

AUTOMOTIVE & MARINE ENGINEERING DEPARTMENT**PLO-CLO Course wise and Taxonomy Mapping of “FALL” Semester Courses**

| FIRST YEAR – AUTOMOTIVE | | | | |
|--|---|---------------|-----------------------|------------|
| INTRODUCTION TO AUTOMOTIVE SYSTEMS (AU-113) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | IDENTIFY different automotive systems and their main parts and assemblies. | C2 | 1 | CLO-1 |
| CLO-2 | EXPLORE features and characteristics of modern vehicles. | A3 | 12 | CLO-2 |
| CLO-3 | INTERPRET specifications of a vehicle and its main components as given by the manufacturer. | C3 | 1 | CLO-3 |
| APPLIED PHYSICS (PH-122) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | DISCUSS principle of physics, and explain the concept of classical and modern physics to solve related problems. | C2 | 1 | CLO-1 |
| CLO-2 | USE the concept of classical physics for engineering problems | C3 | 2 | CLO-2 |
| CLO-3 | APPLY the concept of modern physics to solve physical problem | C3 | 2 | CLO-3 |
| CLO-4 | PRACTICE of operating equipment / tools to understand principles of physics under supervision | P3 | 1 | CLO-4 |
| CALCULUS (MT-114) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | IDENTITY functions and define real and complex numbers | C1 | 1 | CLO-1 |
| CLO-2 | APPLY differential and integral calculus to engineering problems | C3 | 2 | CLO-2 |
| CLO-3 | DISCUSS the behavior of sequence and series. | C2 | 2 | CLO-3 |
| FUNCTIONAL ENGLISH (HS-104) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |

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| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DEMONSTRATE effective presentation skills in academic settings. | A2 | 10 | CLO-1 |
| CLO-2 | COMPREHEND explicit and implicit information through reading and listening strategies. | C2 | 10 | CLO-2 |
| CLO-3 | COMPOSE drafts of various academic genres using writing processes and strategies. | C6 | 10 | CLO-3 |
| PAKISTAN STUDIES (HS-105) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | UNDERSTAND the historical and ideological perspectives of Pakistan and their implications for individuals and professionals in societal contexts | C2 | 6 | CLO-1 |
| CLO-2 | EXPLAIN the strategic implications of international conventions and treaties applicable to Pakistan at the national and international level | C2 | 12 | CLO-2 |
| PAKISTAN STUDIES FOR FOREIGN STUDENTS (HS-127) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DESCRIBE the historical, ideological, socio-economic, and political aspects of Pakistan as a nation and state. | C2 | 6 | CLO-1 |
| CLO-2 | DISCUSS Pakistan’s culture, issues, and challenges through appropriate actions and advocacy | C2 | 12 | CLO-2 |
| WORKSHOP PRACTICE (ME-104) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | PRACTICE metal working using equipment and tools as per the provided guidelines | P3 | 4 | CLO-1 |
| CLO-2 | PRACTICE metal working using equipment and tools as per the provided guidelines | P3 | 4 | CLO-2 |
| CLO-3 | ADOPT safety protocols as per the Health Safety and Environment (HSE) guidelines | A4 | 6 | CLO-3 |
| SECOND YEAR – AUTOMOTIVE | | | | |
| AUTOMOTIVE PROPULSION (AU-241) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |

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| | At the end of the course, the student will be able to: | | | |
| CLO-1 | CALCULATE the real performance parameters of automotive propulsion. | C3 | 1 | CLO-1 |
| CLO-2 | COMPARE the performance of conventional power propulsion with green technologies. | C3 | 7 | CLO-2 |
| CLO-3 | INVESTIGATE the performance parameters of automotive propulsion systems. | P3 | 4 | CLO-3 |
| COMPUTE PROGRAMMING AND APPLICATION (AU-212) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DESCRIBE the concept of computer systems and its architecture, networks, database, operating systems and applications. | C2 | 1 | CLO-1 |
| CLO-2 | WRITE a computer program using a high level language. | C3 | 1 | CLO-2 |
| CLO-3 | USE application software to perform engineering calculations. | C3 | 5 | CLO-3 |
| FUNDAMENTALS OF ANALOGUE & DIGITAL ELECTRONICS (AU-225) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | CALCULATE the operational parameters of different types of BJT and FET based amplifier circuits. | C3 | 1 | CLO-1 |
| CLO-2 | SOLVE the digital circuits using Boolean algebra for different combinational Logics. | C3 | 1 | CLO-2 |
| CLO-3 | DEMONSTRATE the operation of different amplifiers and combinational logic circuits using laboratory equipment. | P3 | 4 | CLO-3 |
| ORDINARY DIFFERENTIAL EQUATIONS & FOURIER SERIES (MT-223) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DESCRIBE formation of differential equations to explain physical situations | C2 | 1 | CLO-1 |
| CLO-2 | APPLY appropriate methods to solve differential equations of relevant engineering problems. | C3 | 2 | CLO-2 |
| DYNAMICS (ME-222) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |

