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**Course Descriptions**

**DEMR 1310 Diesel Engine Testing and Repair I**
3 Hours (2-4)
Introduction to testing and repairing diesel engines including related systems and specialized tools. Learn to identify, inspect, test and measure, and disassemble engine parts.

**DEMR 1317 Basic Brake Systems**
3 Hours (2-4)
Basic principals of brake systems of diesel powered equipment with an emphasis on maintenance, repairs, and troubleshooting. Understand the basic theory and operation of the brake systems, diagnose brake components for wear and usability, repair brake components by rebuilding or replacing parts, and adjust brake components.

**DEMR 1321 Power Train I**
3 Hours (2-4)
Fundamental repair and theory of power trains including clutches, transmissions, drive shafts, and differentials. Emphasis on inspection and repair. Prerequisite: DEMR 1329.

**DEMR 1329 Preventive Maintenance**
3 Hours (2-3)
An introductory course designed to provide the student with basic knowledge of proper servicing practices. Content includes record keeping and condition of major systems and overview of written portion of the Texas Commercial Drivers License test.

**DEMR 1330 Steering and Suspension I**
3 Hours (2-4)
An introductory course covering the design, functions, and repair of steering suspension systems. Students will troubleshoot and repair failed components or replace parts on various steering and suspension systems.

**DEMR 1335 Automatic Power Shift and Hydrostatic Transmissions I**
3 Hours (2-4)
A study of the operation, maintenance, and repair of automatic power shift hydrostatic transmissions. Prerequisite: DEMR 1335

**DEMR 1403 Basic Driving Skills**
4 Hours (2-6)
Introduction to the use of a class 8 combination vehicle. Emphasis on safe operation and driving skills in preparation to obtain a Texas commercial Drivers License (CDL). Prerequisite: DEMR 1329 (Special lab fees apply)

**DEMR 2312 Diesel Engines Testing and Repair II**
3 Hours (2-4)
Coverage of testing and repairing diesel engines including related systems specialized tools. Learn to disassemble and reassemble engine parts. Prerequisite: DEMR 1310.

**DEMR 2332 Electronic Controls**
3 Hours (2-4)
Advanced skills in diagnostic and programming techniques of electronic control systems. Prerequisite: DEMR 1305

**DEMR 2334 Advanced Diesel Tune-Up and Troubleshooting**
3 Hours (2-4)
Advanced concepts and skills required for tune-up and troubleshooting procedures of diesel engines. Emphasis on the science of diagnostics using specialized tools and advanced concepts. Prerequisite: DEMR 1310.

**DFTG 1305 Technical Drafting**
3 Hours (2-4)
Introduction to the principles of drafting to include terminology and fundamentals, projection methods, geometric construction, sections, auxiliary views, and reproduction processes. Software: AutoCAD

**DFTG 1309 Basic Computer-Aided Drafting**
3 Hours (2-4)
An introduction to basic computer-aided drafting. Emphasis is placed on drawing setup; creating and modifying geometry; storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinating systems; as well as input and output devices. Co-requisite: DFTG 1305. Software: AutoCAD

**DFTG 1317 Architectural Drafting - Residential**
3 Hours (2-4)
Architectural drafting procedures, practices, and symbols, including preparation of detailed working drawings for residential structure with emphasis on light frame construction methods. Prerequisite: DFTG 1309. Software: AutoCAD Architecture

**DFTG 1345 Parametric Modeling and Design**
3 Hours (2-4)
Use of parametric-based design software for 3D design and drafting. Emphasis on the parametric modeling techniques used to create rendered assemblies, orthographic drawings, auxiliary views, and details from 3-dimensional models. Prerequisite: DFTG 2340. Software: Autodesk Inventor.

**DFTG 1325 Blueprint Reading and Sketching**
3 Hours (3-0)
An introduction to reading and interpreting working drawings for fabrication processes and associated trades. Use of sketching techniques to create pictorial and multiple-view drawings.

