AUTOMOTIVE TECHNOLOGY (AUTO)

AUTO 102. Metals. (3 Credits)
Characteristics and properties of metals, metallurgy, fabrication, oxyacetylene and arc welding. TIG and MIG welding and other industrial processes. The course has an additional lab fee. 3 credits (1 lecture hour, 2 laboratory hours, 1 hour recitation)

AUTO 103. Internal Combustion Engines I. (3 Credits)
Operating principles and nomenclature of internal combustion engines used as automotive power plants. Laboratory emphasis is on technician level analysis and repair of mechanical components. 3 credits (2 lecture hours, 3 laboratory hours)

AUTO 104. Basic Auto Electrical Systems. (3 Credits)
Direct and alternating current circuits, magnetism, inductance, electrochemical action, and semiconductors. Introduction to automotive wiring diagrams, using voltage, amperage, and resistance measurements to troubleshoot opens, shorts, and excess resistance problems in basic DC circuits. Introduction to automotive cranking and charging systems. 3 credits (2 lecture hours, 3 laboratory hours)

AUTO 105. Car/Light Truck Diesel. (2 Credits)
This course explores the operation and service of modern car and light truck diesel engines. Principles and theories are studied by running, testing, dissembling, and reassembling components, systems and engines. 2 credits (2 lecture hours, 2 laboratory hours), fall or spring semester (elective only offered if sufficient interest) meets for 10 weeks.

AUTO 109. Chassis Analysis I. (4 Credits)
Construction, operation and repair of modern chassis components. Including: Brakes (disc, drum, diagonal, quick take-up, and anti-lock); Suspensions (coil, leaf, McPherson, wishbone, and active); Steering systems including: linkage and rack & pinion. Tires, wheels and bearings. 4 credits (3 lecture hours, 3 laboratory hours), fall semester

AUTO 110. Summer Work Experience. (3 Credits)
Work experience of at least 10 weeks in a transportation/mechanical area between the first and second year. Report will be due before the 10 week of the fall semester. A student may receive credit for this course from prior academic experience given appropriate articulation agreement. 3 credits

AUTO 138. Automobile Industry Awareness. (1 Credit)
Introduction to the complex and diverse automotive industry. Guest speakers will discuss the many career opportunities as well as the requirements for today's technicians. 1 credit hour (1 lecture hour), A student may receive credit for this course from prior academic experience given appropriate articulation agreement.

AUTO 155. Intermediate Auto Electricity. (3 Credits)
Application of the principles of electricity to the Diagnosis, operation, service, and repair of automotive electrical and electronic systems troubleshooting, battery, starting, Charging, and accessory circuits with multimeters, labscopes, and scan tools is emphasized. Prerequisite: AUTO 104 or ASET 112 or permission of instructor 3 credit hours (2 lecture hrs, 3 laboratory hours), spring semester

AUTO 171. Automotive Drivetrains. (3 Credits)
This course introduces the automotive student to the theory and repair of modern automotive drive trains. Emphasis is given to testing drivetrain system components to determine faults prior to removal from the vehicle. Topics include automatic transmissions, manual Transmissions, four wheel drive systems, all- wheel drive systems and final drive systems. Lecture and laboratory assignments are combined to give the students both theory and hands on experience. Prerequisites: AUTO 109, AUTO 104 or Instructor Permission 3 credits (2 lecture hours, 3 laboratory hours), spring semester

AUTO 202. Auto Body Fundamentals. (3 Credits)
Construction, damage analysis, and repair of the modern automobile. Basic sheet metal repair, refinishing systems, panel adjustments, trim panel removal, plastic repair, and restraint systems. 3 credits (2 lecture hours, 1 recitation hour, 2 laboratory hours), fall semester

AUTO 203. Automotive Engine Analysis. (3 Credits)
Practical experience in automotive engine rebuilding. Application of basic physical and thermodynamic principles in engine design. Laboratory emphasis is on utilization of special equipment involved in the rebuilding process. Prerequisite: AUTO 103 and permission of instructor 3 credits (2 lecture hours, 3 laboratory hours), fall or spring semester (elective only offered if sufficient enrollment)

