III Year II Semester	L	T	P	C
Code: 20ME6758	3	1	0	4

ERGONOMICS, SEATING AND INSTRUMENT PANELS

Course outcomes:

At the end of the course, students will be able to

1. Use an anthropometrics and its application to vehicle ergonomics
2. Apply design concepts to develop driver seats for commercial vehicle.
3. Apply design concepts to develop driver seats for luxury vehicle.
4. Explain significance of visibility with blind region concepts.
5. Suggest interior design features to enhance comfort level of the vehicle passenger.

UNIT I

Introduction to human body, Anthropometries and its application to vehicle ergonomics.

UNIT II

Passenger comfort – Ingress and egress, spaciousness, ventilation, temperature control, dust and fume prevention and vibration.

UNIT III

Introduction to filed view, types of filed view, forward field of view and evaluation, mirror design issue, methods of measuring field of view, and other visibility issues

UNIT IV

Vehicle occupant posture, position and vehicle interior design, H point and its application in automotive design, driver selected seat position, driver eye location, head position, vehicle seats, seating reference point and seat track length, head restraints, seat belt fit and donning, cascade posture prediction models, Monte Carlo simulation.

UNIT V

Safety issues, Ergonomic research methods / ergonomic audit Texts/

REFERENCE BOOKS:

1. Nikolaos Gkikas, Automotive ergonomics Driver vehicle interaction CRC Press Publication,
2. Mark R Lehto, James R Buck, Introduction to human factors and ergonomics for engineers, Taylor and Francis Group publication, 2008.
3. Vivek D Bhise, Ergonomics in automotive design process, CRC Press Publications, 2012.
4. B. Peacock, Waldemar Karwowski, Automotive Ergonomics, Taylor and Francis Publication, 1993.
5. David Meister, The History of Human Factors and Ergonomics, Taylor and Francis Publication, 1999.