Auto Restoration Technology Course Descriptions

TE 100 Intro To Restoration

2 hours
A course designed to provide an overview of the restoration core courses, elective courses, general safety and shop knowledge. This course will provide historical information about the automotive industry, information about research, documentation and planning a restoration project. Students must pass this course with a D or better to continue with courses with a TE prefix. Prerequisites: None. (Fall)

TE 110 Engineering Drawing/CAD

3 hours
This course blends the art and science of freehand sketching and technical drafting as students are introduced to the graphic languages as a medium of technical communication. Topics include freehand (isometric) sketching and traditional (orthographic) drafting as well as an introduction to two and three dimensional CAD (Computer Assisted Drawing) tools and processes. Prerequisites: TE 100, None. Spring, odd years

TE 141 Engine Rebuilding

4 hours
A course designed to teach students the basics of automotive engine restoration. This course includes work in basic engine and related systems, operational theory, disassembly procedures, diagnosis of mechanical faults, evaluating engine condition, engine rebuilding techniques and engine machining processes. Students will work on vintage automobile engines, rebuilding engine components as determined by the instructor. Lab Fee. Prerequisite: TE 100, TE 262 taken concurrently or consent of the instructor. (Fall, Spring)

TE 145 Drive Train Rebuilding

3 hours
A course designed to teach students the basics of automotive drive train restoration. This course includes work in basic transmission and differential operational theory, disassembly procedures, diagnosis of mechanical faults and evaluating transmission and final drive condition, transmission and differential rebuilding techniques and procedures. Students will work on vintage automobile transmissions and differential assemblies as determined by the instructor. Lab Fee. Prerequisite: TE 100. (Fall, Spring)

TE 152 Sheet Metal Restoration

4 hours
A course designed to teach students the basics of welding and auto body panel fabrication as used in automobile restoration. This course includes work in basic welding processes, techniques, operational theory and related systems and basic auto body panel fabricating processes, techniques, tool operational theory and related fabrication systems, assembly procedures for auto body panels, and evaluating metal body component condition. Lab Fee. Prerequisite: TE 100. (Fall, Spring)

TE 162 Technical Woodworking

3-4 hours
This course will introduce students to the concepts and practices of basic woodworking, including planning, fabrication and finishing, while stressing the safe operation of power tools used in basic woodworking. The course will also examine the history and evolution of the American automobile in general and automotive coach building in particular. Prerequisite: TE 100. Lab Fee. (Fall, Spring)

TE 202 Research & Documentation

2 hours
This course will introduce students to practical research, documentation and planning related to restoring antique automobiles. Prerequisite: TE 100. (Fall)

TE 206 Motorcycle History and American Society

3 hours
A study of the evolution of motorcycle culture, and the impact of that culture on American society. Prerequisite: TE 100. (Fall, odd years)

TE 242 Re-Babbitting

3 hours
An intensive, lab-based course in the restoration and re-Babbitting of antique automotive engines and mechanical components. Lab Fee. Prerequisites: TE 100, TE 141, TE 262. (On Demand)

TE 245 The History of Automotive Design

3 hours
Discover and examine the technological and stylistic evolution of automotive design. This course will explore ways in which automobiles, by way of

their design, reflect the technology and communicate the values of the culture that produced them. Prerequisites: TE 100. (Spring)

TE 252 Vintage Panel Restoration

3 hours
An intensive, lab-based course in the restoration or fabrication of antique auto body panel components (not applicable as an advanced course). Lab Fee. Prerequisites: TE 100, TE 152. (Interterm)

TE 262 Machining Technology

3 hours
An introduction to machining technology. Students are introduced to blueprint reading, precision measurement, the theory and operation of machine tools, layout techniques and the use of layout tools, the characteristics of common industrial metals used in machining processes, machine maintenance, and nontraditional machining processes. Lab work required. Lab Fee. Prerequisite: TE 100. (Fall, Spring)

TE 271 Chassis Restoration

4 hours
A course designed to teach students the basics of automotive chassis restoration. This course includes restoration work in basic frame, suspension, wheel, brake and drive train components. Operational theory and other related chassis systems, disassembly procedures, diagnosis of mechanical faults, component condition, and brake systems machining processes are also included. Students will work on vintage automobile chassis and related components. Lab Fee. Prerequisite: TE 100, TE 141, TE 145. (Fall, Spring)