**DFTG 1391 Special Topics in Drafting**
3 Hours (2-4)
Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student.

**DFTG 2302 Machine Drafting**
3 Hours (2-4)
Production of detail and assembly drawings of machines, threads, gears, cams, tolerances and limit dimensioning, surface finishes, and precision drawings. Prerequisite: DFTG 1309. Software: AutoCAD

**DFTG 2306 Machine Design**
3 Hours (2-4)
MATH 2420 Differential Equations
4 Hours (4-0)
This course is designed to produce student proficiency in first order equations, linear differential equations, differential operators, Laplace transforms, and the applications of differential equations. It also introduces power series methods, linear systems, and numerical methods. Prerequisite: Requires a “C” or greater in MATH 2415. Course fee.

MCHN 1320 Precision Tools and Measurement
3 Hours (3-0)
An introduction to the modern science of dimensional metrology. Emphasis on the identification, selection, and application of various types of precision instruments associated with the machining trade. Practice of basic layout and piece part measurements while using standard measuring tools.

MRKG 1311 Principles of Marketing
3 Hours (3-0)
Introduction to the marketing mix functions and process. Includes identification of consumer and organizational needs and explanation of environmental issues. Students will identify the marketing mix components in relation to market segmentation; explain the environmental factors which influence consumer and organizational decision-making processes; and outline a marketing plan.

MUAP 1166, 1167 Woodwind Instruments I, II
1 Hour (2-1)

MUAP 1168 Brass Instruments
1 Hour (2-1)

MUAP 1169, 1170, 2169, 2170 Brass Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1171, 1172, 2171, 2172 String Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1173, 1174, 2173, 2174 Percussion Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1175, 1176, 2175, 2176 Woodwind Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1177, 1178, 2177, 2178 Keyboard Instruction I, II, III, IV
1 Hour (0-2)
Intermediate piano. A series of courses designed to provide students with the skills necessary to perform artistically at the piano in a variety of performance settings. One 30-minute private lesson per week. Prerequisite: Instructor’s permission.

MUAP 1179, 1180, 2179, 2180 Voice Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1188 Percussion Instruments
1 Hour (2-1)

MUAP 1190, 2190 String Instruments I, II
1 Hour (2-1)

MUAP 1269, 1270, 2269, 2270 Brass Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1271, 1272, 2271, 2272 String Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1273, 1274, 2273, 2274 Percussion Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1275, 1276, 2275, 2276 Woodwind Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1277, 1278, 2277, 2278 Keyboard Instruction I, II, III, IV
2 Hours (0-2)
Advanced Piano. Prerequisite: MUSI 2178 or instructor’s permission.

MUAP 1279, 1280, 2279, 2280 Keyboard Instruction I, II, III, IV
2 Hours (0-2)
Advanced piano. A series of courses designed to provide students with the skills necessary to perform artistically at the piano in a variety of performance settings. One 60-minute private lesson per week. Prerequisite: Instructor’s permission.

MUAP 2240 Instrumental Techniques
2 Hours (2-2)

MUEN 1121, 1122, 2121, 2122 Wind Ensemble I, II, III, IV
1 Hour (0-5)

MUEN 1123, 1124, 2123, 2124 Band I, II, III, IV
1 Hour (0-5)

MUEN 1125, 1126, 2125, 2126 Orchestra I, II, III, IV
1 Hour (0-5)

MUEN 1131, 1132, 2131, 2132 Studio Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1133, 1134, 2133, 2134 Brass Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1135, 1136, 2135, 2136 String Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1137, 1138, 2137, 2138 Woodwind Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1139, 1140, 2139, 2140 Percussion Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1141, 1142, 2141, 2142 Chamber Singers I, II, III, IV
1 Hour (0-5)

MUEN 1143, 1144, 2143, 2144 Chorale I, II, III, IV
1 Hour (0-5)

MUEN 1145, 1146, 2145, 2146 Women’s Choir I, II, III, IV
1 Hour (0-5)
MUSI 1309 Fundamentals of Music
3 Hours (3-0)
A preparatory course for music majors, not applicable toward the music degree. MUSI 1301 examines the fundamentals of rhythm, melody, harmony, ear-training, sight singing, and keyboard.

