ADVANCED INTEGRATED TECHNOLOGY

The Advanced Integrated Technology (AIT) program is a program of study that employs the principle of technology integration within sought after certifications: Multi-skilled Technician, Engineering Controls, Skilled Operator, Industrial Refrigeration, Industrial Electrician and Industrial Mechanic certifications. Within each certification area, a systems approach is employed that is in line with the expectations of current day employers. The AIT program offers both online coursework and flexible lab hours.

The AIT graduate will have acquired a high level of mechanical and electrical skill sets that can provide them with opportunities to work in today's technically advanced industrial settings (both in manufacturing and value-added 2nd tier support roles). These skill sets include robotics and PLC programming, drive configuration, advanced electric motor control, hydraulics/pneumatics, refrigeration and mechanical drive systems used in modern industry. The curriculum addresses mechanical and electrical theory and its application in today's industrial environment. Critical thinking objectives are also incorporated that will expose the student to problem solving strategies and techniques for troubleshooting the latest generation of high tech equipment.

The Utility Technician certificate prepares students to be entry level groundman operators for the electric utility industry. From the groundman operator position, students progress to "lineman" after gaining on-the-job experience.

Degrees

- Advanced Integrated Technology - AAS (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/advanced-integrated-technology-aas/)

Certificates

- Ammonia Refrigeration Fundamentals - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/ammonia-refrigeration-fundamentals-certificate/)
- Electrical Maintenance Technician - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/electrical-maintenance-technician-certificate/)
- Engineering Controls - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/engineering-controls-certificate/)
- Industrial Mechanic - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/industrial-mechanic-certificate/)
- Industrial Refrigeration - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/industrial-refrigeration-certificate/)
- Multi-Skilled Maintenance Apprenticeship - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/multi-skilled-maintenance-apprenticeship-certificate/)
- Multi-Skilled Technician - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/multi-skilled-technician-certificate/)
- Skilled Operator - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/skilled-operator-certificate/)
- Utility Technician - Certificate (https://catalog.kctcs.edu/programs-of-study/aas/advanced-integrated-technology/utility-technician-certificate/)

Advanced Integrated Technology Technical Electives

Course	Title	Credits
ACR 100	Refrigeration Fundamentals	3
ACR 101	Refrigeration Fundamentals Lab	2
ACR 102	HVAC Electricity	3
ACR 103	HVAC Electricity Lab	2
ACR 112	Sheet Metal Fabrication	3
ACR 113	Sheet Metal Fabrication Lab	2
ACR 130	Electrical Components	3
ACR 131	Electrical Components Lab	2
ACR 170	Heat Load/Duct Design	3
ACR 200	Commercial Refrigeration	3
ACR 201	Commercial Refrigeration Lab	2
ACR 206	Boilers	5
ACR 207	Commercial HVAC Systems	5
ACR 208	Chillers	4
ACR 209	Manual N Commercial Load Calculation and Design	4
ACR 210	Ice Machines	3
ACR 237	Building Controls I	5
ACR 238	Building Controls II	5
ACR 250	Cooling and Dehumidification	3
ACR 251	Cooling and Dehumidification Lab	2
ACR 260	Heating and Humidification	3
ACR 262	Heating and Humidification Lab	2
ACR 270	Heat Pump Application	3
ACR 271	Heat Pump Application Lab	2
ACR 290	Journeyman Preparation	3
ACR 291	Special Problems I	1
ACR 293	Special Problems II	2
ACR 295	Special Problems III	3
ACR 298	Practicum	2
ACR 299	Cooperative Education Program	2
ADX 120	Basic Automotive Electricity	3
ADX 121	Basic Automotive Electricity Lab	2
ADX 150	Engine Repair	3
ADX 151	Engine Repair Lab	2
ADX 170	Climate Control	3
ADX 171	Climate Control Lab	1
ADX 260	Electrical Systems	3
ADX 261	Electrical Systems Lab	2
AGR 115	Agriculture Maintenance	3
AGR 150	Agricultural Power	3
AGR 170	Introduction to Equipment, Machines, and Engines	3

