



**MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES**

|                                     |   |
|-------------------------------------|---|
| <b>Metric 1.3.2(Q<sub>n</sub>m)</b> | <b>Number of value-added courses for imparting transferable and life skills offered during the year</b> |
|-------------------------------------|---|

**AY 2020-21**

| <b>Course Name</b>                              | <b>Course Code</b> | <b>Duration (Hours)</b> | <b>Number of students enrolled</b> | <b>Number of students passed</b> |
|---|--------------------|-------------------------|------------------------------------|----------------------------------|
| <b>Automotive Wheel Balancing And Alingment</b> | <b>AU-VA-008</b>   | <b>30</b>               | <b>21</b>                          | <b>21</b>                        |



# MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES

(Deemed to be University under section 3 of the UGC Act 1956)

**Faculty of Engineering and Technology**

## DEPARTMENT OF AUTOMOBILE ENGINEERING

**Value Added Course Details**

**(EVEN SEM 2020-21)**

**Course detail:**

### **Automotive Wheel Balancing and Alignment**



**Objective:** Improve Concept of Breaking Systems Alignment & Tyre Balancing

**Key highlights:** Steering System, Break System & Car Safety

**Registration Open From: 01.02.2021**

**Duration: 20.02.2021-15.05.2021 (30 Hrs)**

Contact details: Sunny Bhatia,  
Assistant Professor  
Contact Number: 8826004666

Resource person:  
Sunny Bhatia  
Assistant Professor



# Manav Rachna International Institute of Research and Studies

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## Faculty of Engineering and Technology Department of Automobile Engineering

### SYLLABUS

#### Wheel balancing and Alignment (AU-VA-008)

**Course: Value Added**

**Course Coordinator: Gurpreet Singh Matharou**

**Periods/week: 32 hours**

#### Course Outcome:

The course content is focused on four general goals of Wheel, Tyre and related repairs, including:

- 1) Perform comprehensive wheel and wheel system inspection, maintenance, diagnosis, and repairs with limited supervision.
- 2) Communicate professionally with employers, customers, and co-workers using industry-standard language and following industry-standard protocols.
- 3) Access and utilize repair information in a rapidly changing technology.
- 4) Develop and implement strategies and processes to solve wheel balancing & alignment problems.
- 5) Perform wheel and wheel system repair to professional and ethical standards.

#### Course Outline


- 1) Practice removing wheels from light & heavy vehicles, dismantling tyres and tubes checking puncture,
- 2) Practice Assembling & inflating tyres to correct pressure. Checking & adjusting tire pressure by use of air or by nitrogen,
- 3) Rotation of the wheels in the vehicle, checking tyre wear patterns.
- 4) Tyre types & characteristics- Tyres, Radial ply tyres, Radial ply tyre sidewalls,
- 5) Tyre pressure monitoring systems, run flat tyres, space-saver tyres,
- 6) Tyre construction, tyre materials,
- 7) Tyre materials, Hysteresis, Tyre sizes & designations,
- 8) Tyre information, Tyre tread designs, Tyre ratings for temperature & traction,
- 9) Descriptions Tirewear Patterns and causes Nitrogen vs atmospheric air in tyres.
- 10) Wheel Balancing: Removing Tyre from vehicle. Checking Tyre & rim and runout,
- 11) Wheel Alignment: Steering angles, ride height, wheel bearings, ball joints, control arms bushings and sway bars, shock absorbers, struts & power steering.

#### Textbooks:

Required: Principles of Wheel Alignment Service (A Text-Workbook) E.Miles Bacon

References: Automobile Engineering, Dr. Kirpal Singh. S. Chand



  
Head of the Department  
Automobile Engineering  
FET, MRURS, Faridabad





**MANAV RACHNA**  
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# MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES

(Faridabad, Haryana)

(Deemed to be University under section 3 of the UGC act, 1956)

**Faculty of Engineering and Technology**

**Department of Automobile Engineering**

**Academic Year: 2020-21**

It is to certify that \_\_\_\_\_ Roll No: \_\_\_\_\_ student  
of \_\_\_\_\_ programme of MRIIRS  
has successfully completed the certificate course / value-added course titled “Automotive Wheel  
Balancing and Alignment” course code “AU-VA-008” conducted by the Department from  
20.02.2021 to 15.05.2021.

\_\_\_\_\_  
**Course Coordinator**

**Date: 03.06.2021**

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**Head of Department**