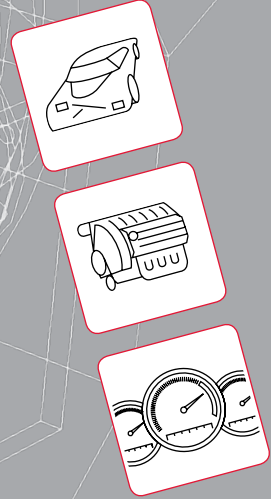


- 21 » automotive collision repair technology
- 25 » automotive maintenance technology
- 30 » high performance racing technology



» automotive



AUTOMOTIVE

- » automotive collision repair technology
- » associate of technology
- » associate of science
- » certificate of technology

» automotive collision repair technology

The Automotive Collision Repair Technology program operates in 20,000 square feet of shop space devoted exclusively to student training utilizing the Inter-Industry Conference on Automotive Collision Repair (I-CAR) Enhanced Delivery Curriculum.

In this real-world setting, students repair late model collision-damaged vehicles with modern equipment such as body and frame machines, computerized electronic measuring systems, mig welders, a Pro-spot resistance welder, downdraft spray booths, prep stations and a Hunter four-wheel computerized alignment machine.

After returning vehicles to pre-accident condition, they are either sold or driven by Ranken administration and faculty.

The program is Master Certified by the National Institute for Automotive Service Excellence (ASE) and the National Automotive Technicians Education Foundation (NATEF) in all four areas of auto body repair: Non-Structural, Structural, Refinishing and Mechanical/Electrical.

ASSOCIATE OF TECHNOLOGY, ASSOCIATE OF SCIENCE OR CERTIFICATE OF TECHNOLOGY

Based on the tasks established by ASE/NATEF and I-CAR, this two-year program provides students with skills to restore collision damaged vehicles to industry standards. The importance of certification and training continues to increase in the industry among collision repair facilities and insurance companies. In response to this demand, a graduate of the program has the potential to receive 70 I-CAR Gold Points and four ASE certifications. Graduates may also qualify for a Sikkens certification.

Program graduates are trained in:

- » Unibody and full frame damage analysis
- » Writing estimates manually and electronically
- » Making non-structural repairs in metal and plastics
- » Performing welding and cutting operations in steel and aluminum
- » Straightening structural steel and aluminum
- » Replacement of structural components
- » Steering and suspension repair and alignments
- » Air conditioning systems relating to collision damage
- » Diagnosing electrical and electronic problems
- » Refinishing systems and the processes to restore the original finish to industry standards

Upon completing the program, graduates are qualified for positions as collision repair technicians and automotive refinish technicians, with the option to pursue careers in management, estimating and sales.

Students interested in earning the certificate of technology will take all Automotive Collision Repair Technology courses and two general education courses.

Upon completion of the associate degree program, students are eligible for the Bachelor of Science in Applied Management (BSAM) program – and could graduate with a bachelor’s degree in as little as two short years.

PROGRAM COURSES			Hours	Prerequisites
First Semester	ACR1110	Fundamentals of Collision Repair and Strengthening Steel Theory	3	
	ACR1120	Fundamentals of Collision Repair and Strengthening Steel Shop	4	
	ACR1130	Non-Structural Analysis and Damage Repair Theory	3	
	ACR1140	Non-Structural Analysis and Damage Repair Shop	4	
Second Semester	ACR1210	Welding and Cutting Steel/Aluminum Theory	3	
	ACR1220	Welding and Cutting Steel/Aluminum Shop	4	
	ACR1230	Structural Analysis and Damage Repair Theory	3	
	ACR1240	Structural Analysis and Damage Repair Shop	4	
Third Semester	ACR2110	Mechanical and Electrical Components 1 Theory	3	
	ACR2120	Mechanical and Electrical Components Shop	4	
	ACR2130	Mechanical and Electrical Components 2 Theory	3	
	ACR2140	Mechanical and Electrical Components 2 Shop	4	
Fourth Semester	ACR2210	Painting and Refinishing 1 Theory	3	
	ACR2220	Painting and Refinishing 1 Shop	4	
	ACR2230	Painting and Refinishing 2 Theory	3	
	ACR2240	Painting and Refinishing 2 Shop	4	
Total technical credit hours required			56	

Important Note: All program courses must be successfully completed in the order listed above.

» automotive technology

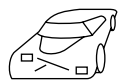
» construction technology

» electrical technology

» information technology

» manufacturing technology

» general education and degree options



AUTOMOTIVE

- » automotive collision repair technology
- » associate of technology
- » associate of science
- » certificate of technology



» automotive collision repair technology

GENERAL EDUCATION COURSES			Hours	Prerequisites
English/Social Sciences	ENG1101	College Composition I	3	Placement Exam or ENG1099
	ENG2102	College Composition II	3	ENG1101
	COM1105	Oral Communications	3	
	SOC1206	Principles of Sociology	3	ENG1099 (Co. Req.)
Mathematics/Science	MTH1110	Elementary Algebra and MTH1111 Intermediate Algebra or	6	Placement Exam or MTH1099
	MTH1100	Elementary/Intermediate Algebra	3	Placement Exam
	PHY2100	Conceptual Physics	3	MTH 1110
Business/Information Technology	CIT1100	Computer Literacy	2	
	WFD1200	Job Search Success	1	MNG1220 or BUS1204 (Co. Req.)
	BUS1204	Introduction to Business or	3	ENG1099 (Co. Req.)
	MNG1220	Principles of Management	3	ENG1099 (Co. Req.)
Associate of Science Additional Required Courses	MTH2220	Trigonometry	3	MTH2112
	PHY2230	College Physics (Substitute for PHY2100)	3	MTH2220
	MTH2240	Survey of Calculus	3	MTH2112

Important Note: Only courses in which a grade of "C" or higher is earned may be applied toward this Ranken degree.