TE 275 Automotive Paint Restoration

4 hours
A course designed to teach students the basics of automotive paint restoration. This course emphasizes panel preparation, paint systems and paint application, disassembly and documentation procedures, diagnosis of auto body and interior painted surface faults and evaluating the auto body condition. Students will work on vintage automobile bodies and related components. Lab Fee. Prerequisite: TE 100. (Fall, Spring)

TE 281 Automotive Trim

4 hours
A course designed to teach students the basics of automotive trim (upholstery) restoration. This course includes restoration work in basic automotive seats, interior panels, convertible and other top covering restoration. Also included are disassembly procedures, diagnosis of upholstery and trim and interior faults and evaluating the interior condition. Students will work on vintage automobile interiors and related components. Lab Fee. Prerequisite: TE 100. (Fall, Spring)

TE 301 Materials and Processes

3 hours
This course will explore the history and cultural impacts of the development of engineering materials and processes. Students will gain a working knowledge of the properties and strengths of materials and gain a working knowledge of classic industrial processes and be able to apply that knowledge to the restoration and preservation of antique automotive systems and structures. This class will include field trips to various industrial facilities.. Lab Fee. Prerequisites: None. (Interterm.)

TE 311 Advanced Topics in Engineering Drawing/CAD

4 hours
A continuation of TE 110. Includes revolutions, tolerance dimensioning, threads and fasteners, sections, working drawings, surface and solid generation. Prerequisite: TE 100, TE 110. (On demand)

G-TE/HI 333 Technology and Society

3 hours (Language Intensive)
An introduction to the historical development of technology as part of society and culture, exploring the ways which society and culture constrain and stimulate technologies, and the ways in which technology then shapes society and culture. Does not require previous specialized technical knowledge. This course is designed for both majors and non-majors. Prerequisite: G-EN 111 or consent of the instructor. (Fall.)

TE 341 Advanced Engine Rebuilding

3 hours
This course is designed to build on the skills and knowledge gained in TE 141. This class will focus on designs and construction techniques which apply specifically to vintage engines. This class will also explore the practical application of techniques gained in TE 141 to more complex and vintage engines. Repairing damaged or severely worn components will be the focus of one major Rebuilt engines will then be tested on a dynamometer to assess the rebuild. Lab Fee. Prerequisites: TE 100, TE 141, TE 262. (Fall)

TE 342 Motorcycle Engine Rebuilding

3 hours

This course will focus on rebuilding single and multi-cylinder engines used in motorcycles prior to 1970 as well as various other small engines of similar design. Lab Fee. Prerequisite: TE 100, TE141 (Spring)

TE 353 Finishing Touches

3 hours

A course designed to teach three skills needed for the restoration of early era vehicles. Students will learn to restore and polish hard trim moldings, restore wood grained Interior moldings and the art of pinstriping. Lab Fee. Prerequisites: TE 100, TE 152, TE 275 or consent of the instructor. (on demand)

TE 360 Electrical and Electronic Systems

4 hours

This course will address the characteristics and operations of electrical and electronic systems with special emphasis on their practical application in automotive systems. The course will introduce Ohm's Law, electrical power, circuit elements and magnetism and induction in electrical circuits. Special emphasis Is given to the use of this knowledge In the repair, restoration, and preservation of classic and antique automotive electrical systems. Prerequisite: TE 100,TE 141, TE 271. (Fall, Spring).

TE 371 Motorcycle Drivetrain & Chassis Restoration

3 hours

This course on diagnosing problems, repairing and restoring motorcycle transmissions and chassis components including forks, wheels and tires, and brakes. Lab Fee. Prerequisite: TE 100, TE271 (on demand)

TE 375 Junior Seminar (Juniors, Option V and VI only)

1 hour

This course will explore how to create a professional portfolio, how to properly research restoration, how to manage tasks in relation to a timeline, how to prepare for senior project, and professional ethics. For juniors in Option V and VI only. Prerequisites: TE 100, TE 141, TE145, TE 152 or consent of the instructor, (Fall)

TE 380 Applied Diagnostics

3 hours

An exploration of vintage automotive diagnostics, including a basic overview of automotive electrical systems, fuel and ignition systems, drive train and chassis systems. Basic failure modes of these systems will be explored and will be experienced in the laboratory. Integration of the theory and practice of diagnostics will be explored in a classroom and lab setting. Proper use of diagnostic tools, diagnostic literature and methodology will be taught. Students will work with vintage automobiles and related components. Lab Fee. Prerequisites: TE 100, TE 141, TE 145, TE 271, TE 360. (Interterm)