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| CLO-1 | EXPLAIN key concepts related to kinematics and kinetics of particles in different Coordinate Systems | C2 | 1 | CLO-1 |
| CLO-2 | APPLY the principle of work and energy for solving problems on kinetics of particles or rigid body kinetics | C3 | 2 | CLO-2 |
| CLO-3 | CARRYOUT kinematic / kinetic analysis for different types of rigid body motions | C3 | 2 | CLO-3 |
| ISLAMIC STUDIES (HS-205) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | EXPLAIN the given Quranic verses and Hadiths to their tangible meaning and message. | C2 | 8 | CLO-1 |
| CLO-2 | DESCRIBE the basic concepts of Shariah, the features of Seerat-un-Nabi (SAW), and the impact of Islam on our society. | C2 | 8 | CLO-2 |
| ETHICAL BEHAVIOUR (HS-209) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | EXPLAIN the ethical teachings of the world's major religions. | C2 | 8 | CLO-1 |
| CLO-2 | DESCRIBE the importance and implications of ethics on individuals and societies. | C2 | 8 | CLO-2 |
| THIRD YEAR – AUTOMOTIVE | | | | |
| COMBUSTION, EMISSION AND POLLUTION (AU-313) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | CALCULATE heating and cooling load for a vehicle cabin space. | C3 | 1 | CLO-1 |
| CLO-2 | DEMONSTRATE sustainable solution for automotive thermal management applications. | C3 | 7 | CLO-2 |
| ADVANCED CALCULUS & LINEAR ALGEBRA (MT-332) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DESCRIBE formation of system of linear equations and vector calculus to explain physical situations | C2 | 1 | CLO-1 |

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| CLO-2 | APPLY appropriate methods to solve system of linear equations in relevant engineering problems. | C3 | 2 | CLO-2 |
| CLO-3 | USE of vector calculus in relevant engineering problems. | C3 | 2 | CLO-3 |
| BUSINESS COMMUNICATION & ETHICS (HS-304) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DEMONSTRATE effective oral communication and interpersonal skills in simulated professional and business situations. | A3 | 10 | CLO-1 |
| CLO-2 | COMPOSE effective business messages for various purposes and audiences. | C6 | 10 | CLO-2 |
| CLO-3 | APPLY principles, theories, and codes of ethics in situations related to professional practice. | C3 | 8 | CLO-3 |
| FLUID MECHANICS (AU-317) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | SOLVE fluid statics and dynamics problem using relevant equations. | C3 | 1 | CLO-1 |
| CLO-2 | CALCULATE velocity or pressure distribution for inviscid and viscous fluid flow. | C3 | 1 | CLO-2 |
| CLO-3 | APPLY relevant governing equations in solving real life fluid flow problems. | C3 | 2 | CLO-3 |
| AUTOMOTIVE EMBEDDED SYSTEM (AU-331) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DEVELOP application programs for automotive embedded systems. | C3 | 1 | CLO-1 |
| CLO-2 | RECOGNIZE the importance of automotive embedded systems in the modern vehicles. | A3 | 12 | CLO-2 |
| DESIGN OF MACHINE ELEMENTS (AU-315) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | SELECT appropriate material and failure criteria for design of machine elements. | C4 | 1 | CLO-1 |
| CLO-2 | DESIGN machine components using first principle approach. | C5 | 3 | CLO-2 |
| MODELING & SIMULATION LAB (AU-312) | | | | |

| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
|---|--|---------------|-----------------------|------------|
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | USE relevant software for engineering modeling and simulation. | C3 | 5 | CLO-1 |
| CLO-2 | RESPOND effectively the assigned task. | A2 | 9 | CLO-2 |
| FINAL YEAR – AUTOMOTIVE | | | | |
| DESIGN FOR MANUFACTURING (AU-424) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | VALUE the aspects which are detrimental to society in the design for manufacturing. | A3 | 6 | CLO-1 |
| CLO-2 | APPLY project management techniques in the design for manufacturing. | C3 | 11 | CLO-2 |
| THERMAL MANAGEMENT FOR AUTOMOTIVE (AU-425) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | CALCULATE heating and cooling load for a vehicle cabin space. | C3 | 1 | CLO-1 |
| CLO-2 | DEMONSTRATE sustainable solution for automotive thermal management applications. | C3 | 7 | CLO-2 |
| OPERATION MANAGEMENT (ME-435) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | APPLY operations management principles to optimize the overall business strategy of the firm | C3 | 2 | CLO-1 |
| CLO-2 | PREPARE network models and apply techniques to manage project resources | C3 | 11 | CLO-2 |
| CLO-3 | USE computational tool to manage the plan, schedule and resources of operation/project of a firm. | C3 | 5 | CLO-3 |
| CLO-4 | APPLY method of statistical quality control for process improvement(s) | C3 | 10 | CLO-4 |
| VEHICLE DYNAMICS (AU-314) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | SOLVE vehicle dynamics problems by applying | C3 | 1 | CLO-1 |

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| | principles of dynamics. | | | |
| CLO-2 | DETERMINE vehicle dynamics parameters using software (ADAMS) | C3 | 5 | CLO-2 |

PLO-CLO Course wise and Taxonomy Mapping of “SPRING” Semester Courses

| FIRST YEAR – AUTOMOTIVE | | | | |
|---|--|--------|----------------|-------|
| ENGINEERING DRAWING & COMPUTER GRAPHICS (AU-112) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DRAW geometric curves, simple machine parts, sections and assembly drawings. | P3 | 1 | CLO-1 |
| CLO-2 | INTERPRET working drawings | C4 | 10 | CLO-2 |
| CLO-3 | USE software for simple 2D and 3D drawings | C3 | 5 | CLO-3 |
| STATICS (ME-106) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DEFINE different theoretical concepts related to statics | C1 | 1 | CLO-1 |
| CLO-2 | APPLY vector algebra and equations of equilibrium in engineering problems | C3 | 2 | CLO-2 |
| CLO-3 | CARRY out calculation for the centroid, moment of areas and inertia for systems under equilibrium | C3 | 2 | CLO-3 |
| CLO-4 | PERFORM experiments related to mechanical systems in static equilibrium as per the provided instructions | P3 | 4 | CLO-4 |
| THERMODYNAMICS (ME-112) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | DISCUSS the nature and role of the thermodynamics properties of matter and processes on appropriate diagrams. | C2 | 1 | CLO-1 |
| CLO-2 | APPLY the laws of thermodynamics to open and close systems. | C3 | 2 | CLO-2 |
| CLO-3 | ANALYZE the performance of different power cycles. | C4 | 2 | CLO-3 |
| BASIC ELECTRICITY & ELECTRONICS (EE-118) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | APPLY the circuit analysis laws to solve DC and AC electric circuits. | C3 | 1 | CLO-1 |

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| CLO-2 | APPLY the circuit analysis laws to solve electronic circuits and electric machine models. | C3 | 1 | CLO-2 |
| CLO-3 | DEMONSTRATE understanding of electric circuits and will be able to verify different network theorem experimentally. | P3 | 4 | CLO-3 |

APPLIED CHEMISTRY (CY-109)

| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
|--|--|--------|----------------|-------|
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | EXPLAIN the concepts of physical and analytical chemistry for engineering applications. | C2 | 1 | CLO-1 |
| CLO-2 | SOLVE problems of fluids and fuels, thermos & electrochemistry. | C3 | 2 | CLO-2 |
| CLO-3 | APPLY the concepts of applied chemistry to industrial processes. | C3 | 2 | CLO-3 |
| CLO-4 | OPERATE the equipment with guidance to measure physical & chemical parameters. | P3 | 1 | CLO-4 |