COURSE DESCRIPTIONS

ACR1110 Fundamentals of Collision Repair and Straightening Steel Theory

Covers worker protection and personnel safety relative to the collision repair industry. The course emphasizes vehicle identification, estimating systems and terminology used in the collision repair process. Students will learn how to properly analyze frontal, side, and rear impacts along with performing a mechanical systems analysis. This section also covers basic cosmetic straightening of steel and body filler applications. Three credit hours.

ACR1120 Fundamentals of Collision Repair and Straightening Steel Shop

Emphasizes application of principles studied in ACR1110 to hands-on shop work. Four credit hours.

ACR1130 Non-Structural Analysis and Damage Repair Theory

Offers instruction in the replacement of mechanically fastened, welded and adhesively bonded panels. Provides an in-depth study of plastic repair methods using welding and adhesives. An overview of trim and hardware used in today's vehicles is discussed, along with movable and stationary glass. Three credit hours.

ACR1140 Non-Structural Analysis and Damage Repair Shop

Emphasizes application of principles studied in ACR1130 to hands-on shop work. Four credit hours.

ACR1210 Welding and Cutting Steel/Aluminum Theory

Introduces the Steel GMA (MIG) welding process, preparing the students for the I-CAR Automotive Steel MIG Welding qualification test. An overview of the oxyacetylene/plasma cutting process is covered along with a section on aluminum welding used in repairing today's modern vehicles. This section prepares the student for the Automotive Aluminum GMA Welding Qualification Test. Three credit hours.

ACR1220 Welding and Cutting Steel/Aluminum Shop

Emphasizes application of principles studied in ACR1210 to hands-on shop work. Four credit hours.

ACR1230 Structural Analysis and Damage Repair Theory

Introduces measuring procedures and how they relate to structural repairs. Provides detailed instructions on structural straightening of steel and aluminum materials along with the replacement of aluminum panels. Includes a study of restraint systems and advanced application of movable and stationary glass. Three credit hours.



AUTOMOTIVE

- » automotive collision repair technology
- » associate of technology
- » associate of science
- » certificate of technology

» automotive collision repair technology

ACR1240 Structural Analysis and Damage Repair Shop

Emphasizes application of principles studied in ACR1230 to hands-on shop work. Four credit hours.

ACR2110 Mechanical and Electrical Components 1 Theory

Covers tires, wheels, suspensions and steering systems. An in-depth study is done on wheel alignment and diagnostic angles. This information is critical for performing alignments in a shop environment. This course also introduces basic electrical theory. Three credit hours.

ACR2120 Mechanical and Electrical Components 1 Shop

Emphasizes application of principles studied in ACR2110 to hands-on shop work. Four credit hours.

ACR2130 Mechanical and Electrical Components 2 Theory

Incorporates information on diagnosis and testing of electrical systems. Advanced electrical systems are covered including lighting, starting and charging systems, and power accessories. Brake systems are covered, with discussions on anti-lock brakes and traction control systems. Drive trains are also discussed along with fuel, exhaust and emissions systems. Three credit hours.

ACR2140 Mechanical and Electrical Components 2 Shop

Emphasizes application of principles studied in ACR2130 to hands-on shop work. Four credit hours.

ACR2210 Painting and Refinishing 1 Theory

Covers in detail the equipment needed to refinish vehicles with today's paint technology. An overview of V.O.C. regulations and personal/refinishing safety is presented. Proper surface preparation along with proper masking techniques are discussed. Emphasis is placed on the importance of proper undercoat systems. Three credit hours.

ACR2220 Painting and Refinishing 1 Shop

Emphasizes application of principles studied in ACR2210 to hands-on shop work. Four credit hours.

ACR2230 Painting and Refinishing 2 Theory

Presentations on color theory and how it relates to the refinishing world. Discussions on the application and blending of basecoat/clearcoat and tri-coat paint systems. Refinishing of plastics is discussed along with programs on paint tinting and detailing. Three credit hours.

ACR2240 Painting and Refinishing 2 Shop

Emphasizes application of principles studied in ACR2230 to hands-on shop work. Four credit hours.

