ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)
KESANUPALLI (V), NARASARAOPETA-522549, AP
www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

DEPARTMENT OF AUTOMOBILE ENGINEERING

COURSE OUTCOMES

A.Y:- 2021-2022

Year/Sem: II B.Tech I SEM

Course Name: MATHEMATICS-III(Vector Calculus, Transforms and PDE)	
Course Code: AME2101	
AME2101.1	Able to Interpret the physical meaning of different operators such as gradient, curl and divergence (L5)
AME2101.2	Estimate the work done against a field, circulation and flux using vector calculus (L5)
AME2101.3	Apply the Laplace transform for solving differential equations (L3)
AME2101.4	Find or compute the Fourier series of periodic signals (L3)
AME2101.5	Know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms (L3)
AME2101.6	Identify solution methods for partial differential equations that model physical processes (L3)

Course Name: THERMODYNAMICS	
Course Code: AME2102	
AME2102.1	Define basic concepts of thermodynamics.
AME2102.2	Describe Laws of thermodynamics.
AME2102.3	Explain Concept of entropy.
AME2102.4	Evaluation of vapors and their depiction in tables .
AME2125.5	Evaluation of charts.
AME2102.6	Evaluation of properties of perfect gas mixtures.

Course Name: MECHANICS OF SOLIDS	
Course Code: AME2103	
AME2103.1	Model & Analyze the behavior of basic structural members subjected to various loading and support conditions based on principles of equilibrium.
AME2103.2	Able to Understand the apply the concept of stress and strain to analyze and design structural members and machine parts under axial, shear and bending loads, moment and torsional moment.
AME2103.3	Analyze beams, columns, frames for normal, shear, and torsion stresses and to solve deflection problems in preparation for the design of such structural components.
AME2103.4	Analyse beams and draw correct and complete shear and bending moment diagrams for beams.
AME2103.5	Able to understanding of the loads, stresses, and strains acting on a structure

	and their relations in the elastic behavior
AME2103.6	Design and analysis of Industrial components like pressure vessels.

Course Name: Fluid Mechanics & Hydraulic Machines	
Course Code: AME2104	
AME2104.1	Able to know the basic concepts of fluid properties.
AME2104.2	Explain the mechanics of fluids in static and dynamic conditions.
AME2104.3	Clarify Boundary layer theory, flow separation and dimensional analysis.
AME2104.4	Describe Hydrodynamic forces of jet on vanes in different positions.
AME2104.5	Explain Working Principles and performance evaluation of hydraulic pump
AME2104.6	Describe Working Principles and performance evaluation of hydraulic turbines.

Course Name: Components of Automobile Chassis	
Course Code: AME2105	
AME2105.1	Identify the different types of frame and chassis used inAutomotive.
AME2105.2	Able to know relate different types of drive lines and drives used inAutomotive.
AME2105.3	Acquire knowledge about different types of front axle and rear axles used in motor vehicles.
AME2105.4	Acquire knowledge about different types of rear axles used in motor vehicles.
AME2105.5	Examine the working principle of conventional and independent suspension systems .
AME2105.6	Apply knowledge on working principles of brake and its subsystems.

Course Name: Mechanics of Solids & Metallurgy Lab	
Course Code: AME2106	
AME2106.1	Determine Mechanical properties and Elastic Constants
AME2106.2	Appraise the students with the use of testing machines
AME2106.3	Characterize the microstructures of different ferrous and non ferrous metals.
AME2106.4	Identify the effect of heat treatment and cooling rates on the properties of steels
AME2106.5	Clarify Hardeneability of steels by Jominy End QuenchTest
AME2106.6	Able to know the Microstructure of Mild steels, low carbon steels, high – Csteels

Course Name: Automobile Chassis lab	
Course Code: AME2107	
AME2107.1	Able to know the understand working of braking, , Suspension systems.
AME2107.2	Describe understand working of steering.
AME2107.3	Define understand working of clutch.
AME2107.4	Explain working of transmission.
AME2107.5	Differentiate various subsystems of two, three & Four wheeler vehicles
AME2107.6	Develop skills in Dismantling and assembling of chassis components.