MUSI 1304 Public School Music Methods and Materials
3 Hours (3-0)
A course which examines techniques and materials for music instruction in kindergarten and grades one through six. Participation includes experience in part singing, playing, listening, voice testing, rhythmic, and creative activities.

MUSI 1306 Music Appreciation
3 Hours (3-0)
A course designed to provide an overview of music from antiquity to the present. Course is designed to enable student to investigate music in the context of social and cultural history.

MUSI 1308 Survey of Music Literature
3 Hours (3-0)
A course designed to enable student to examine music critically, including its development and its function in culture from antiquity to 1750. Course utilizes primary sources and listening selections.

MUSI 1309 Survey of Music Literature II
3 Hours (3-0)
A course designed to enable student to examine music critically, including its development and its function in culture from 1750 to present. Course utilizes primary sources and listening selections.

MUSI 1310 American Music: History of Country Music
3 Hours (3-0)
A course designed to enable student to trace the development of country music and its function in American culture from Appalachia in the 1920s to present. Credit will be given only once for MUSI 1310.

MUSI 1310 American Music: Rock 'n' Roll Music
3 Hours (3-0)
A course designed to enable student to examine the effect of historical events on American popular music culture. Course includes listening and reporting on music in context of recent American History. Credit will be given only once for MUSI 1310.

PHIL 1301 Introduction to Philosophy
3 Hours (3-0)
“Introduction to Philosophy” samples the writings of thinkers who over the past 2500 years have challenged the human intellect with questions about the meaning of existence, the nature of reality, and the validity of knowledge. The course encourages students to re-examine and clarify their own beliefs and values.
WIND 2359 Wind Power Delivery System
3 hours (2-2)
Components, equipment, and infrastructure used in the production and transmission of electricity as related to wind turbine power. Students will explain the operation of power production; describe power transmission components; identify the operational relationship between the generator and converter; compare the authority of local area, state, and national jurisdiction as related to the electrical grid; and interpret grid schematics.

WIND 2370 Wind Energy Composites
3 hours (2-2)
Comprehensive concepts of the inspection and repair of composite material used in the wind energy. Emphasizes types of material and causes for deterioration. Includes properties, processes, testing, and assembly of composite material. Also addresses safety procedures. Students will select, install, repair, and remove special composite structures; and identify methods by which corrosion can be monitored and controlled.

WLDG 1391 Special Topics in Welding Technology
3 Hours (3-0)
Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student.

WLDG 1437 Introduction to Metallurgy
4 Hours (3-2)
A study of ferrous and nonferrous metals from the ore to the finished product. Emphasis on metal alloys, heat treating, hard surfacing, welding techniques, forging, foundry processes, and mechanical properties of metal including hardness, machinability, and ductility. Safe use of Metallurgy and Chemical equipment.

WLDG 1521 Introduction to Welding Fundamentals
5 Hours (3-6)
An introduction to the fundamentals of equipment used in oxy-acetylene welding (OFW-A) and shielded metal arc welding (SMAW), including welding and cutting safety, basic oxy-acetylene welding and cutting, basic arc welding processes and basic metallurgy. The student will demonstrate safety procedures associated with equipment; and identify ferrous and nonferrous metals.

WLDG 1525 Introduction to Oxy-Fuel Welding (OFW) and Cutting (OFC)
5 Hours (3-6)
An introduction to OFW and OFC, including history and future in welding, safety, setup and maintenance of OFW and OFC equipment and supplies. The student will describe or explain OFW and OFC safety procedures and identify and classify fuels and filler metals. The student will perform entry-level OFW and OFC operations and select proper equipment and materials. Co-requisite: WLDG 1521.