» automotive technology

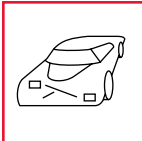
» construction technology

» electrical technology

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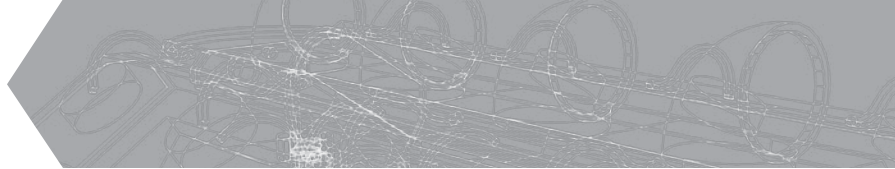
» manufacturing technology

» general education and degree options



AUTOMOTIVE

- » automotive collision repair technology
- » associate of applied science
- » certificate of technology



» automotive collision repair technology

EVENING PROGRAM CERTIFICATE IN AUTOMOTIVE COLLISION REPAIR

The Automotive Collision Repair Technology program operates in 20,000 square feet of shop space devoted exclusively to student training on current model vehicles with collision damage. In this real-world setting, students use modern equipment such as three electronic measuring systems, body and frame machines, downdraft spray booths, computerized mixing systems, prep stations, MIG welders and a resistant spot welder. The department utilizes the Inter industry Conference on Automotive Collision Repair (I-CAR) Enhanced Delivery Curriculum and is NATEF certified in all four areas.

The following sections are stand-alone and can be taken in any sequence. These classes usually meet on Tuesdays and Thursdays from 6:00 p.m. to 9:30 p.m.

For students interested in furthering their education, these courses can be credited toward the Bachelor of Science in Applied Management (BSAM) degree.

ASSOCIATE OF APPLIED SCIENCE

Ranken is now offering an Associate of Applied Science degree as a part of the evening program curriculum. You can earn your associate degree with a combination of Ranken's standard evening school courses as well as our new online courses. You can also transfer credit from other accredited technical training programs, or have your technical work experience evaluated for possible transfer credit. (30 technical credit hours required for graduation.)

For all General Education course requirements, please turn to page 91. For more information about the BSAM degree, please turn to page 93.

PROGRAM COURSES			Hours	Prerequisites
Section One	ACR0110	Non-Structural Repair	6	
Section Two	ACR0111	Refinishing	6	
Section Three	ACR0112	Structural	6	
Section Four	ACR0113	Mechanical	6	

Total technical credit hours for certificate completion 24

COURSE DESCRIPTIONS

ACR0110 Non-Structural Repair

This course offers a general overview of repair procedures, surface preparation, straightening minor damage and applying plastic filler. Also included are plastic identification and repair procedures, panel replacement and alignment. In addition, theory and application of welding procedures when replacing non-structural and structural parts will also be covered. The emphasis of the class is prepping and passing the I-CAR MIG Welding Qualification Test. Six credit hours.

ACR0111 Refinishing

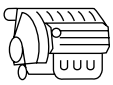
This course teaches students to use refinish equipment, understand and apply the proper undercoat system, determine areas to be refinished, methods of sanding, and applying BC/CC paint system. Also included are blending BC/CC along with removing minor imperfections. The theory and practice involved in the application of tri-coat paint systems, color tinting and plastic refinishing is also covered. Six credit hours.

ACR0112 Structural

This course covers the theory and practical applications involved in measuring systems, diagnosing unibody damage and comprehending specification manuals. Students are also given instruction on collision theory, structural damage analysis skills and correction procedures on unibody and bodyover- frame vehicles. Six credit hours.

ACR0113 Mechanical Collision Repair

This course covers the theory of steering and suspension as it relates to a collision. Students will learn different types of suspensions and their components along with performing thrust line and four wheel alignments. Emphasis is placed on understanding all alignment angles; this will enable a student to help diagnose damage to the vehicle's structure and suspension parts. This course examines electrical circuit types and circuit theory. Included is discussion of parallel and series circuits, and how voltage, amperage and resistance affect each other. Students will understand the theory of automotive air conditioning systems using 134A refrigerants. Both the function and the design of various restraint systems, including seat belts, seat belt tensioners, and air bags will be discussed. Students will perform common collision related diagnosis and repairs in these areas. Six credit hours.



AUTOMOTIVE

- » automotive maintenance technology
- » associate of technology
- » associate of science
- » certificate of technology

» automotive maintenance technology

As technology and electronics continue to influence the automotive industry, many of St. Louis' largest car manufacturers, dealerships and repair shops are in need of skilled technicians capable of solving new and complex problems.

To meet this need, Ranken offers an Automotive Maintenance Technology (AMT) program that provides students with the comprehensive knowledge and skills required by leading automotive manufacturers and factories today.

Known for its high standards, the Pneumatic Tool Company recognized Ranken as one of the top 20 automotive programs in its 2009 National School of the Year Contest. Additionally, our students regularly compete and win top honors at the local, state and district levels of the SkillsUSA (formerly VICA) competition.

ASSOCIATE OF TECHNOLOGY OR ASSOCIATE OF SCIENCE

Ranken's AMT program provides students with two years of hands-on training and instruction in diagnosing and repairing automotive problems and malfunctions. Combining traditional and modern industry practices, the program develops student proficiencies in the following areas:

- » Engine repair
- » Automatic transmission/transaxle
- » Manual drivetrain and axles
- » Suspension and steering
- » Brakes
- » Electrical/electronic systems
- » Heating and air conditioning
- » Engine performance

During the last 40 days of the program, students will gain real-world experience as they participate in an on-site automotive practicum in which they will service and repair customer vehicles.

