SAN JOAQUIN DELTA COLLEGE

Program Narrative

Electron Microscopy: Field Service Technician Advanced Training

Certificate of Achievement

Program Goals and Objectives

This program is designed to promote the student to work within the Microscopy Sector, as an entry-level field engineer to support any and all Microscopy related equipment and sample preparation tool sets. After attaining a certificate of achievement in Field Service Technician Advanced Training, completion of tasks include services on all component subsystem parts, basic preventative maintenance and daily upkeep of tool sets along with advanced troubleshooting of all issues that may arise from daily usage and wear and tear on the system. Skillets would focus on system level schematics that would be viable for success in the field as an Advanced Level Technician or Field Service Engineer. Students understand the basic component operations, locations, design, failure types, replacement strategies and Advanced Troubleshooting skills to isolate vacuum issues or electronics failures to compartmentalize root causes and source of failures on a variety of microscope types from basic to complicated systems.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Demonstrate an understanding of complete vacuum systems and layout.
2. Demonstrate skills in proper identification, classification, and troubleshooting of component parts.
3. Interpret and write technical documentation for standard operating procedures.
4. Demonstrate full understanding of proper tool usage and applications.
5. Demonstrate high level of understanding with the entire line of Microscopy Toolsets and its applications, design, outputs and image capabilities.
6. Demonstrate competence or usage and full operation of all system types to mastery level.

Catalog Description

Upon successful completion of the Electron Microscopy - Field Service Technician Advanced Training Certificate of Achievement, the student demonstrates skills, knowledge and training for employment as a Field Service Technician or Field Service Engineer in their area of expertise within any organization related to electron microscopy. The student qualifies to work at any of the companies affiliated with over 22+ sectors of industry without limitations with their vast direct hands-on training from industry-trained Professors and associate partners that come directly from industry into the classroom with real world examples, tool-sets

and expertise. They also qualify for technical sales and marketing for Electron Microscopy along with Applications Engineering and Process Engineering capabilities. The student demonstrates the ability to work on the entire line of tool sets which span all instrumentation found within the Center for Microscopy and Allied Sciences lab to a mastery level. The student demonstrates skill sets for employment strategies, knowledge and direct applications training, team work, professional oral and written communication, problem-solving, and critical thinking pertaining to routine functions and failures in the field.

Program Requirements

Core Requirements

Units: 50.0

Complete 50 units

E M 70	Introduction to Microscopy	2.0
E M 73M	Introduction to Materials Electron Microscopy	4.0
E M 74	Scanning Electron Microscopy	3.0
E M 80	Introduction to TEM Operations	4.0
E M 83M	Physical Electron Microscopy Laboratory	3.0
E M 85M	Analytical Scanning Electron Microscopy	3.0
E M 86M	Focused Ion Beam Applications	4.0
E M 87A	Electron Microscopy Basic Equipment Maintenance	4.0
E M 87B	Electron Microscopy Advanced Equipment Maintenance	4.0
E M 88	Current Microscopies	3.0
E M 90	Advanced Projects in Electron Microscopy	4.0
ELECT 11	AC and DC Network Analysis	4.0
ELECT 12	Solid State Devices	4.0
ELECT 13A	Digital Logic, Circuits, and Systems	4.0

Total: 50.0

Master Planning

The electron microscopy program welcomes all students and strives for an inclusive, student centered learning environment. We aim to give our students the use of current technologies to optimize and support their professional growth and technical development. We provide extensive hand-on training on our vast line of microscopes, so that our students develop the skills needed to be successful and increase their opportunities for employment.

Need for Program

Enrollment and Completer Projections

10-15, we are working on a fast track program to get more completers.

Labor Market Information (LMI)

There is an increasing need for Operator/Technician in the field of Electron Microscopy, but there also follows a need for technicians that fix the systems on the back end of operations.

Due to this every increasing need as stated on the LMI report, this technician certificate is now generated to meet that demand in industry to fill this void.

Place of Program in Curriculum and Similar Programs

Place of Program in Curriculum
We are a unique program and the only one in the Nation to exists as an ELECTRON MICROSCOPY program.

Similar Programs at Other Colleges in Service Area

- None

TOP Code
0934.70 - Electron Microscopy*

CIP Code
15.0499: Electromechanical Technologies/Technicians, Other.

BOT Approval
06/03/2025