Course Name: Fluid Mechanics & Hydraulic Machines lab	
Course Code: AME2108	
AME2108.1	To gain practical exposure on the performance evaluation methods of Turbine flow meter
AME2108.2	To gain practical exposure on the performance evaluation methods of Pelton Wheel
AME2108.3	To gain practical exposure on the performance evaluation methods of Francis Turbine
AME2108.4	To gain practical exposure on the performance evaluation methods of Reciprocating pump
AME2108.5	To gain practical exposure on the performance evaluation methods of Venturimeter
AME2108.6	To gain practical exposure on the performance evaluation methods of Centrifugal pump

Course Name: COMPUTER AIDED DRAFTING AND MODELLING LAB	
Course Code: AME2109	
AME2109.1	Able to use software like AutoCAD, Invertor/ Pro E/ Unigraphics.
AME2109.2	Learned basic concept to drawing, edit, dimension, hatching etc. to develop 2D Modelling.
AME2109.3	Learned basic concept to drawing, edit, dimension, hatching etc. to develop 3D Modelling.
AME2109.4	Able to make 3D assembling of different machine components
AME2109.5	Able to make 3D modelling, modification & manipulation along with detailing.

AME2109.6	Able to prepare surface modelling and sheet metal operations through various exercises

Year/Sem: II B.Tech II SEM

Course Name: Applied Thermodynamics	
Course Code: AME2201	
AME2201.1	Expected to learn the working of steam power cycles and also should be able to analyze and evaluate the performance of individual components
AME2201.2	Able to learn the principles of combustion ,stochiometry and flue gas analysis
AME2201.3	Able to design the components and calculate the losses and efficiency of the boilers.
AME2201.4	Able to design the components and calculate the losses and efficiency of the nozzles.
AME2201.5	Able to design the components and calculate the losses and efficiency of the turbines and condensers.
AME2201.6	Able to learn various types of compressors, principles of working and their performance evaluation.

Course Name: COMPLEX VARIABLES AND STATISTICAL METHODS	
Course Code: AME2202	
AME2202.1	Apply Cauchy-Riemann equations to complex functions in order to determine whether a given continuous function is analytic (L3)
AME2202.2	Find the differentiation and integration of complex functions used in engineering problems (L5)
AME2202.3	Make use of the Cauchy residue theorem to evaluate certain integrals (L3)
AME2202.4	Apply discrete and continuous probability distributions (L3)
AME2202.5	Design the components of a classical hypothesis test (L6)
AME2202.6	Infer the statistical inferential methods based on small and large sampling tests (L4)

Course Name: AUTOMOBILE ENGINES	
Course Code: AME2203	
AME2203.1	Able to know the Air Standard and Actual Cycles
AME2203.2	Explain the Four Stroke and Two Stroke Engines
AME2203.3	Able to know about the Lubrication, Cooling systems, Supercharging and Turbocharging
AME2203.4	Describe the Carburetor and its types

AME2203.5	Define the Homogeneous Charge Compression Ignition(HCCI), Reactivity Controlled Compression Ignition (RCCI) Technologies and Pre-mixed Charge Compression (PCCI)
AME2203.6	Able to know the Emission Effects on Health & Environment

Course Name: AUTOMOBILE ELECTRICAL AND ELECTRONICS	
Course Code: AME2204	
AME2204.1	Formulate the resource management problems and identify appropriate methods to solve them
AME2204.2	Apply LPP.
AME2204.3	Apply transportation and assignment models to optimize the industrial resources
AME2204.4	Solve decision theory problems through the application of game theory
AME2204.5	Apply the replacement and queuing models to increase the efficiency of the system
AME2204.6	Model the project management problems through CPM and PERT

Course Name: Operations Research	
Course Code: AME2205	
AME2205.1	Formulate the resource management problems and identify appropriate methods to solve them
AME2205.2	Apply LPP.
AME2205.3	Apply transportation and assignment models to optimize the industrial resources
AME2205.4	Solve decision theory problems through the application of game theory
AME2205.5	Apply the replacement and queuing models to increase the efficiency of the system
AME2205.6	Model the project management problems through CPM and PERT

Course Name: Automobile Assembly Drawing	
Course Code: AME2206	
AME2206.1	Describe various joint, simple mechanical parts Selection of Views
AME2206.2	Explain machine elements and parts with every drawing proportions.
AME2206.3	Able to Shaft coupling, spigot and socket pipejoint
AME2206.4	able to draw the assembly from the individual part drawing
AME2206.5	Explain the Drawings of assembled views for the part drawings
AME2206.6	Able to know the spring loaded safety valve, feed check valve and air cock, Controlvalves