For students interested in employment with the region's leading auto manufacturers, Ranken currently offers two corporate sponsorship programs: Toyota's Technical Education Network (T-TEN) and General Motors' Automotive Service Educational Program (GM ASEP). In addition to on-campus instruction and training, students enrolled in these programs complete a professional internship in a dealership or repair shop during their final semester.

Students who wish to pursue a high performance option may do so at the end of their third semester.

Upon completion of the associate degree program, students are eligible for the Bachelor of Science in Applied Management (BSAM) program – and could graduate with a bachelor's degree in as little as two short years.

PROGRAM COURSES			Hours	Prerequisites
First Semester	AMT1101	Auto Electricity Theory	3	
	AMT1102	Auto Electricity Shop	4	
	AMT1110	Engines Theory	3	
	AMT1120	Engines Shop	4	
Second Semester	AMT/GMT1201	Advanced Electricity/AC Theory	3	AMT1101
	AMT/GMT1202	Advanced Electricity/AC Shop	4	AMT1102
	AMT/GMT1221	Suspension and Steering Theory	3	AMT1101
	AMT/GMT1222	Suspension and Steering Shop	4	AMT1102
Third Semester	AMT/GMT2101	Brakes and Driveline Theory	3	AMT1201
	AMT/GMT2102	Brakes and Driveline Shop	4	AMT1202
	AMT/GMT2121	Automotive Drivetrain Systems Theory	3	AMT/GMT1110-1201-1221
	AMT/GMT2122	Automotive Drivetrain Systems Shop	4	AMT/GMT1120-1202-1222
Fourth Semester	AMT/GMT2201	Engine Performance Theory	3	AMT/GMT1110, AMT/GMT1201
	AMT/GMT2202	Engine Performance Shop	4	AMT/GMT1120, AMT/GMT1202
	AMT2203	Automotive Line	7	All of the above
	AMT/GMT2222	Automotive Professional Internship	7	All of the above
Total technical credit hours required			63	

» automotive technology

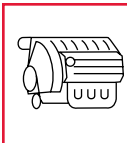
» construction technology

» electrical technology

» information technology

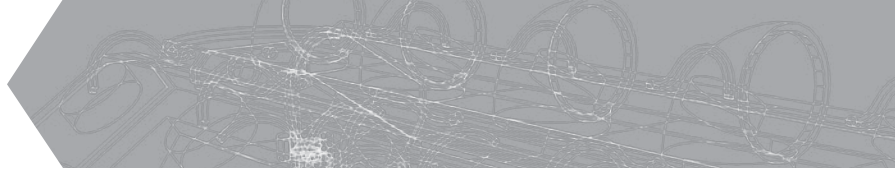
» manufacturing technology

» general education and degree options



AUTOMOTIVE

» automotive maintenance technology
» associate of applied science
» certificate of technology



» automotive maintenance technology

GENERAL EDUCATION COURSES			Hours	Prerequisites
English/Social Sciences	ENG1101	College Composition I	3	Placement Exam or ENG1099
	ENG2102	College Composition II	3	ENG1101
	COM1105	Oral Communications	3	
	SOC1206	Principles of Sociology	3	ENG1099 (Co. Req.)
Mathematics/Science	MTH1110	Elementary Algebra and MTH1111 Intermediate Algebra or	6	Placement Exam or MTH1099
	MTH1100	Elementary/Intermediate Algebra	3	Placement Exam
	PHY2100	Conceptual Physics	3	MTH 1110
Business/Information Technology	CIT1100	Computer Literacy	2	
	WFD1200	Job Search Success	1	MNG1220 or BUS1204 (Co. Req.)
	BUS1204	Introduction to Business or	3	ENG1099 (Co. Req.)
	MNG1220	Principles of Management	3	ENG1099 (Co. Req.)
Associate of Science Additional Required Courses	MTH2220	Trigonometry	3	MTH2112
	PHY2230	College Physics (Substitute for PHY2100)	3	MTH2220
	MTH2240	Survey of Calculus	3	MTH2112

Important Note: Only courses in which a grade of "C" or higher is earned may be applied toward this Ranken degree.

COURSE DESCRIPTIONS

AMT1101 Auto Electricity Theory

Covers the theory and application of the fundamentals of automotive electrical and electronics systems, including basic electrical/electronics theory testing and servicing. The course details automotive systems such as batteries, cranking motors and their control circuits, charging systems (alternators, mechanical and electronic regulators), chassis wiring diagnosis and repair and gauges (mechanical and electronic). Three credit hours.

AMT1102 Auto Electricity Shop

Hands-on application of AMT1101 in a shop setting. Four credit hours.

AMT1110 Engines Theory

Students are introduced to the internal combustion engine, both gasoline and diesel; including component operation, diagnosis and service, removal, disassembly and measurement of components, reassembly, installation and adjustments. Three credit hours.