WLDG 1530 Introduction to Gas Metal Arc Welding (GMAW)
5 Hours (3-6)
A study of the principles of GMAW setup and use of GMAW equipment, and safe use of tools/equipment. Instruction in various joint designs. The student will describe welding positions with various joint designs on plate; describe safety rules and equipment used; describe the effects of welding parameters in GMAW; and understand safety rules, equipment used, and testing performed by visual inspection. Student will weld various types of structural material and diagnose welding problems and perform visual inspections. Co-requisite: WLDG 1521.

WLDG 1534 Introduction to Gas Tungsten Arc Welding (GTAW)
5 Hours (3-6)
An introduction to the principles of GTAW, setup/use of GTAW equipment, and safe use of tools and equipment. Welding instruction in various positions and joint designs. The student will describe various joint designs; describe safety rules and equipment; and describe the effects of welding parameters in GTAW; and will weld various structural materials. Requisite: WLDG 1521.

WLDG 1553 Intermediate Layout and Fabrication
5 Hours (3-6)
A course which covers design and production of shop layout and fabrication. Emphasis placed on symbols, blueprints, and written specifications. The student will identify auxiliary views and calculate steel and pipe dimensions using layout tools and construction templates. The student will identify fittings, weldments, templates, and tools; and interpret orthographic and isometric drawings.

WLDG 1557 Intermediate Shielded Metal Arc Welding (SMAW)
5 Hours (3-6)
A study of the production of various fillets and groove welds. Preparation of specimens for testing in all test positions. The student will identify principles of arc welding; describe SMAW operations of fillet and groove joints; explain heat treatments of low alloy steels; and explain weld size and profiles. The student will prepare test plates; perform fillet welds in the overhead position; perform Air Carbon Arc Cutting (CAC-A), weld removal; perform bevel groove welds with backing plates in various positions; and demonstrate safe use of tools and equipment. Co-requisite: WLDG 1521.

WLDG 2331 Advanced Blueprint Interpretation and Cost Analysis
3 Hours (3-0)
An advanced course on interpretation, and blueprint reading with emphasis placed on inspection, cost analysis, and estimating, including instruction in basic drafting skills.

WLDG 2380 and 2381 Cooperative Work Experience
3 Hours (1-0-20)
The student will be exposed to the application of career-related activities encountered in the Welding area of specialization. The student is required to work a minimum of 20 hours per week in a paid job in a welding trades cooperative position under the supervision of the college and training sponsor.
WLDG 2506 Intermediate Pipe Welding
5 Hours (3-6)
A comprehensive course on the welding of pipe using the shielded metal arc welding (SMAW) process. Position of welds will be 1G, 2G, 5G, and 6G using various electrodes. Topics covered include electrode selection, equipment setup, and safe shop practices. The student will describe equipment and required pipe preparation. The student will perform 1G, 2G, 5G, and 6G welds using various electrodes. Prerequisite: WLDG 2543 Capstone course.

WLDG 2535 Advanced Layout and Fabrication
5 Hours (3-6)
A continuation of the Intermediate Layout and Fabrication course which covers production and fabrication of layout tools and processes. Emphasis on application of fabrication and layout skills. The student will apply appropriate techniques of fabrication; design welding projects; prepare drawings and produce templates. The student will apply layout offsets; take offs; bills of materials; and apply mathematical concepts in the construction of projects. Safety will be stressed. Prerequisite: WLDG 1553 and WLDG 1557.

WLDG 2543 Advanced Shielded Metal Arc Welding (SMAW)
5 Hours (3-6)
Advanced topics based on accepted welding codes. Training provided with various electrodes in SMAW processes on open V-groove joints in all positions. The student will describe effects of preheating and postweld heating; explain precautions used when welding various metals and alloys; distinguish between qualification and certification procedures; and discuss problems of welding discontinuities. The student will perform open groove welds with mild steel and low alloy electrodes in all positions. Safety will be stressed. Prerequisite: WLDG 1557.

WLDG 2547 Advanced Gas Metal Arc Welding (GMAW)
5 Hours (3-6)
Advanced topics in GMAW welding, including welding in various positions and directions on plate and pipe with .035, .045 and innershield wire with various shielding gases. The student will exhibit expertise in various welding positions on pipe; describe safety rules and equipment used; and describe the effects of welding parameters in GMAW. The student will weld various joint designs and diagnose welding problems and perform visual inspection. Prerequisite: WLDG 1530.

