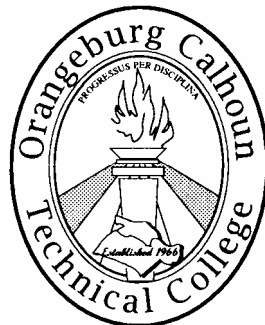


ELECTRONIC INSTRUMENTATION TECHNOLOGY COMPETENCY PROFILE



ORANGEBURG-CALHOUN TECHNICAL COLLEGE

3250 ST. MATTHEWS ROAD, NE ORANGEBURG, SOUTH CAROLINA (803)-536-0311

www.octech.edu
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ELECTRONIC INSTRUMENTATION TECHNOLOGY COMPETENCY PROFILE

An Instrumentation Technician installs, calibrates, repairs, & maintains process control systems

A. LEARN BASIC COMPUTER NETWORKING	A-1 ACQUIRE BASIC UNDERSTANDING OF NETWORK HARDWARE	A-2 ACQUIRE BASIC UNDERSTANDING OF NETWORK CONFIGURATION	A-3 ACQUIRE BASIC KNOWLEDGE OF TROUBLESHOOTING FIBER OPTICS			
B. DEMONSTRATE A WORKING KNOWLEDGE OF PROGRAMMABLE LOGIC CONTROLLERS	B-1 ACQUIRE KNOWLEDGE OF PLC HARDWARE	B-2 LEARN TO PROGRAM AND USE HUMAN MACHINE INTERFACING (HMI) SOFTWARE	B-3 INTERPRET LADDER DIAGRAM	B-4 INTERFACE EQUIPMENT	B-5 SAVE UPGRADES & STORE PROGRAMS	B-6 LOAD PROGRAMS
C. DEMONSTRATE A WORKING KNOWLEDGE OF DISTRIBUTIVE CONTROL SYSTEMS &	C-1 DEMONSTRATE A BASIC UNDERSTANDING OF PROGRAMMING	C-2 USE & KNOW MEANING OF TECHNICAL TERMINAOLGY <i>(Buzz Words)</i>	C-3 CALL UP NEEDED DATA <i>(e.g., Control Loop Config.)</i>	C-4 INTERPRET DATA DISPLAYS	C-5 CONFIGURE CONTROL LOOPS	C-6 DEVELOP CONCEPTS OF EQUIPMENT CONFIGUREMENT <i>(Including Graphics, C Language, Geneses, Siemens)</i>
D. CALIBRATE ELECTRONIC INSTRUMENTATION	D-1 DETERMINE PROPER SCALING FOR INSTRUMENTATION	D-2 SIMULATE PROCESS (Heat, Pressure, etc.)	D-3 USE CURVES (Thermo, Couples, RTD(s) etc.)	D-4 SELECT PROPER TEST EQUIPMENT	D-5 ASSIMILATE INFORMATION FROM TECHNICAL MANUALS	D-6 USE TEST EQUIPMENT <i>(e.g., Multimeter; as defined in course syllabus)</i>
	D-7 PRACTICE "BEST" PRACTICES	D-8 MAINTAIN CALIBRATION TRACEABILITY RECORDS, "AS FOUND, AS LEFT"				

