

Module Information

2022.01, Approved

Summary Information

Module Code	5506ICBTAE
Formal Module Title	Economics of Automotive Systems and Value 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
Tutorial	15

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

JAN-PAR	PAR	January	12 Weeks
SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks

Aims and Outcomes

Aims	This unit will provide learners with the value management of automotive design and development process, economics of manufacture, virtual methods of testing and manufacture and economies of scale leading towards make or buy designs of components. In addition, the units also emphasize the running costs of automobiles including the fuel and maintenance which leads towards the concept of optimization. Finally the unit addresses the disposal costs and a total analysis of life cycle costing.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Identify different costs associated with design, development, manufacture, use, maintenance and disposal of vehicles.
MLO2	2	Discuss historical milestones and innovations in the automotive industry in terms of reduction on cost of manufacture and economics of usage and explain the importance of cost optimisation in automobiles in manufacture.
MLO3	3	Explain the value chain of automobiles and carry out the life cycle cost analysis.
MLO4	4	Illustrate the different approaches in vehicle maintenance and the effect of maintenance on economics of vehicles and carry out a basic survey on vehicle economics and cost studies.

Module Content

Outline Syllabus	Economics of design and development of vehicles Feasibility of design manufacture, design for manufacture, design and manufacture of parts, assembly techniques and costs associated with manufacture and assembly, economies of scale, cost of dies, breakeven, make or buy decision of parts, reciprocal arrangements in automobile manufacture History of economics of manufacture or cars, evolution of technology and cost of technology Materials selection for automotive manufacture, use of cost effective and durable materials, economics of materials processing technologies Virtual manufacture, introduction to FEA and other computational applications to reduce cost of manufacture and testing Energy cost, enhancing fuel economy, cost of maintenance, and drawbacks of breakdown maintenance, preventive maintenance, planned or scheduled maintenance, condition based monitoring, overall economics of usage and optimisation of cost effectiveness. Life cycle analysis of automobiles, disposal costs, costs on environment in usage and disposals of automobiles
Module Overview	
Additional Information	

Assessments

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

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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