AMT1120 Engines Shop

Hands-on application of AMT1110 in a shop setting. Four credit hours.

AMT/GMT1201 Advanced Electricity/AC Theory

Emphasizes the theory and application of advanced electronics, including ignitions systems (electronic waste spark and coil-on plug), accessories, supplemental restraint systems, computer networking, computer communications and computer sensory systems. Students get an overview of A/C fundamentals, including system diagnosis, repair of manual and automotive heating ventilation and air conditioning systems. Three credit hours.

AMT/GMT1202 Advanced Electricity/AC Shop

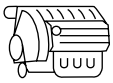
Hands-on application of AMT/GMT1201 in a shop setting. Four credit hours.

AMT/GMT1221 Suspension and Steering Theory

Covers the diagnosis, service, repair and adjustment of chassis components, including front and rear suspension systems, manual and power steering, wheel alignments, tire and wheel balancing and the latest on tire pressure monitoring systems. Three credit hours.

AMT/GMT1222 Suspension and Steering Shop

Hands-on application of AMT/GMT1221 in a shop setting. Four credit hours.



AUTOMOTIVE

- » automotive maintenance technology
- » associate of applied science
- » certificate of technology

» automotive maintenance technology

AMT/GMT2101 Brakes and Driveline Theory

Covers the diagnosis, service, repair and adjustment of drive axles, including limited slip differentials and axle shafts. Students learn brake systems, including drum and disc systems, hydraulic systems, power assist systems, drum and rotor machining, antilock and traction control systems. Three credit hours.

AMT/GMT2102 Brakes and Driveline Shop

Hands-on application of AMT/GMT2101 in a shop setting. Four credit hours.

AMT/GMT2121 Automotive Drivetrain Theory

Covers the diagnosis, service, repair and adjustment of automatic transmissions, manual transmissions, and four- and all-wheel drive transfer cases. Includes the diagnosis and service procedures of U-joints and constant velocity joints. Three credit hours.

AMT/GMT2122 Automatic Drivetrain Shop

Hands-on application of AMT/GMT2121 in a shop setting. Four credit hours.

AMT/GMT2201 Engine Performance Theory

Covers the diagnosis, service, repair and adjustment of computerized EFI systems as well as OBD II applications, including emission control devices (ignition control, EGR valves, catalytic converter, etc.). The course incorporates advanced diagnosis of engines, fuel systems, ignition systems, emissions and computer-controlled systems. Students will also learn to run an OBD II drive trace and to test drivability problems using a chassis dyno. Three credit hours.

AMT/GMT2202 Engine Performance Shop

Hands-on application of AMT/GMT2201 in a shop setting. Four credit hours.

AMT2203 Automotive Line

Hands-on application of all automotive areas in an actual shop atmosphere with service and repair of customer vehicles, including training in service writing and parts techniques. Seven credit hours.

AMT/GMT2222 Automotive Professional Internship

Incorporates on-the-job experience at a sponsoring dealer under the supervision of a mentor technician selected by the sponsoring dealer. The dealership service manager and the Ranken coordinator evaluate this internship. Seven credit hours.

» automotive technology

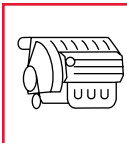
» construction technology

» electrical technology

» information technology

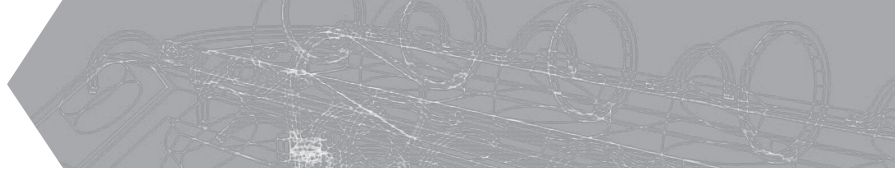
» manufacturing technology

» general education and degree options



AUTOMOTIVE

- » automotive maintenance technology
- » associate of applied science
- » certificate of technology



» automotive maintenance technology

EVENING PROGRAM CERTIFICATE IN AUTOMOTIVE MAINTENANCE TECHNOLOGY

This curriculum emphasizes the most modern diagnostic equipment in the automotive maintenance field. Upon completion of the instruction and hands-on experience in diagnosing and repairing automotive problems and malfunctions, students are prepared to enter the job market as entry-level technicians.

The program develops student proficiencies in the following areas:

- » Engine repair
- » Automatic transmission/transaxle
- » Manual drivetrain and axles
- » Suspension, steering and brakes
- » Electrical/electronic systems
- » Heating and air conditioning
- » Engine performance

Successful completion of all four semesters is necessary to qualify for a certificate. These classes meet on Mondays and Wednesdays or Tuesdays and Thursdays from 6:00 p.m. to 9:30 p.m.

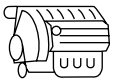
For students interested in furthering their education, these courses can be credited toward the Bachelor of Science in Applied Management (BSAM) degree.

