Railroad Electronics, AAS

The associate of applied science in railroad electronics degree program is a restricted access program for those students enrolled in the railroad electronics certificate program who wish to progress to a degree. The certificate program has been an active program on the JCCC campus since 1993, with a total enrollment to date of almost 400 students.

The certificate program consists of 33 credit hours of electronics courses, previously designated as ELEC courses, currently designated as RREL courses. The total program content is equivalent to the electronics degree program, but the delivery differs. content is divided into courses differently. Examples tend to be railroad-related where possible, and courses are delivered in alternative format, combining distance learning (using a remote access server) and classroom presentations.

Electronics technology influences almost every aspect of modern life. Skilled electronics technicians are needed to support growth in the railroad industry. These technicians must be able to fabricate, tect, install, operate and maintain highly technical systems, such as communications systems networks, medical delivery systems, computers and computer networks, and industrial process control systems. The program focuses on the underlying principles of electronic devises used extensively in railroad signaling, circuit analysis and digital electronics and will provide a broad systems view of electronics.

Students in railroad electronics technology program will work with outstanding facilities and the latest laboratory equipment. Graduates of the program will have the opportunity for employment in today's most challenging and exciting railroad signal career field.

No new courses are required for this program. All RREL courses are offered as closed courses for BNSF Railway, with the railroad furnishing all equipment, trainers, computers and software.

(Major Code 2820; State CIP Code 49.0208)

- Railroad Science (http://www.jccc.edu/academics/transportation/railroad)

Associate of Applied Science Degree

First Semester

Technical Electives (see below)		3
RREL 180	Introduction to Railroad Electronics*	1
RREL 181	Circuit Analysis DC/AC*	6
ENGL 121	Composition I*	3
Science and/or Mathematics Elective ^		3
Total Hours		**16**

^ See all AAS general education electives (http://catalog.jccc.edu/degreerequirements/associate-applied-science)

Second Semester

RREL 182	Semiconductor Devices and Circuits*	6
RREL 183	Digital Techniques*	6
Humanities Elective ^		3
Total Hours		**15**

^ See all AAS general education electives (http://catalog.jccc.edu/degreerequirements/associate-applied-science)

Third Semester

Technical Electives (see below)		6
RREL 284	Electronic Communications*	6
Social Science/Economics Elective ^		3
Total Hours		**15**

^ See all AAS general education electives (http://catalog.jccc.edu/degreerequirements/associate-applied-science)

Fourth Semester

Technical Electives (see below)		6
RREL 285	Microprocessor Techniques*	6

RREL 286	Applied Microprocessors*	2
Communications Elective ^		3
Total Hours		**17**

^ See all AAS general education electives (http://catalog.jccc.edu/degreerequirements/associate-applied-science)

Note: MATH 111 and MATH 115 will not meet math requirements

Technical Electives

AET 140	Actuator and Sensor Systems*	3
AET 160	Programmable Logic Controllers I*	3
ASTR 120	Fundamentals of Astronomy	3
AUTO 121	Small Engine Service	3
AUTO 122	Introduction to Automotive Glass	3
AUTO 125	Introduction to Automotive Shop Practices	3
BOT 101	Computerized Keyboarding	1
BOT 103	Business English	3
BOT 105	Keyboarding and Formatting I	3
BOT 115	Electronic Calculators	1
BOT 150	Records Management*	3
CET 105	Construction Methods	3
CET 129	Construction Management	3
CPCA 105	Introduction to Personal Computers: Windows	1
CPCA 106	Introduction to Personal Computers: Macintosh	1
CPCA 128	PC Applications: MS Office	3
CIS 124	Introduction to Computer Concepts and Applications	3
DRAF 120	Introduction to Drafting	2
CS 134	Programming Fundamentals	4
DRAF 123	Interpreting Machine Drawings*	2
DRAF 129	Interpreting Architectural Drawings	2
DRAF 132	Exploring AutoCAD	3
DRAF 140	Topics in CAD I:	2
DRAF 238	Architectural Design and Drafting*	3
ELEC 120	Introduction to Electronics	3
ELEC 126		4
ELEC 125	Digital Electronics I	4
ELEC 185	LAN Cabling and Installation	3
ENGR 121	Engineering Orientation	2
GEOS 130	General Geology	5
GEOS 140	Physical Geography	3
GEOS 145	World Regional Geography	3
HVAC 125	Energy Alternatives	2
HVAC 167	Sheet Metal Layout and Fabrication	3
INDT 125	Industrial Safety/OSHA 30	3
INDT 155	Workplace Skills	1
IT 205	Implementing Windows Client	3
MFAB 152	Manufacturing Materials and Processes	3
MFAB 180	Blueprint and Symbols Reading for Welders	2
MFAB 240	Metallurgy	2
RRT 120	History of Railroading	3
RRT 121	Railroad Technical Careers	3
RRT 150	Railroad Operations	3

RRT 165	Railroad Safety, Quality and Environment	3

Total Program Hours: 63