E. CALIBRATE PNEUMATIC INSTRUMENTATION	E-1 DETERMINE PROPER SCALING FOR INSTRUMENTATION	E-2 SIMULATE PROCESS <i>(Heat, Pressure, etc.)</i>	E-3 SELECT PROPER TEST EQUIPMENT	E-4 ASSIMILATE INFORMATION FROM TECHNICAL MANUALS	E-5 USE PRESSURE & VACUUM GAGES	E-6 USE MANOMETERS
	E-7 USE DEAD WEIGHT TESTER					
F. DEMONSTRATE A BASIC WORKING KNOWLEDGE OF VALVES	F-1 READ AND INTERPRET SPEC SHEETS/NAME PLATE DATA	F-2 REPAIR & CALIBRATE VALVES	F-3 PERFORM BENCH SET OR PNEUMATIC ACTUATORS	F-4 REPAIR & CALIBRATE VALVE POSITIONERS	F-5 PERFORM PERIODIC MAINTENANCE ON RELIEF VALVES	F-6 PERFORM PERIODIC MAINTENANCE ON CONTROL VALVES
	F-7 MAINTAIN RECORDS *					
G. TUNE CONTROL LOOP(S)	G-1 IDENTIFY THE PROCESS & HARDWARE	G-2 INTERPRET CONTROL SCHEMES	G-3 IDENTIFY TYPES OF CONTROL LOOPS	G-4 DETERMINE REQUIRED ADJUSTMENT	G-5 PROGRAM SINGLE & MULTILoop CONTROLLERS	
H. INSTALL ELECTRONIC & PNEUMATIC INSTRUMENTATION	H-1 READ PIPING & INSTRUMENTATION DIAGRAMS	H-2 READ WIRING DIAGRAMS	H-3 USE PROPER HAND TOOLS	H-4 RUN TUBING AND CONDUIT	H-5 WIRE CURRENT LOOPS & KNOW SHIELDING REQUIREMENTS	H-6 FOLLOW MFGS. RECOMMENDED PROCEDURES
	H-7 INSTALL EQUIPMENT ACCORDING TO STANDARD PROCEDURES	H-8 VERIFY PROPER INSTALLATION	H-9 ENSURE PROPER OPERATION	H-10 UNDERSTAND THE NEED FOR INTRINSIC BARRIERS	H-11 SUPPLY "AS BUILT" DRAWINGS	H-12 REPORT DOCUMENTATION DISCREPANCIES
H.	H-13					

Cont.	UNDERSTAND ESD REQUIREMENTS					
I. DEMONSTRATE BASIC WORKING KNOWLEDGE OF SPEED CONTROLS <i>(Inverter, D.C. Drives , Servo)</i>	I-1 ASSIMILATE INFORMATION FROM TECHNICAL MANUALS	I-2 SETUP/PROGRAM AC/DC DRIVERS	I-3 KNOW TYPES AND INTERFACES OF ENCODERS/TACH GENERATORS			
J. PRACTICE SAFETY	J-1 FOLLOW PLANT SAFETY PROCEDURES	J-2 USE PERSONAL SAFETY EQUIPMENT <i>(i.e. Gloves, Safety Glasses, Ear Plugs)</i>	J-3 RECOGNIZE DANGEROUS SITUATIONS <i>(Safety Conscious)</i>	J-4 FOLLOW MSDS <i>(Material Safety Data Sheets)</i>	J-5 FOLLOW CONFINED SPACE ENTRY POLICIES	J-6 FOLLOW LOCKOUT/TAGOUT PROCEDURES
	J-7 PERFORM GOOD HOUSEKEEPING	J-8 REPORT SAFETY HAZARDS TO SUPERVISOR				
K. EXHIBIT PROFESSIONALISM	K-1 DEMONSTRATE INITIATIVE	K-2 FOLLOW GOOD WORK HABITS <i>(e.g., Punctuality, Good Attendance)</i>	K-3 PRODUCE QUALITY WORK	K-4 RECOGNIZE & REPORT PROBLEMS IN THE WORK AREA	K-5 DEVELOP GOOD WORKING RELATIONSHIPS <i>(Teamwork)</i>	K-6 DEVELOP WORK ETHICS
	K-7 INCREASE SKILL LEVELS <i>(Continue Education)</i>					
L. MAINTAIN ANALYTICAL EQUIPMENT	L-1 ASSIMILATE INFORMATION FROM TECHNICAL MANUALS	L-2 DETERMINE PROPER SCALING	L-3 CALIBRATE/REPAIR	L-4 UNDERSTAND TYPES OF ANALYSIS CONDUCTED	L-5 DEVELOP CONCEPTS OF CONDUCTIVITY, GAS AND RADIATION MEASUREMENTS	L-6 DEVELOP CONCEPTS OF PH AND ORP MEASUREMENTS
L. Cont.	L-7 MAINTAIN RECORDS FOR EPA, DHEC, OSHA & *					