SECOND YEAR – AUTOMOTIVE

MECHANICS OF MATERIALS (IM-209)

| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
|--|---|--------|----------------|-------|
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | DESCRIBE (V) the fundamental knowledge of basic mechanical properties of engineering materials(S) using the analytical and graphical techniques(C). | C2 | 1 | CLO-1 |
| CLO-2 | ANALYZE (V) the effect of forces on different geometrical parameters (C) of machine elements of machine such as beams, columns, pressure vessels etc. according to the available standard (S). | C4 | 2 | CLO-2 |
| CLO-3 | USE the methods to estimate (V) the Tensile, compressive, shearing, bending stresses. | C3 | 3 | CLO-3 |

MANUFACTURING PROCESSES (ME-311)

| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
|--|--|--------|----------------|-------|
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | EXPLAIN different types of casting and their output characteristics | C2 | 1 | CLO-1 |
| CLO-2 | DISCUSS various manufacturing and welding processes for metals | C2 | 1 | CLO-2 |
| CLO-3 | DISCUSS the different mechanisms used for the fabrication of plastics | C2 | 1 | CLO-3 |
| CLO-4 | DISCUSS the different machining process and machine tools used in manufacturing processes | C2 | 1 | CLO-4 |

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| CLO-5 | PERFORM various machining operation on the job piece as per the guidelines | P3 | 4 | CLO-5 |
| FEEDBACK CONTROL SYSTEMS (EE-376) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | DEVELOP transfer function of different systems using analogies. | C3 | 1 | CLO-1 |
| CLO-2 | ANALYZE the control system using time domain and frequency domain methods. | C4 | 2 | CLO-2 |
| CLO-3 | USE software for solving control system problems | C3 | 5 | CLO-3 |
| APPLIED PROBABILITY & STATISTICS (MT-330) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | DISCUSS the fundamental concepts in Probability and Statistics | C2 | 1 | CLO-1 |
| CLO-2 | ANALYZE data to produce mathematical or probabilistic models in relevant engineering problems. | C4 | 2 | CLO-2 |
| CLO-3 | PERFORM statistical analysis on data through computer software. | P3 | 2 | CLO-3 |
| MATERIALS & METALLURGY (ME-209) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | DISCUSS mechanical properties, crystallography, degradation, and imperfections of materials. | C2 | 1 | CLO-1 |
| CLO-2 | ANALYZE diffusion, phase transformation and their effects on material properties. | C4 | 2 | CLO-2 |
| CLO-3 | SELECT engineering materials for a given applications in a team or an individual capacity. | C6 | 9 | CLO-3 |
| CLO-4 | FOLLOW experimental procedures used in material science and engineering including sample preparation, material's treatment, characterization and engineering applications | P3 | 4 | CLO-4 |
| THIRD YEAR - AUTOMOTIVE | | | | |
| VEHICLE NOISE & VIBRATION (AU-323) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |

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| CLO-1 | CALCULATE vibration parameters. | C3 | 1 | CLO-1 |
| CLO-2 | SOLVE vibration problems using first principle approach. | C3 | 3 | CLO-2 |
| CLO-3 | UNDERSTAND the impact of NVH in vehicles. | C2 | 7 | CLO-3 |
| APPLIED ECONOMICS FOR ENGINEERS (MF-303) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | COMPREHEND AND EXPLAIN basic principles of economics and engineering economics, important cost types, and engineering economics analysis method(s) (NPV, IRR, Profitability Index, Payback period, benefit-cost ratio, etc.) descriptively. | C2 | 1 | CLO-1 |
| CLO-2 | APPLY engineering economics principles and analysis method(s) to solve real world problems. Also use computer tools such as Excel spreadsheets for analysis. | C3 | 2 | CLO-2 |
| CLO-3 | EXPLAIN ethical dimension in engineering decision making process. | C2 | 8 | CLO-3 |
| VEHICLE RIDE & HANDLING LAB (AU-316) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | DEMONSTRATE the investigation of vehicle ride and handling parameters. | P3 | 4 | CLO-1 |
| CLO-2 | RESPOND the handling of NVH issues in a vehicle. | A2 | 9 | CLO-2 |
| AUTOMOBILE INSTRUMENTATION (AU-332) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | CALCULATE parameters of measurement system and its errors. | C3 | 1 | CLO-1 |
| CLO-2 | DEMONSTRATE the use of instrumentation in modern vehicles. | P3 | 4 | CLO-2 |
| HEAT & MASS TRANSFER (ME-315) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| At the end of the course, the student will be able to: | | | | |
| CLO-1 | APPLY heat transfer models and analogies on various thermal systems | C3 | 2 | CLO-1 |
| CLO-2 | DESIGN heat exchangers using standard practices | C5 | 3 | CLO-2 |