AUTO 204. Automotive Electronic Systems. (3 Credits)
Application of the principles of diagnostics to the design, operation, service and repair of today's sophisticated computerized automotive systems. Troubleshooting problems with the ignition system, sensors, and networks with multimeters, labscopes, and scan tools is emphasized. Prerequisites: AUTO 103, AUTO 104, or permission of instructor. Co-requisite: AUTO 205 3 credits (2 lecture hours, 3 laboratory hours), fall semester

AUTO 205. Electronic Fuel Systems. (3 Credits)
Examines the principles of service and repair of automotive fuel systems including EFI, PFI, GDI, SFI, fuel pump circuits, and oxygen sensors, together with the relationship of the components as it affects diagnosis and repair. Prerequisites: AUTO 103, and 104. Co-requisite: AUTO 204. 3 credits (2 lecture hours, 3 laboratory hours), fall semester.

AUTO 209. Chassis Analysis II. (4 Credits)
Designed to give the student detailed instruction in the diagnosis and repair of modern suspension, steering and break systems and in the troubleshooting and repair of 4-wheel alignment systems. On car brake lathe and road force balance machines included. Prerequisites: AUTO 109 Co-requisite: AUTO 102, AUTO 104 4 credits (2 lecture hours, 1 recitation hour, 3 laboratory hours), spring semester

AUTO 255. Driveability &Performance Prob. (5 Credits)
Explores the methods and procedures used in the diagnosis and correction of performance issues, using advanced test equipment. Laboratory practice to ensure a degree of occupational proficiency. Prerequisites: AUTO 204, AUTO 205. Pre- or Co-requisite: AUTO 155. 5 credits, (2 lecture hours, 7 laboratory hours), spring semester.

AUTO 259. Non-Structural Repair Refinish. (5 Credits)
Designed to give the student extensive hands-on experience necessary to develop the skills required to repair collision damage to the modern unibody vehicle. Includes identification and analysis of damage as well as advanced repair and refinishing techniques. Prerequisite: Must pass AUTO 202 with a grade of C or better and permission of instructor. 5 credits (2 lecture hours, 7 laboratory hours), spring semester

AUTO 260. Auto Air Cond & Refrg Recovery. (1 Credit)
Introduction to the theory, operation, service, repair and diagnosis of factory installed air conditioning. 1 credit (1 lecture hour, 2 laboratory hours), 8 weeks, fall or spring semester

AUTO 261. Auto Air Condition & Heat. (3 Credits)
Basic principles, nomenclature and operation as applied to the automotive air- conditioning and heating units. Labs prepare students for required certification in the handling of refrigerant as well as repairs. 3 credit hours (2 lecture hours, 3 laboratory hours), fall or spring semester

AUTO 269. Refinishing & Structure Mg. (5 Credits)
This course covers techniques required to properly repair multi-coat paint finishes, including spot and panel painting with HVLP spray equipment, fundamentals of color perception, color, light sources and tinting. It will also cover structural and non-structural analysis and collision repair of Unibody vehicles. Prerequisite: Must pass AUTO 259 with a grade of C or better and permission of instructor. 5 credits (2 lecture hours, 8 laboratory hours), fall semester

AUTO 279. Auto Body Structural Repair. (6 Credits)
This course covers techniques required to properly analyze and repair Unibody and full frame collision damage. It will also include extensive hands-on experience for increased employability in many segments of the collision industry. Prerequisite: Must pass AUTO 269 with a C or better and permission of the instructor. 6 credits (2 lecture hours, 12 laboratory hours) spring semester

AUTO 309. Advanced Automotive Chassis. (4 Credits)
This course contains information about construction and geometry of modern automobile suspension systems. Topics include introduction to metallurgy, suspension design, suspension angles and future trends. The laboratory requirements include a group project, related to automotive vehicle steering and suspension. A laboratory practicum will be required in which the student will assist instructors in developing a training aid and presentation for class. Prerequisite: A.A.S. in Automotive Technology or successful completion of the first 2 years of the BT program with a minimum of a C in AUTO 109 & AUTO 209 or equivalent. 4 credits (2 lecture hours, 3 laboratory hours & laboratory practicum), fall semester

