

Vehicle Safety Engineering

Module Information

2022.01, Approved

Summary Information

Module Code	5503ICBTAE
Formal Module Title	Vehicle Safety Engineering
Owning School	Engineering
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	45
Off Site	6
Practical	12
Tutorial	15

Module Offering(s)

Display Name	Location	Start Month	Duration Number	Duration Unit
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APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module aims to provide a comprehensive understanding of the principles and technology relating to advanced motor vehicle, road and driver safety features. Further this aims to incorporate safety into the overall design and manufacture systems in automotive engineering and incorporate into conceptual design and development of safety systems for automobiles
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Evaluate the evolution of the concept of vehicle safety and demonstrate a thorough understanding of the technical aspects of vehicle and road safety.
MLO2	2	Describe the safety considerations pertaining to infrastructure design.
MLO3	3	Qualitatively and quantitatively assess vehicle safety systems.
MLO4	4	Analyse and discuss the relevance of driver behaviour and attitudes towards road safety and discuss the social and economic impacts of road accidents.

Module Content

Outline Syllabus	Introduction to transmission systems.Clutch operation Manual transmission Torque converterAutomatic and CV transmissionIntroduction to suspension systems. Introduction to steering systems.Geometries related to steering systemWheel alignmentSelf-centring actionIntroduction braking systems.Hydraulic brake systemPower assisted braking Advanced Vehicle Design & Safety Features, evolution of vehicle safety,Vehicle body designs Vehicle chassis design for occupant safety and protection; vehicle safety testing and rating standards; advanced active and passive safety features; vehicle ergonomics; driving assistance, anti-collision and parking aid systems; dual control vehicles and simulation for driver training. Driver Behaviour; Effects of driver behaviour towards road safety; effectiveness of driver training and testing programmes; advanced and specialist driver training schemes; driver training simulation techniques. Accident Analysis; causes and consequences of road accidents; types and frequency of collision; social and economic impacts of road accidents. Transport & Infrastructure Safety; Road safety considerations; road design and safety considerations; surface profiles; safety markings and signage; safety divisions and barriers; environmental considerations; future developments. Road safety strategies.
Module Overview	
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Practice	Practical/Workshop	30	0	MLO2, MLO3
Exam	Exam	70	2	MLO1, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Karl Jones	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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