</b>	<ul style="list-style-type: none"><li>▪ IC Engine Structural Health Monitoring</li></ul>
<b>2015-2016</b>	<ul style="list-style-type: none"><li>▪ Vehicle Dynamics Instrumentation &amp; Control</li><li>▪ Brake System Health Monitoring</li><li>▪ Steering System Health Monitoring</li></ul>