AUTO 355. Advanced Automotive Diagnostic. (3 Credits)
This course focuses on automotive troubleshooting techniques and tools. Emphasis will be placed on diagnosing engine performance conditions related to mechanical, fuel injection, ignition, and emissions systems. Diagnosis of other computer controlled and networked automotive systems will also be covered. It includes theory of system operation with an emphasis on comprehension and systematic troubleshooting. Included is an emphasis on hands-on practice and familiarity with factory and aftermarket scan tools, and automotive labscopes. Prerequisite: A.A.S. in Automotive Technology or successful completion of first 2 years of BT 3 credits (2 lecture hours, 3 laboratory hours), fall semester

AUTO 359. Collision Business & Mgt. (3 Credits)
This course covers the operation and management of modern auto body collision repair facilities. Topics covered include: safety and environmental issues, terminology, duties of collision shop personnel, cost control, tools and equipment, collision estimating and shop layout. It also covers interaction with insurance companies, auto body products suppliers, new and recycled parts suppliers and mobile specialty repair businesses. Prerequisite: A.A.S. in automotive or permission of instructor 3 credits (2 lecture hours, 3 laboratory or field trip hours)

AUTO 360. Auto Shop Mgt & Supervision. (3 Credits)
Practicum in shop management. Practical experiences in demonstrating leadership skills, problem-solving skills, motivational skills, goal setting, time management, counseling, implementing policy and procedures, conducting meetings, implementing codes of conduct, enhancing professional ethics, interfacing with customers, conflict resolution and dealing with personnel issues in the workplace, such as sensitivity skills, harassment issues and stress management. Prerequisite: BSAD 116 3 credits (2 lecture hours, 3 laboratory hours)

AUTO 371. Adv Powertrain Management. (3 Credits)
This course describes performance and design features, as well as diagnosis and repair procedures for the modern automatic transmissions. Emphasis is given to understanding electrical/electronic controls and the proper use of electrical/ electronic test equipment. Disassembly and reassembly of the transmission enables the students to understand and visualize the mechanical and hydraulic components. Prerequisite: A.A.S. in Automotive Technology/successful completion of first 2 years of BT 3 credits (2 lecture hours, 3 laboratory hours), fall semester

AUTO 380. Auto Parts Management. (3 Credits)
Fundamentals of computer-based parts inventory and P.O.S. systems. Inventory management, core procedures, warranty claims, remanufactured vs. rebuilt parts, team concept of parts and repair departments, customer assistance, marketing strategy, sales techniques, identifying customer base, merchandising, and forecasting business with analysis of profit and loss statements. Prerequisite: BSAD 112 and AUTO 360 3 credits (2 lecture hours, 3 laboratory hours)

AUTO 400. Automotive Fleet Management. (3 Credits)
An overview of all automotive repair tasks will be reviewed. Analysis of pertinent tasks for fleet maintenance will emerge and be coupled with labor and price guides time on task evaluations, absolute necessity, intervals of inspection, safety concerns, failure records, component life cycles and environmental issues. Further analysis will reveal decision-making process for in-house repairs or out-sourcing component failure records and vendor responsibilities will be discussed along with fleet discount structure and avenues of saving time, inventory and other overhead to ultimately make the organization efficient. Record-keeping systems and the development of a fleet maintenance log will be implemented. Written report will include a fleet maintenance guide. Prerequisite AUTO 360 3 credits (2 lecture hours, 3 laboratory hours)

AUTO 420. Auto Industry Internship Orien. (1 Credit)
This course is designed to orient the student for successful completion of their internship. The orientation process will assist the student in developing a realistic time-line, to prepare him or her for meeting the responsibilities of an intern and exposing him or her to the various forms and reports related to the internship. Prerequisite AUTO 360 1 credit (1 lecture hour)

AUTO 421. Automotive Industry Internship. (12 Credits)
This course is based upon work experience acquired at a pre-approved manufacturer, dealer, distributor, repair facility, or other location with permission in Internship Program Coordinator. Orientation sessions must be competed the semester prior to the internship. The work experience must have employer and program coordinator approval and will include a problem-centered project planned in joint agreement with the employer, student and coordinator and be presented as a written term paper. Prerequisites: Successful completion of required courses, permission of Internship Program Coordinator, completion of orientation sessions (AUTO 420) 12 credits (1 lecture hour, 15-week internship)