Course Name: Automobile Engines & Fuels Lab	
Course Code: AME2207	
AME2207.1	Expected to know the principles in assembly.
AME2207.2	Able to know the principles in dismantling of engine components.
AME2207.3	Describe the Dismantle and Assemble of Agriculture single Cylinder and

	Multi- Cylinder Automotive Engines
AME2207.4	Explain characteristics automobile
AME2207.5	Able to know the fuels.
AME2207.6	Explain lubricants used in automobile
Course Name: Automobile Electrical & Electronics Lab	
Course Code: AME2208	
AME2208.1	Able to know the batteries and starter motor testing
AME2208.2	Alarifty the alternator testing and wiring system
AME2208.3	Describe Battery Ignition System and different Electrical Equipment's
AME2208.4	Able to know the different sensors and various electronics system
AME2208.5	Describe the lighting system of two wheeler and FourWheeler
AME2208.6	Define the Automotive Electronics

Course Name: MACHINE TOOLS AND METROLOGY LAB	
Course Code: AME2209	
AME2209.1	Explain hands on experience on lathe machine to perform turning, facing, threading operations.
AME2209.2	Explain flat surface machining, milling and grinding operations.
AME2209.3	Able to know the drilling and threading operations.
AME2209.4	Describe Linear and angular measurements exposure.
AME2209.5	Describe machine tool alignment test on the lathe
AME2209.6	Able to operate various precession measuring instruments and working and operations of various machines tools

Year/Sem: III B.Tech I SEM

Course Name: DYNAMICS OF MACHINERY	
Course Code: AME3101	
AME3101.1	Compute the frictional losses and transmission in clutches, brakes and dynamometers
AME3101.2	Determine the effect of gyroscopic couple in motor vehicles, ships and aeroplanes
AME3101.3	Analyze the forces in four bar and slider crank mechanisms and design a flywheel
AME3101.4	Determine the rotary unbalanced mass in reciprocating equipment
AME3101.5	Determine the unbalanced forces and couples in reciprocating and radial engines
AME3101.6	Determine the natural frequencies of discrete systems undergoing longitudinal, torsional and transverse vibrations.

Course Name: FUELS AND COMBUSTION	
Course Code: AME3102	
AME3102.1	Able to understand the various kinds of fuels

AME3102.2	Able to understand the characteristics and origin
AME3102.3	Able to understand the thermodynamics behind combustion
AME3102.4	Clarify the flame propagation
AME3102.5	Able to know the choice of combustion systems
AME3102.6	Define combustion and chemical kinetics.

Course Name: AUTOMOTIVE COMPONENTS DESIGN	
Course Code: AME3103	
AME3103.1	Able to know theFundamentals of Machine Design
AME3103.2	Able to know the Design of Shafts
AME3103.3	Define and explaination of friction clutch
AME3103.4	Able to know the design of brakes and components
AME3103.5	Able to know the design of gears and components
AME3103.6	Able to know the design of Bearings

Course Name: MICRO PROCESSORS AND MICRO CONTROLLERS	
Course Code: AME3104	
AME3104.1	Able to know the develop programs for different addressing modes.
AME3104.2	Able to know the perform 8086 interfacing with different peripherals and implement programs
AME3104.3	Describe the key features of serial and parallel communication
AME3104.4	Design a microcontroller for simple applications
AME3104.5	Describe the PIC16Cx/7X instructions and interrupts in PIC 16C61/71
AME3104.6	Able to know the assembly language programming tools.