TE 384 Motorcycle Restoration Assembly Processes

4 hours

A course designed to allow students to refine their skills from other courses in a comprehensive format. Students will work on vintage motorcycles and their components, rebuilding and reassembling these components. Lab Fee. Prerequisite: TE 100, TE 262, TE 275, TE 281, TE 342, TE 371 or consent of the instructor. (Fall)

TE 385 Restoration Assembly Processes

4 hours

A course designed to allow students to refine their skills from other courses in a comprehensive format. Students will work on vintage automobiles and their components, rebuilding and reassembling these components. Hard metal trim restoration and other specialized restoration processes may also be explored depending on project vehicles available. Lab Fee. Prerequisite: TE 100, TE 141, TE 145, TE 152, TE 162, TE 262, TE 271, TE 275, TE 281 or consent of the instructor. (Fall, Spring)

TE 406 Advanced Topics in Woodworking and Design

4 hours

A study of the nature of wood, identification of wood, and joinery. Special emphasis is given to the use of this knowledge in the design, construction, restoration and preservation of automotive coachwork and related wood products. Prerequisites: TE 100, TE 110 and TE 162. Lab fee. (On demand)

TE 414 Advanced Electrical & Electronic Systems

3 hours

A student-guided study of the design, operation, and characteristics of specialized automotive electrical systems including gauges and instruments, clocks and radios, lighting and accessory systems, and specialized ignition systems. This course will address reading and interpreting automotive wiring diagrams and will include design and construction of authentic wiring looms and harnesses. Special emphasis is given in this course to the

repair, restoration and preservation of classic and antique automobile electrical systems. Lab Fee. Prerequisites: TE 100, TE 360 (Spring)

TE 452 Advanced Sheet Metal Restoration

3 hours
A study of special sheet metal restoration techniques, including the use of power tools in fabrication, creating complex compound curves, repairing extremely damaged components and the craft of creating custom tooling. Students will build experience and confidence in their skills in the laboratory. Lab Fee. Prerequisites: TE 100, TE 152. (Spring)

TE 475 Restoration Technology Senior Project (Seniors, Option V and VI only)

4 hours (Language Intensive)
This course will be a practical and realistic experience in which students will study a specific aspect of automotive restoration and complete restoration work on one of many college-owned vintage cars or projects related to their study. Students will present the completed research and restoration plan to complete a capstone experience. Prerequisite: TE 100, TE 375. (Fall)

TE 480 Advanced Automotive Paint Restoration

3 hours
This course will build on concepts introduced in TE 275. Safety issues related to painting, paint history, special painting techniques and proper documentation of vehicle components will be a major emphasis. Students will work to increase their painting skills through practical experience. Lab Fee. Prerequisites: TE 100, TE 275. (Fall)

TE 481 Applied Trim and Upholstery

3 hours
A course that builds students' hands-on experience in automotive soft trim restoration and replacement. Lab Fee. Prerequisites: TE 100, TE 281. (Spring)

Individualized Courses Available
295/495 Field Experience (1-4 hours)
*299/499 Independent Study (1-4 hours)
388 Career Connections (1-12 hours)
*445 Readings and Research (1-4 hours)

*** Prerequisite Policy: (TE 299/499 and TE 445)**
The student must submit to the appropriate instructor a written proposal of study, prior to enrollment in the course, including the following components:

1. statement of the student's acceptance of the goals of topics courses: to provide the opportunity for specialized unit shop teaching endorsements, study of advanced content, and the development of teaching and training skills;
2. goals, project plans, and a detailed weekly schedule, consistent with the course syllabus;
3. evidence of academic maturity, self-motivation, and desire to serve as an appropriate role model for students in lower-level classes in similar content area;
4. agreement to schedule the lab time of the topics course at the same time the lower-level course is offered; and
5. evidence that the student has completed all lower-level course(s) in the corresponding content area with a minimum B (3.0) average and a minimum B (3.0) overall college grade point average; or permission of the instructor to waive the grade

Upon instructor approval of the proposal, an interview will be scheduled with the student to discuss the arrangement and any further details prior to granting final permission for the student to enroll in the course.