AET 190	Industrial Computer Programming Concepts	4
AET 250	PLC Networking	4
AET 270	Advanced PLC Programming	4
AIT 135	Industrial Refrigeration - I	3
AIT 145	Utility Technician I	6
AIT 160	Workplace Safety	1
AIT 200	Process Management and Quality Control	4
AIT 220	The Integrated Power Grid	3
AIT 230	Integrated Power Plant Operations	3
AIT 235	Industrial Refrigeration - II	3
AIT 245	Utility Technician II	6
AIT 290	Selected Topics in Advanced Integrated Technology	0.1-5
AIT 299	Advanced Electromechanical Concepts	4
AUT 110	Brake Systems	3
AUT 111	Brake Systems Lab	2
AUT 160	Suspension and Steering	3
AUT 161	Suspension and Steering Lab	2
BAS 160	Introduction to Business	3
BRX 110	Basic Blueprint Reading for Machinist	2
BRX 120	Basic Blueprint Reading	3
BRX 210	Mechanical Blueprint Reading	2
BTS 120	Essentials of Biomedical Electronics I	2
BTS 125	Essentials of Biomedical Electronics II	2
CAD 100	Introduction to Computer Aided Design	3
CAD 200	Intermediate Computer Aided Drafting	4
CMM 110	Fundamentals of Machine Tools - A	3
CMM 112	Fundamentals of Machine Tools - B	3
CMM 118	Metrology/Control Charts	2
CMM 124	Applied Machining	6
CMM 134	Manual Programming CAD/CAM/CNC	6
CMM 214	Industrial Machining	6
CMM 224	Advanced Industrial Machining	6
CMM 230	Conversational Programming	6
CMM 240	Introduction to 3-D Programming	6
DPT 100	Introduction to 3D Printing Technology	3
DPT 150	Introduction to Engineering Mechanics for 3D Printing	3
DPT 280	Special Projects for 3D Printing, Level I	1
FRM 100	Fundamentals of Fermentation	1
FRM 110	Principles of Fermentation Science	3
FRM 120	Brewery Facilities and Operational Management	4
FRM 160	Beverage Packaging	2
EET 127	Electrical Technology Capstone	1
EET 154	Electrical Construction I	2
EET 155	Electrical Construction I Lab	2
EET 250	National Electrical Code	4
EET 252	Electrical Construction II	2
EET 253	Electrical Construction II Lab	2
EET 264	Rotating Machinery	2
EET 265	Rotating Machinery Lab	2
EET 270	Electrical Motor Controls I	2
EET 271	Electrical Motor Controls I Lab	2
EET 272	Electrical Motor Controls II	2
EET 273	Electrical Motor Controls II Lab	2
ELT 110	Circuits I	5
ELT 250	Programmable Logic Controllers	4
IMT 100	Welding for Maintenance	3
IMT 101	Welding for Maintenance Lab	2
PLW 100	Introduction to Engineering Design	4
PLW 125	Principles of Engineering	4
TRU 100	Truck Driving	6
WLD 100	Oxy-Fuel Systems	2
WLD 101	Oxy-Fuel Systems Lab	2
WLD 120	Shielded Metal Arc Welding	2
WLD 121	Shielded Metal Arc Welding Fillet Lab	3
WLD 123	Shielded Metal Arc Welding Groove with Backing Lab	3
WLD 130	Gas Tungsten Arc Welding	2
WLD 131	Gas Tungsten Arc Welding Fillet Lab	3
WLD 140	Gas Metal Arc Welding	2
WLD 141	Gas Metal Arc Welding Fillet Lab	3
WLD 143	Gas Metal Arc Welding Groove Lab	3
WLD 170	Blueprint Reading for Welding	2
WLD 171	Blueprint Reading for Welding Lab	3
WLD 198	Special Topics in Welding	1-6
WLD 220	Welding Certification	2
WLD 221	Welding Certification Lab	3
WLD 225	Shielded Metal Arc Welding Open Groove Lab	3
WLD 298	Welding Practicum	1-6
WLD 299	Cooperative Education Program	1-6