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| CLO-3 | PREPARE a report and presentation on performance of thermal systems available in any industrial facility while incorporating project management techniques | C3 | 11 | CLO-3 |
| CLO-4 | FOLLOW experimental procedure to study different modes of heat transfer | P3 | 4 | CLO-4 |
| CHASSIS SYSTEM DESIGN (AU-333) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | SELECT appropriate chassis systems and sub systems based on design principles. | C3 | 3 | CLO-1 |
| CLO-2 | RECOGNIZE the newer technologies being used in chassis design systems in modern vehicles. | C2 | 12 | CLO-2 |
| FINAL YEAR – AUTOMOTIVE | | | | |
| ELECTRIC & HYBRID ELECTRIC VEHICLES (AU-438) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | SELECT the major components of Electric and Hybrid Electric Vehicles. | C5 | 1 | CLO-1 |
| CLO-2 | CALCULATE different operational parameters of traction motors and battery. | C3 | 1 | CLO-2 |
| QUALITY MANAGEMENT & RELIABILITY (AU-430) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | USE statistical software for quality control and reliability. | C3 | 5 | CLO-1 |
| CLO-2 | APPLY lean methodologies for the benefits of local industry. | C3 | 6 | CLO-2 |
| AUTOMOTIVE HEALTH SAFETY & ENVIRONMENT (AU-428) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | APPLY aspects of health, safety and legal obligations in engineering practice and problem solving. | C3 | 6 | CLO-1 |
| CLO-2 | UNDERSTAND features used in modern vehicles impacting environment and sustainability. | C2 | 7 | CLO-2 |
| AUTOMOTIVE ENGINEERING PROJECT (AU-499) | | | | |

| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
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| | At the end of the course, the student will be able to: | | | |
| CLO-1 | ANALYSE the problem related to the FYDP | C | 2 | CLO-1 |
| CLO-2 | DESIGN/DEVELOP solutions related to the FYDP | C | 3 | CLO-2 |
| CLO-3 | DEMONSTRATE the relevance of the SDGs in the FYDP | C | 7 | CLO-3 |
| CLO-4 | VALUE the ethical standard related to the FYDP | A | 8 | CLO-4 |
| CLO-5 | VALUE team work related to the FYDP | A | 9 | CLO-5 |
| CLO-6 | DEMONSTRATE team work related to the FYDP | C | 9 | CLO-6 |
| CLO-7 | VALUE the sharing of work with the group members related to the FYDP | A | 10 | CLO-7 |
| CLO-8 | DEMONSTRATE communication skills related to the FYDP | C | 10 | CLO-8 |
| CLO-9 | VALUE timely completion of the tasks related to the FYDP | A | 11 | CLO-9 |
| CLO-10 | DEMONSTRATE project management techniques related to the FYDP | C | 11 | CLO-10 |
| CLO-11 | APPRECIATE technological development related to the FYDP | C | 12 | CLO-11 |
| ENTREPRENEURSHIP (MG-481) | | | | |
| CLO # | CLO | DOMAIN | TAXONOMY LEVEL | PLO |
| | At the end of the course, the student will be able to: | | | |
| CLO-1 | EXPLAIN basic functions and importance of entrepreneurship. | C2 | 12 | CLO-1 |
| CLO-2 | VALUE business ethics on entrepreneurial activities. | A3 | 8 | CLO-2 |
| CLO-3 | DEMONSTRATE the entrepreneurial skills to develop business plan. | C3 | 11 | CLO-3 |