ASSOCIATE OF APPLIED SCIENCE

Ranken is now offering an Associate of Applied Science degree as a part of the evening program curriculum. You can earn your associate degree with a combination of Ranken's standard evening school courses as well as our new online courses. You can also transfer credit from other accredited technical training programs, or have your technical work experience evaluated for possible transfer credit. (30 technical credit hours required for graduation.)

For all General Education course requirements, please turn to page 91. For more information about the BSAM degree, please turn to page 93.

PROGRAM COURSES			Hours	Prerequisites
First Semester	AMT0110	Engines and Automotive Electricity	6	
Second Semester	AMT0120	Computer Electronics and Computer Controls	6	AMT0110
Third Semester	AMT0230	Brakes/Vehicle Systems and Suspensions	6	AMT0120
Fourth Semester	AMT0240	Clutches/Manual Transmissions and Automatic Transmissions	6	AMT0230
Total technical credit hours for certificate completion			24	



AUTOMOTIVE

- » automotive maintenance technology
- » associate of applied science
- » certificate of technology

» automotive maintenance technology

COURSE DESCRIPTIONS

AMT0110 Engines and Automotive Electricity

Instruction begins with engine foundation, that provides a detailed study of internal combustion engines, including the theory of operation and basic adjustments. Instruction includes disassembly, component study, component measurement, reassembly and how to make the appropriate mechanical adjustments on an automotive engine. The second half of the semester students will focus on electrical foundations and cover the theory of Parallel/Series circuits, Ohms law, DVOM testing and servicing of various electrical components. Electrical systems that will be covered include automotive batteries, starters, charging systems, interior/exterior lighting, and accessories. Six credit hours.

AMT0120 Computer Electronics and Computer Controls

The semester begins with automotive body electronics including the theory and operation of automotive accessories and automotive air conditioning systems, including both R-12 and R134A refrigerants. Hands-on diagnosis and repair of refrigerant systems are practiced in the shop. The second part of the semester covers the principles of operation, diagnosis and service of computer controlled engines and OBD II technology. The hands-on emphasis includes diagnosis of computer circuitry with a digital automotive scope and various types of scan tools. Computer-related drivability troubleshooting is featured during this course. Six credit hours.

AMT0230 Brakes/Steering Suspension Systems

Instruction begins with a comprehensive overview of vehicle brake systems, including brake foundations, disc and drum, hydraulics and electronic antilock braking systems. An in-shop emphasis focuses on the hands-on repair of braking systems, including rotor/drum reconditioning. This course also covers vehicle chassis systems. The curriculum will address steering systems, front suspension systems, tire and wheel construction and balance and wheel alignment, including two and four wheel adjustments. The theory section incorporates a comprehensive study of vehicular chassis systems in current operation. Six credit hours.

AMT0240 Clutches/Manual Transmissions and Automatic Transmissions

This course starts with the basic principles of operation for clutches, differentials, manual transmissions and transaxles. The course includes hands-on disassembly, evaluation and reassembly of rear wheel drive differentials, limited slip carriers, transfer cases, rear wheel drive transmissions, transaxles, Constant Velocity (C.V.), driveshafts and clutches. This course finishes up the semester covering automatic transmissions and automatic transaxles commonly used today. Students learn torque converters, planetary gearing, clutches, bands, electronic controls and hydraulic circuitry. The emphasis of this course is the disassembly, evaluation and reassembly of several currently used transmissions and transaxles. Six credit hours.

» automotive technology

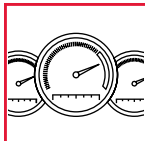
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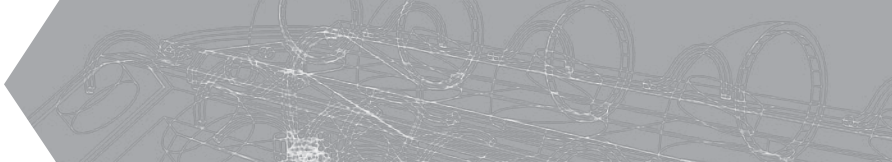
» manufacturing technology

» general education and degree options



AUTOMOTIVE

- » high performance racing technology
- » associate of technology
- » associate of science



» high performance racing technology

The High Performance Racing Technology (HPRT) program adds the excitement of aftermarket engine performance improvement to our standard automotive technician training. Our specialized training allows students to design and build any type of high performance engine using a wide variety of aftermarket engine components and control systems, and tune it for maximum output and drivability using various data acquisition tools and dynamometers.

In order to gain a foundation of mechanical repair, students in the HPRT program will share basic automotive repair courses with the Automotive Maintenance Technology (AMT) program. Upon completion of these courses, students will focus on two areas of emphasis, engines and tuning.

ASSOCIATE OF TECHNOLOGY OR ASSOCIATE OF SCIENCE

Ranken's HPRT program provides students with two-and-a-half years of hands-on training and instruction in diagnosing and repairing automotive problems and malfunctions. Combining traditional and modern industry practices, the program develops student proficiencies

in the following areas:

- » Engine repair
- » Automatic transmission/transaxle
- » Manual drivetrain and axles
- » Suspension and steering
- » Brakes
- » Electrical/electronic systems
- » Heating and air conditioning
- » Engine performance
- » Engine tuning

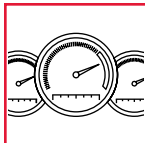
In addition to the positions offered to AMT graduates, HPRT graduates accept employment in automotive machine shop/race shops, automotive tuner/repair shops, aftermarket part manufacturers/suppliers, professional racing teams and aftermarket tool manufacturers/suppliers.

