

Railroad Operations- Mechanical Option, A.A.S.

Mechanical services include a variety of responsibilities for the maintenance, service and repair of locomotives, freight cars and other rolling stock. Skills include diesel engine repair, electrical and electronic system repair, freight car repair and inspection, and welding processes. The final phase of the program consists of training provided in cooperation with the National Academy of Railroad Sciences. Selective admission to the program is based upon various criteria. Interested students should meet with a JCCC counselor as early as possible.

For information visit the National Academy of Railroad Sciences (<http://www.railroadtraining.com>). Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 2840; State CIP Code 49.0208)

Associate of Applied Science Degree

Prerequisites for Required Courses

Prior to beginning the program, the student must take one of the following prerequisite courses, or have obtained a waiver from the department or may contact the Testing Center for prior learning credit.

First Semester

CPCA 105	Introduction to Personal Computers: Windows	1
CPCA 108	Word Processing I: MS Word*	1
CPCA 110	Spreadsheets I: MS Excel*	1
ENGL 121	Composition I*	3
MATH 130	Technical Mathematics I*	3
PHIL 124	Logic and Critical Thinking	3
RRT 120	History of Railroading	3
Total Hours		15

Second Semester

Technical Electives (see below)		2
ENGL 123	Technical Writing I*	3
MATH 131	Technical Mathematics II*	3
PHYS 133	Applied Physics*	5
RRT 121	Railroad Technical Careers	3
Health and/or Physical Education Elective ^		1
Total Hours		17

^ Health and/or Physical Education Elective (<http://catalog.jccc.edu/fall/degrecertificates/electives/health-and-or-physical-ed-aas>)

Third Semester

BUS 121	Introduction to Business	3
ECON 132	Survey of Economics	3
or ECON 230	Economics I	
PHIL 138	Business Ethics	1
RRT 150	Railroad Operations	3
RRT 165	Railroad Safety, Quality and Environment	3
SPD 125	Personal Communication	3
Total Hours		16

Fourth Semester

Technical Electives (see below)		10
RRIT 122	Elements of Welding*	3

RRIT 123	Basic Welding*	3
Total Hours		16

Technical Electives

AUTO 125	Introduction to Automotive Shop Practices	3
AUTO 165	Automotive Engine Repair*	4
CET 105	Construction Methods	3
CET 129	Construction Management	3
CPCA 138	Windows for Microcomputers*	1
DRAF 123	Interpreting Machine Drawings*	2
DRAF 129	Interpreting Architectural Drawings	2
ELEC 120	Introduction to Electronics	3
ENGR 180	Engineering Land Surveying I*	3
HVAC 123		4
INDT 125	Industrial Safety/OSHA 30	3
MFAB 124	Introduction to Welding	3
MFAB 128	Basic Machine Tool Technology	3
MFAB 140	Maintenance Repair Welding*	3
MFAB 180	Blueprint and Symbols Reading for Welders	2
MFAB 152	Manufacturing Materials and Processes	3
MFAB 240	Metallurgy	2
RRTM 130	Freight Car Yard Inspection*	3
RRTM 131	Freight Car Repair Track Inspector*	3
RRTM 152	Freight Car Air Brakes, Basic*	2

Total Program Hours: 64

Courses

RRTM 130 Freight Car Yard Inspection* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is the first of a series of three for freight car training. It is designed to introduce the student to the safe inspection, testing, and repairing of freight cars in a repair track environment in accordance with Federal Railroad Administration (FRA), Association of American Railroads (AAR), and BNSF Railway procedures and policies. 32 hrs. lecture, 8 hrs. instructional lab/total.

RRTM 131 Freight Car Repair Track Inspector* (3 Hours)

Prerequisites: RRTM 130 and approval of the railroad training administrator and JCCC department approval

This course is the second of a series of three for freight car training. It is designed to introduce the student to the safe inspection, testing, and repairing of freight cars in a repair track environment in accordance with Federal Railroad Administration (FRA), Association of American Railroads (AAR), and BNSF Railway procedures and policies. 32 hrs. lecture, 8 hrs. instructional lab/total.

RRTM 135 Basic EMD Mechanical* (3 Hours)

Prerequisites: Approval of the railroad training administrator and JCCC department approval

This is the first in a series of four courses in Locomotive Mechanics. This course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting for EMD diesel engines and support systems. 40 hrs. integrated lecture lab/total.

RRTM 136 Basic GE Mechanical* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This is the second in a series of four courses in Locomotive Mechanics. This course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting for GE diesel engines and support systems. 40 hrs. integrated lecture lab/total.

RRTM 137 Locomotive Air Brake* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is the third in a series of four courses in Locomotive Mechanics. It is designed to provide the student an introduction to the operation, testing, maintenance, and troubleshooting for 26L and 30 ACDW locomotive air brake systems. This course also emphasizes FRA air brake requirements applicable to locomotives. 40 hrs. integrated lecture lab/total.

RRTM 138 Locomotive FRA* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is the fourth in a series of four courses in Locomotive Mechanics. This course is designed to introduce the student to the Federal Railway Administration and Department of Transportation Code of Federal Regulations Title 49, Parts 209, 218, 229, 231, and 232. 40 hrs. integrated lecture lab/total.

RRTM 142 Locomotive Electricity* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This is the first in a series of four courses in Locomotive Electrical. This course is designed to introduce the student to the basic electrical theory and concepts related to locomotive electrical systems. 40 hrs. integrated lecture lab/total.

RRTM 143 Low Horsepower Electrical* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC program assistant dean

This is the second in a series of four courses in locomotive electrical. This course is designed to introduce the student to the operation, maintenance, and troubleshooting of EMD Low Horsepower locomotive electrical systems. 40 hrs. integrated lecture lab/total.

RRTM 144 EMD Basic Electrical* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This is the third in a series of four courses in Locomotive Electrical, this course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting of EMD diesel engines and support systems. 40 hrs. integrated lecture lab/total.

RRTM 145 GE Dash 8/9 Electrical Systems* (3 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This is the last in a series of four courses in Locomotive Electrical. This course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting of GE Dash 8/9 locomotive systems. 40 hrs. integrated lecture lab/total.

RRTM 152 Freight Car Air Brakes, Basic* (2 Hours)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is designed to provide the student with a basic working knowledge of Freight Car Air Brake Equipment as well as a firm understanding of both Association of American Railroads (AAR) and Federal Railroad Administration (FRA) rules and requirements with emphasis on safe work practices. 40 hrs. integrated lecture lab/total.