	OTHERS					
M. TROUBLE SHOOT SYSTEMS	M-1 COLLECT INFORMATION	M-2 ISOLATE THE PROBLEM	M-3 READ SYSTEMS OPERATIONS PROCEDURES	M-4 READ PIPING & INSTRUMENTATION DIAGRAMS	M-5 READ & ANALYZE ELECTRICAL/PNEUMA TIC SCHEMATICS	M-6 TAKE APPROPRIATE ACTON <i>(Repair or Report as needed)</i>
	M-7 MAINTAIN RECORDS <i>(e.g., Prints, Programs)</i>	*				
N. REPAIR ELECTRONIC INSTRUMENTATION	N-1 READ SCHEMATIC DIAGRAMS	N-2 ASSIMILATE INFORMATION FROM TECHNICAL MANUALS	N-3 ISOLATE THE PROBLEM	N-4 USE THE TEST EQUIPMENT	N-5 USE THE SEMICONDUCTOR CROSS-REFERENCES	N-6 REQUISITION PARTS/CARDS
	N-7 REPLACE DEFECTIVE PART(S)/ CARD(S)	N-8 SOLDER COMPONENT	N-9 VERIFY PROPER OPERATION AFTER REPAIR AND CALIBRATE	N-10 MAINTAIN REPAIR TRACEABILITY RECORDS	*	
O. REPAIR PNEUMATIC INSTRUMENTATION	O-1 READ PIPING & INSTRUMENTATION DIAGRAMS	O-2 READ PNEUMATIC DIAGRAMS	O-3 ASSIMILATE INFORMATION FROM TECHNICAL JOURNALS	O-4 USE TEST EQUIPMENT	O-5 ISOLATE PROBLEMS	O-6 REQUISITION PART(S)/CARD(S)
	O-7 REPLACE DEFECTIVE PART(S)/CARD(S)	O-8 VERIFY PROPER OPERATION ATER REPAIR & CALIBRATE	O-9 MAINTAIN REPAIR TRACEABILITY RECORDS	*		
P. COMMUNICATE	P-1 SHARE INFORMATION WITH OTHERS	P-2 FOLLOW WORK ORDERS	P-3 MAKE REPORT OF WORK COMPLETED <i>(Verbal and Written)</i>	P-4 REPORT PROBLEMS IN WORK AREA	P-5 PRACTICE ORAL COMMUNICATIONS	P-6
	P-7 DEMONSTRATE	P-8 KNOW HOW TO	P-9 KNOW HOW TO USE			

	INTERPERSONAL SKILLS	COMMUNICATE ELECTRONICALLY	PRESENTATION SOFTWARE			
Q. DEMONSTRATE TEAM WORK	Q-1 UNDERSTAND TEAM MECHANICS	Q-2 CHOOSE/BECOME A TEAM LEADER	Q-3 BECOME SELF DIRECTED	Q-4 IDENTIFY GOALS	Q-5 DEVELOP/USE MANAGEMENT CHARTS	Q-6 TAKE RESPONSIBILITY FORM MISTAKES
	Q-7 GIVE & RECEIVE CONSTRUCTIVE CRITICISM	Q-8 EXHIBIT HONESTY				

* IDENTIFIES CRITICAL SKILLS AND ATTRIBUTES.

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FACILITATOR: JENNIE REDMOND
RECORDER: CONNIE HOFFMAN

FOR MORE INFORMATION, CONTACT:
 DAVID METTS,
 EIT DEPARTMENT HEAD
 (803) 535-1300

DACUM PANEL:

John Hutto	Savannah River Site
Kevin Metts	International Paper
Wesley Wiles	SCE&G
Charles Patel	ZEUS
George Beck, Jr. (Bobby)	US Department of Energy
	Savannah River Operations Office