Upon completion of the associate degree program, students are eligible for the Bachelor of Science in Applied Management (BSAM) program – and could graduate with a bachelor's degree in as little as two short years.

PROGRAM COURSES			Hours	Prerequisites
First Semester	AMT1101	Auto Electricity Theory	3	
	AMT1102	Auto Electricity Shop	4	
	AMT1110	Engines Theory	3	
	AMT1120	Engines Shop	4	
Second Semester	AMT/GMT1201	Advanced Electricity/AC Theory	3	AMT1101
	AMT/GMT1202	Advanced Electricity/AC Shop	4	AMT1102
	AMT/GMT1221	Suspension and Steering Theory	3	AMT1101
	AMT/GMT1222	Suspension and Steering Shop	4	AMT1102
Third Semester	AMT/GMT2101	Brakes and Driveline Theory	3	AMT1201
	AMT/GMT2102	Brakes and Driveline Shop	4	AMT1202
	AMT/GMT2121	Automotive Drivetrain Systems Theory	3	AMT/GMT1110-1201-1221
	AMT/GMT2122	Automotive Drivetrain Systems Shop	4	AMT/GMT1120-1202-1222
Fourth or Fifth Semester	AHP2202	High Performance Engines	12	All of the above
	AHP2220	High Performance Tuning	12	
Total technical credit hours required			66	

GENERAL EDUCATION COURSES			Hours	Prerequisites
English/Social Sciences	ENG1101	College Composition I	3	Placement Exam or ENG1099
	ENG2102	College Composition II	3	ENG1101
	COM1105	Oral Communications	3	
	SOC1206	Principles of Sociology	3	ENG1099 (Co. Req.)
Mathematics/Science	MTH1110	Elementary Algebra and MTH1111 Intermediate Algebra or	6	Placement Exam or MTH1099
	MTH1100	Elementary/Intermediate Algebra	3	Placement Exam
	PHY2100	Conceptual Physics	3	MTH 1110
Business/Information Technology	CIT1100	Computer Literacy	2	
	WFD1200	Job Search Success	1	MNG1220 or BUS1204 (Co. Req.)
	BUS1204	Introduction to Business or	3	ENG1099 (Co. Req.)
	MNG1220	Principles of Management	3	ENG1099 (Co. Req.)
Associate of Science	MTH2220	Trigonometry	3	MTH2112
Additional Required Courses	PHY2230	College Physics (Substitute for PHY2100)	3	MTH2220
	MTH2240	Survey of Calculus	3	MTH2112

Important Note: Only courses in which a grade of "C" or higher is earned may be applied toward this Ranken degree.



AUTOMOTIVE

- » high performance racing technology
- » associate of technology
- » associate of science

» high performance racing technology

COURSE DESCRIPTIONS

AMT1101 Auto Electricity Theory

Covers the theory and application of the fundamentals of automotive electrical and electronics systems, including basic electrical/electronics theory testing and servicing. The course details automotive systems such as batteries, cranking motors and their control circuits, charging systems (alternators, mechanical and electronic regulators), chassis wiring diagnosis and repair and gauges (mechanical and electronic). Three credit hours.

AMT1102 Auto Electricity Shop

Hands-on application of AMT/GMT1101 in a shop setting. Four credit hours.

AMT1110 Engines Theory

Students are introduced to the internal combustion engine, including component operation, diagnosis and service, removal, disassembly and measurement of components, reassembly, installation and adjustments. Three credit hours.

AMT1120 Engines Shop

Hands-on application of AMT/GMT1110 in a shop setting. Four credit hours.

AMT/GMT1201 Advanced Electricity/AC Theory

Emphasizes the theory and application of advanced electronics, including ignitions systems (electronic distributorless and coil-on-plug), accessories, supplemental restraint systems, multi-computer systems, computer communications and computer sensory systems. Students get an overview of A/C fundamentals, including system diagnosis, repair of manual and automotive heating ventilation and air conditioning systems. Three credit hours.

AMT/GMT1202 Advanced Electricity/AC Shop

Hands-on application of AMT/GMT1201 in a shop setting. Four credit hours.

AMT/GMT1221 Suspension and Steering Theory

Covers the diagnosis, service, repair and adjustment of chassis components, including front and rear suspension systems, manual and power steering, wheel alignments, tires and wheel balancing. Three credit hours.

AMT/GMT1222 Suspension and Steering Shop

Hands-on application of AMT/GMT1221 in a shop setting. Four credit hours.

AMT/GMT2101 Brakes and Driveline Theory

Covers the diagnosis, service, repair and adjustment of drive axles, including limited slip differentials and axle shafts. Students learn brake systems, including drum and disc systems, hydraulic systems, power assist systems, drum and rotor machining antilock and slip regulation systems. Three credit hours.