Course Name: MACHINE TOOLS AND METROLOGY	
Course Code: AME3105	
AME3105.1	Define fundamentals of metal cutting and forces
AME3105.2	Explain concepts of Engine Lathe
AME3105.3	Able to know theDrilling and boring machines
AME3105.4	Able to know the tolerances and measurement instruments
AME3105.5	Explain Optical measurement instruments
AME3105.6	Able to know the Surface roughness measurement

Course Name: AUTOMOTIVE ENGINES AND FUELS LAB	
Course Code: AME3106	
AME3106.1	Able to know the principles in assembly & dismantling of Single cylinder two and four stroke engines
AME3106.2	Able to know the assembly & dismantling of Carburetor and Fuel injection pump

AME3106.3	Able to know the assembly & dismantling of Lubrication system and Cooling system
AME3106.4	Clarify the Flash and Fire points of petrol and diesel
AME3106.5	Describe the viscosity of lubricants & Fuels
AME3106.6	Able to know the Cloud and Pour point Test

Course Name: MICRO PROCESSORS AND MICRO CONTROLLERS LAB	
Course Code: AME3107	
AME3107.1	Understand and apply the fundamentals of assembly level programming of microprocessors and microcontroller
AME3107.2	Able to know Work with standard microprocessor real time interfaces including GPIO, serial ports, digital-to-analog converters and analog-to-digital converters
AME3107.3	Clarify Troubleshoot interactions between software and hardware
AME3107.4	Able to know Timer in different modes
AME3107.5	Analyze abstract problems and apply a combination of hardware and software to address the problem;
AME3107.6	Use standard test and measurement equipment to evaluate digital interfaces.

Course Name: PRODUCTION TECHNOLOGY LAB	
Course Code: AME3108	
AME3108.1	Design and manufacture simple patterns
AME3108.2	Able to know the Sand testing
AME3108.3	Clarify Arc welding, gas welding and resistance welding
AME3108.4	Evaluate the quality of welded joints
AME3108.5	Describe Injection Molding and Blow Molding
AME3108.6	Able to know the Brazing and soldering

Year/Sem: III B.Tech II SEM

Course Name: HEAT TRANSFER	
Course Code: AME3201	
AME3201.1	Represent the physical problems of heat transfer in terms of governing equations or mathematical models
AME3201.2	Differentiate between different boundary conditions and apply the same for solving heat transfer problems
AME3201.3	Design thermal systems applying the concepts of heat transfer under steady state and well as unsteady state conditions
AME3201.4	Design, select and analyze the heat exchangers
AME3201.5	Apply the radiation concepts to the engineering devices
AME3201.6	Able to know the Radiation Heat Transfer

Course Name: ELECTRICAL VEHICLES AND HYBRID TECHNOLOGY	
Course Code: AME3202	
AME3202.1	Define and exlplain Electric and hybrid vehicle operation and architectures
AME3202.2	Design of hybrid and electric vehicles
AME3202.3	Able to know the Energy requirement for vehicles
AME3202.4	Describe Vehicle characteristics, operating modes, and performance parameters of the vehicle
AME3202.5	Clarify Different subsystems of hybrid and electric vehicles
AME3202.6	Able to know the Control Strategies for Hybrid Vehicle

Course Name: AUTOMOTIVE CHASSIS DESIGN	
Course Code: AME3203	
AME3203.1	Able to know the Design of Frames for Passenger and Commercial Vehicle
AME3203.2	Clarify Steering Design and its components
AME3203.3	Calculation of Tyre rolling radius, checking of camber change & Toe Change
AME3203.4	Able to know the Gear Box Design
AME3203.5	Define and explain Continuous Variable Transmission
AME3203.6	Able to know the Pressure Spring and Fly weight System

Course Name: AUTOMOTIVE POLLUTION AND CONTROL	
Course Code: AME3204	
AME3204.1	Explain air pollution and pollutants, their sources & their effects.
AME3204.2	Describe different parameters responsible for pollutant formation.
AME3204.3	Choose instruments for pollution measurements.
AME3204.4	Analyze measurement of pollutants
AME3204.5	Explain Constant Volume Sampling I and 3
AME3204.6	Able to know the Encapsulation technique for noise reduction

Course Name: RENEWABLE ENERGY SOURCES	
Course Code: AME3205	
AME3205.1	Analyze solar radiation data, extraterrestrial radiation, and radiation on earth's surface
AME3205.2	Design solar photo voltaic systems
AME3205.3	Develop maximum power point techniques in solar PV and wind energy systems.
AME3205.4	Explain wind energy conversion systems, wind generators, power generation
AME3205.5	Explain basic principle and working of hydro, tidal, biomass, fuel cell and geothermal systems.
AME3205.6	Describe Energy equation and Types of turbines