WLDG 2551 Advanced Gas Tungsten Arc Welding (GTAW)
5 Hours (3-6)
Advanced topics in GTAW welding, including welding in various positions and directions. The student will exhibit expertise in various welding positions; describe safety rules and equipment used; and describe the effects of welding parameters in GTAW. The student will weld various joint designs; diagnose welding problems; and perform visual inspection. Prerequisite: WLDG 1534.

WLDG 2553 Advanced Pipe Welding
5 Hours (3-6)
Advanced topics involving welding of pipe using the shielded metal arc welding (SMAW) process. Topics include electrode selection, equipment setup, and safe shop practices. Emphasis on weld positions 5G and 6G using various electrodes. Prerequisite: WLDG 2543 Capstone course.
All degrees with the exception of the AAS require students to complete the Core Curriculum. The Core Curriculum was established by the Texas legislature and the Texas Higher Education Coordinating Board to facilitate the transfer of courses between state supported institutions of higher education in Texas and to provide students with the basis of a liberal education. In order to obtain most degrees from a state supported institution in Texas, a student must complete the Core Curriculum. Thus, once a student has completed the Core Curriculum at one institution, it has been completed at all state supported institutions. Courses are chosen from the following areas. Consult degree programs for specific requirements. The required number of semester credit hours is noted in parenthesis beside each area.

**010 - Communications (9)**
ENGL 1301 and 1302, one course chosen from SPCH 1311, 1315, 1318, or 1321

**020 - Mathematics (3)**
MATH 1314, MATH 1316, MATH 1324, MATH 1414, MATH 2412, MATH 2413, MATH 2414, MATH 2415

**030 - Natural Sciences (8)**
BIOL 1406, BIOL 1407, BIOL 1408, BIOL 1409, BIOL 1424, BIOL 2401, BIOL 2402, BIOL 2421, CHEM 1405, CHEM 1411, CHEM 1412, GEOL 1401, GEOL 1403, GEOL 1404, GEOL 1405, GEOL 1447, PHYS 1401, PHYS 1402, PHYS 1403, PHYS 1404, PHYS 1415, PHYS 1417, PHYS 2425, PHYS 2426

**040 - Humanities (3)**
ENGL 2321, ENGL 2322, ENGL 2323, ENGL 2326, ENGL 2327, ENGL 2328, ENGL 2331, ENGL 2332, ENGL 2333, ENGL 2342, ENGL 2343, FREN 2311, FREN 2312, GERM 2311, GERM 2312, HUMA 1301, HUMA 1302, LATI 2311, LATI 2312, PHIL 1301, PHIL 2303, PHIL 2306, SPAN 2311, SPAN 2312

**050 - Visual and Performing Arts (3)**
ARTS 1301, ARTS 1303, ARTS 1304, DRAM 1310, DRAM 2361, DRAM 2362, DRAM 2366, MUSI 1306, MUSI 1308, MUSI 1309, MUSI 1310

**060 - 070 - 080 - Social and Behavioral Sciences (15)**
U.S. History (6): HIST 1301, HIST 1302, HIST 2301
Government/Political Science (6): GOVT 2301, GOVT 2302
Other Social/Behavioral Sciences (3): ANTH 2302, ANTH 2351, COMM 2300, ECON 2301, ECON 2302, GEOG 1303, HIST 2311, HIST 2312, PSYC 2301, SOCI 1301, SOCI 1306

**090 - Fitness and Wellness (1)**
KINE 1100, KINE 1101, KINE 1102, KINE 1103, KINE 1104, KINE 1105, KINE 1106, KINE 1107, KINE 1108, KINE 1109, KINE 1110, KINE 1113, KINE 1117, KINE 1118, KINE 1119, KINE 1120, KINE 1125, KINE 1126

**Total : 42 semester credit hours**