AMT/GMT2102 Brakes and Driveline Shop

Hands-on application of AMT/GMT2101 in a shop setting. Four credit hours.

AMT/GMT2121 Automotive Drivetrain Theory

Covers the diagnosis, service, repair and adjustment of automatic transmissions, manual transmissions, and four- and all-wheel drive transfer cases. Includes the diagnosis and service procedures of U-joints and constant velocity joints. Three credit hours.

AMT/GMT2122 Automatic Drivetrain Shop

Hands-on application of AMT/GMT2121 in a shop setting. Four credit hours.

AHP2202 High Performance Engines

Contains training on the entire engine machining process. Starting from engine teardown and ending with assembly and dynamometer performance verification, students learn all of the required machining processes for rebuilding a stock type engine. Throughout the course, students also learn the math and science behind the development of a proper high performance power plant while also learning to assemble a high performance engine properly and dyno test it to find out how close they are to their desired performance. Twelve credit hours.

AHP2220 High Performance Tuning

This offers a highly interactive look at many of the engine performance and control components used in the high performance tuning industry. Intake and cylinder head air flow improvements such as increased valve size, porting, bigger throttle bodies, and exhaust systems are among some of the topics covered. This course also covers a wide variety of engine fuel and ignition control systems. The design and application of turbocharger and supercharger systems for gasoline and diesel engines will be covered, along with nitrous and propane injection. Students also learn carburetor modification and tuning, and power train gearing and suspension systems. Twelve credit hours.

» automotive technology

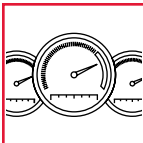
» construction technology

» electrical technology

» information technology

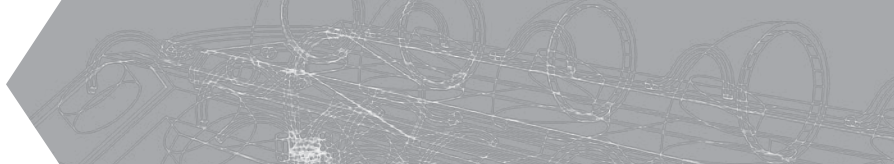
» manufacturing technology

» general education and degree options



AUTOMOTIVE

- » high performance racing technology
- » one-year certificate
- » associate of applied science



» high performance racing technology

EVENING PROGRAM CERTIFICATE IN HIGH PERFORMANCE RACING TECHNOLOGY

The High Performance Racing Technology (HPRT) evening program allows students to gain training in aftermarket engine performance improvement. Our specialized instruction allows students to design and build any type of high performance engine using a wide variety of aftermarket engine components and control systems, to tune it for maximum output and drivability using various data acquisition tools and dynamometers.

The focus is on both engines and tuning. Students entering this program must have a foundation of mechanical repair. Past Ranken Automotive Maintenance Technology (AMT) associate degree graduates are automatically qualified to enter into the program. Past Ranken AMT certificate graduates or current automotive technicians may enter the program with approval from the automotive division chair. For more information about the acceptance requirements for the HPRT program, please contact the Admissions office at (314) 286-4809.

HPRT graduates accept employment in automotive machine shop/race shops, automotive tuner/repair shops, aftermarket part manufacturers/suppliers, professional racing teams and aftermarket tool manufacturers/suppliers.

Successful completion of both semesters is necessary to qualify for a certificate.

For students interested in furthering their education, these courses can be credited toward the Bachelor of Science in Applied Management (BSAM) degree.

ASSOCIATE OF APPLIED SCIENCE

Ranken is now offering an Associate of Applied Science degree as a part of the evening program curriculum. You can earn your associate degree with a combination of Ranken's standard evening school courses as well as our new online courses. You can also transfer credit from other accredited technical training programs, or have your technical work experience evaluated for possible transfer credit. (30 technical credit hours required for graduation.)

For all General Education course requirements, please turn to page 91. For more information about the BSAM degree, please turn to page 93.

PROGRAM COURSES			Hours	Prerequisites
First or Second Semester	AHP2202	High Performance Engines	12	AMT associate degree from Ranken or successful completion of the online course.
	AHP2220	High Performance Tuning	12	
Total technical credit hours for certificate completion			24	

COURSE DESCRIPTIONS

AHP2202 High Performance Engines

Contains training on the entire engine machining process. Starting from engine teardown and ending with assembly and dynamometer performance verification, students learn all of the required machining processes for rebuilding a stock type engine. Throughout the course, students also learn the math and science behind the development of a proper high performance power plant while also learning to assemble a high performance engine properly. They will be able to run a complete dyno test to find out how close they are to their desired performance. Twelve credit hours.

AHP2220 High Performance Tuning

This offers a highly interactive look at many of the engine performance and control components used in the high performance tuning industry. Intake and cylinder head air flow improvements such as increased valve size, porting, bigger throttle bodies, and exhaust systems are among some of the topics covered. This course covers a wide variety of engine fuel and ignition control systems. The design and application of turbocharger and supercharger systems for gasoline and diesel engines will also be covered, along with nitrous and propane injection. Students learn carburetor modification and tuning, and power train gearing and suspension systems. Twelve credit hours.