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. Prerequisites: None. Students must pass this course with a "C" or better to continue taking courses with TE 100 as a prerequisite. (Fall) *Students in the Automotive Restoration Program will have a maximum of two attempts at TE 100. After failing to reach a "C" or better for the second time, they will no longer be allowed to continue in the program.*

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: TE100. (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. TE100 may be taken concurrently (Fall, Spring) Students must pass this course with a "C" or better in order to take TE 341.

TE 145 Drivetrain Restoration

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. TE 100 may be taken concurrently. (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. TE 100 may be taken concurrently. (Fall, Spring) Students must pass this course with a "C" or better in order to take TE 452.

TE 162 Fundamentals of Woodworking

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. TE 100 may be taken concurrently. Lab Fee. (Fall, Spring) Students must pass this course with a "C" or better in order to take TE 406.

TE 200 Automotive Restoration Career Exploration

2 hours
A career exploration course specifically designed for Automotive Restoration students. Students will learn about their individual strengths and how those strengths can be utilized to make the most of their abilities in the automotive restoration industry. Instruction will be given in the professional preparation of cover letters, resumes, and portfolios. A key focus will also be placed on using connections with automotive restoration industry leaders and using their expertise as guidance for students when preparing for job interviews and careers in the industry. Prerequisite: TE100 (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: TE100 (Spring)

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)

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: TE100 (Fall)

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. TE 100 may be taken concurrently (Fall, Spring) Students must pass this course with a “C” or better in order to take TE 462.

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. TE 100 may be taken concurrently (Fall, Spring) Students must pass this course with a “C” or better in order to take TE 480

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. TE 100 may be taken concurrently (Fall, Spring) Students must pass this course with a “C” or better in order to take TE 481.

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: TE 100 (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 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 how society and culture constrain and stimulate technologies, and how 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 that 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. Rebuilt engines will then be tested on a dynamometer to assess the rebuild. Lab Fee. Prerequisites: TE 100, TE 141, TE 262 with a C or better. (Fall, Spring)

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, TE 141 (On Demand)

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). Students must pass this course with a “C” or better in order to take TE 414.

TE 371 Motorcycle Drivetrain and 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 271 (On Demand)

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. (Fall, Spring)

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 262, TE 275, TE 281, TE 342, TE 371 or consent of the instructor. (Spring)

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 Woodworking in Automotive Coachwork

3 hours

A course designed to allow students to study intermediate woodworking techniques and processes, project planning, parts fabrication, wood

finishing, and safety in the wood shop. This course covers materials and processes used in industry, both now and historically. It is the goal of this course that upon completion, students will have a working knowledge of various woodworking materials and processes and will be able to apply that knowledge to the field of automotive restoration. Prerequisites: TE 100, TE 162 with a C or better. Lab fee. (Spring)

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 360 with a C or better. (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 with a C or better. (Spring)

***TE 475 Technology Senior Project (Automotive Restoration Technology emphasis only)**

4 hours (Language Intensive)
This course is designed to be an intensive experience combining the implementation of technical skills, research techniques, and learning to manage restoration work on one of many college-owned vintage cars or projects related to their study. The scope of each project would be described as “a significant body of work” or “a capstone experience.” Prerequisite: TE 375 with a C or better. (Fall, Spring)

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 with a C or better. (Fall, Spring)

TE 481 Advanced Automotive Trim

3 hours
This course builds on the concepts introduced in TE 281. Deeper instruction will be given in automotive trim areas such as organization and setup, button tufting, leather, pattern making, and custom seat construction. Measuring, documenting, and estimating of materials to replace/restore an automotive interior will also be emphasized. Lab Fee. Prerequisites: TE 100, TE 281 with a C or better. (Spring)

Special Course Options
295/495 Field Experience (1-4 hours)
297 Study Abroad (12-16 hours)
***299/499** Independent Study (1-4 hours)
388 Career Connections (3-10 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, the 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.