Course Name: AUTOMOTIVE ELECTRICAL AND ELECTRONICS LAB	
Course Code: AME3206	
AME3206.1	Know the batteries and starter motor testing
AME3206.2	Understanding the alternator testing and wiring system
AME3206.3	Study of Battery Ignition System and different Electrical Equipment's
AME3206.4	Know about the different sensors and various electronics system
AME3206.5	Understand the lighting system of two wheeler and FourWheeler
AME3206.6	Know the Automotive Electronics

Course Name: METROLOGY AND MACHINE TOOLS LAB	
Course Code: AME3207	
AME3207.1	Explain hands on experience on lathe machine to perform turning, facing, threading operations.
AME3207.2	Explain flat surface machining, milling and grinding operations.
AME3207.3	Able to know the drilling and threading operations.
AME3207.4	Describe Linear and angular measurements exposure.
AME3207.5	Describe machine tool alignment test on the lathe
AME3207.6	Able to operate various precession measuring instruments and working and operations of various machines tools

Course Name: AUTO SCANNING & VEHICLE TESTING LAB	
Course Code: AME3208	
AME3208.1	Understand automotive scan tools
AME3208.2	Diagnostic equipment for fault diagnosis and troubleshooting
AME3208.3	Understand the Computerized engine analyzer and wheel balancing machine
AME3208.4	Know the Two wheeler chassis dynamometer
AME3208.5	Understand the Head light focusing test andVisibility test
AME3208.6	Know the bus depots and service station workshop layouts

ESWAR COLLEGE OF ENGINEERING

(Approved by AICTE, & Affiliated to JNTUK, A.P.)

KESANUPALLI (V), NARASARAOPETA-522549, AP

www.eswarcollegeofengg.org, email:eswarcollegeofengg@gmail.com

Year/Sem: IV B.Tech I SEM

Course Name: AUTOMOTIVE CHASSIS & SUSPENSION	
Course Code: AME4101	
AME4101.1	Explain different chassis layouts and frames, Suspensions, Wheels and Tyres
AME4101.2	Determine stability and weight distribution and suitability of frames.
AME4101.3	Describe, about various Front Axles, factors of wheel alignment Steering Systems and Calculate dimensions of Front Axle
AME4101.4	Able to know Front Wheel Mounting
AME4101.5	Able to know the brakes and its components
AME4101.6	Describe Classification of two and three wheelers

Course Name: VEHICLE DYNAMICS	
Course Code: AME4102	
AME4102.1	Understand the principles underlying the development and design of road vehicles under the influence of dynamic loads
AME4102.2	Analyze the performance and establish the design specifications for the acceleration and braking conditions.
AME4102.3	Model, simulate and analyze the conventional road vehicles for better ride comfort.
AME4102.4	Analyze the cornering forces and effects of tractive forces on cornering
AME4102.5	Analyze the cornering effects of tractive forces on cornering
AME4102.6	Design suspension systems for better damping and comfort

Course Name: CAD/CAM	
Course Code: AME4103	
AME4103.1	Describe the mathematical basis in the technique of representation of geometric entities including points, lines, and parametric curves,
AME4103.2	Describe the surfaces and solid, and the technique of transformation of geometric entities using transformation matrix
AME4103.3	Describe the use of GT for the product development
AME4103.4	Describe the use of CAPP for the product development
AME4103.5	Able to know the Identify the various elements
AME4103.6	Able to know the activities in the Computer Integrated Manufacturing Systems.

Course Name: FINITE ELEMENT METHODS	
Course Code: AME4104	
AME4104.1	Understand the concepts behind variational methods and weighted residual methods in FEM

AME4104.2	Identify the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements, and 3-D element
AME4104.3	Develop element characteristic equation procedure and generation of global stiffness equation will be applied.
AME4104.4	Able to apply Suitable boundary conditions to a global structural equation, and reduce it to a solvable form.
AME4104.5	Able to identify how the finite element method expands beyond the structural domain, for problems involving dynamics, heat transfer, and fluid flow.
AME4104.6	Analysis of Steady state heat transfer

Course Name: VEHICLE BODY ENGG. & SAFETY	
Course Code: AME4105	
AME4105.1	Classify the vehicles and define basic terms
AME4105.2	Able to know the Select appropriate body materia
AME4105.3	Calculate various aerodynamic forces and moments acting on vehicle
AME4105.4	Calculate load distribution in vehicle body
AME4105.5	Explain the ergonomics, stability the vehicle.
AME4105.6	Identify the various safety aspects in a given vehicle.

Course Name: CONDITION MONITORING	
Course Code: AME4106	
AME4106.1	Gaining invaluable insights into the benefits of Condition Monitoring
AME4106.2	Understanding the reasons for selecting particular maintenance strategies
AME4106.3	Understanding effective methodologies for implementing Condition Monitoring Techniques
AME4106.4	Identifying the optimum maintenance strategy for different types of equipment
AME4106.5	Gaining practical approaches to minimise the risk of plant and machinery breakdowns
AME4106.6	Awareness of International Standards covering asset management

Course Name: AUTOMOBILE CHASSIS LAB & INSTRUMENTATION LAB	
Course Code: AME4107	
AME4107.1	Calibration of Pressure Gauges and transducer
AME4107.2	Able to know the servicing the generators and batteries and ignition systems.
AME4107.3	Able to know temperature detector for temperature measurement
AME4107.4	calibration of a rotometer for flow measurement
AME4107.5	Able to measurement of vibration amplitude of an engine bed at various loads.
AME4107.6	Explain Mcleod gauge for low pressure

Course Name: CAD/CAM LAB	
Course Code: AME4108	
AME4108.1	Able to appreciate the utility of the tools like ANSYS or FLUENT in solving real time problems and day to day problems.
AME4108.2	Able to know the Use of these tools for any engineering and real time applications
AME4108.3	Able to know the Development of part drawings for various components
AME4108.4	Generation of various 3D models through protrusion
AME4108.5	Determination of deflection and stresses in 2D and 3D trusses and beams
AME4108.6	Acquire knowledge on utilizing these tools for a better project in their curriculum as well as they will be prepared to handle industry problems with confidence when it matters to use these tools in their Employment

Year/Sem: IV B.Tech II SEM

Course Name: AUTOMOTIVE CONTROL SYSTEMS	
Course Code: AME4201	
AME4201.1	Define current state of automotive control systems
AME4201.2	Explain basic Engine Operation: Effective Work, Air-Fuel Ratio, Combustion, and Energy conversion.
AME4201.3	Able to know the Engine control systems
AME4201.4	Explain Diagnosis of automotive engines
AME4201.5	Able to know the Vehicle modelling and Road and driver models
AME4201.6	Describe Introduction to Mechatronics

Course Name: VEHICLE MAINTENANCE	
Course Code: AME4202	
AME4202.1	Able to know the maintain various records
AME4202.2	Clarify scheduled and unscheduled maintenance
AME4202.3	They are also expected to maintain of various systems of a vehicle.
AME4202.4	Describe repair of various systems of a vehicle.
AME4202.5	Able to service of various systems of a vehicle
AME4202.6	Explain Wheel Alignment

Course Name: PRODUCT DESIGN AND ASSEMBLY AUTOMATION	
Course Code: AME4203	
AME4203.1	Understand the mechanics of vibratory conveying and the principles behind vibrator feeders
AME4203.2	Analyze the effect of active orienting devices on feed rate and the performance of orienting systems
AME4203.3	Discuss the development process of assembly automation and factors influencing the choice of assembly method
AME4203.4	Analyze assembly processes and derive general rules for product design for automation

AME4203.5	Discuss the role of design for assembly (DFA) in the design process and general guidelines for manual assembly.
AME4203.6	Evaluate the performance and economics of assembly systems, including indexing machines, free transfer machines, and robot assembly

Course Name: AUTOMOBILE AIR CONTIDITIONING	
Course Code: AME4204	
AME4204.1	Understand the basic principles of air conditioning systems
AME4204.2	Identify and explain the components of air conditioning systems including compressors, evaporators, condensers, and expansion devices.
AME4204.3	Evaluate the factors influencing the load on refrigeration and air conditioning systems.
AME4204.4	Analyze the layout of duct systems in automobiles and their effects on load calculations.
AME4204.5	Define objectives of air routing and temperature control in air conditioning systems.
AME4204.6	Able to know the maintenance and servicing tasks for air conditioning systems, including leak testing, system discharging, evacuating, and charging.