Industrial Systems Technology

FALL 2008

[A50240] Degree (Day and Evening); [D50240] Diploma (Day & Evening); [C50240] Certificate (Day & Evening)

The Industrial Systems Technology curriculum is designed to prepare or upgrade individuals to safely service, maintain, repair, or install equipment. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial systems.

Students will learn multi-craft technical skills in blueprint reading, mechanical systems maintenance, electricity, hydraulics/pneumatics, welding, machining or fabrication, and includes various diagnostic and repair procedures. Practical application in these industrial systems will be emphasized and additional advanced course work may be offered.

Upon completion of this curriculum, graduates should be able to individually, or with a team, safely install, inspect, diagnose, repair, and maintain industrial process and support equipment. Students will also be encouraged to develop their skills as life-long learners.

COMPETENCIES

Randolph Community College is committed to continuous improvement through program evaluation. One part of the evaluation is to assess program competencies. While our program contains many competencies for students to achieve, each year a select few are chosen for assessment purposes. This year, program competency assessment will focus on these:

1. Properly weld metals.
2. Identify and explain hydraulic/ pneumatic circuits.
3. Distinguish components in a HVAC system.
4. Illustrate proper machining techniques.
5. Demonstrate proper use of general mechanical maintenance knowledge.

COURSE INFORMATION

Major Courses

Air Conditioning and Refrigeration (Degree - 1 course) - This course introduces the basic principles of air conditioning and heating systems with an emphasis on preventive maintenance procedures.

Blueprint Reading (Degree, Diploma & Certificate - 1 course) - An introduction to the basic principles of blueprint reading.

Electricity (Degree - 6 courses; Diploma - 5 courses; Certificate - 1 course) - Degree, diploma, and certificate students will study electrical computations. Degree and diploma students will have further study in DC and AC electricity, basic wiring, industrial wiring, and motors and controls. Degree students will also take an introductory course in programmable logic controllers.

Electronics (Degree - 1 course) - A detailed study of PLC applications, with a focus on design of industrial control circuits using the PLC.

Hydraulics (Degree & Diploma - 1 course) - This course covers the basic components and functions of hydraulic and pneumatic systems.

*Industrial Science (*Degree, Diploma, & Certificate - 1 course) - This course introduces the principals of industrial safety, OSHA, and environmental regulations.

Computer Information Systems (Degree & Diploma - l course) - This course introduces basic computer usage for non-computer majors.

Maintenance (Degree - 2 courses; Diploma & Certificate - 1 course) - All students cover basic maintenance fundamentals for power transmission equipment. Degree students further study theory and practical applications relating to predictive and preventive maintenance programs.

Machining (Degree - 1 course) - Introduction to the manual programming, setup and operation of CNC machining centers.

Mechanical (Degree - 3 courses; Diploma & Certificate - 1 course) - All students take a course in machine processes, which includes safety, hand tools, measuring instruments, and the operation of machine shop equipment. Degree students also take an introduction to CAD/CAM and a course which includes specific CAM applications and concepts.

Welding (Degree & Diploma - 1 course) - This course introduces basic welding and cutting.

General Courses

English (Degree - 2 courses; Diploma - 1 course) - Industrial Systems Technology degree and diploma students take these courses that emphasize the writing process. Degree students also study professional communication skills.

Physics (Degree – 1 course) - This algebra-based course introduces fundamental physical concepts as applied to industrial and service technology fields.

Faculty Advisor

The faculty advisors for Industrial Systems Technology are: Keith Bunting, (336) 633-0257), khbunting@randolph.edu; and Anuwar Dau, (336) 633-0257, amdau@randolph.edu.

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Randolph Community College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award the associate degree.
Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Ga. 30033-4097 or call 404-679-4500 for questions about the accreditation of Randolph Community College.
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INDUSTRIAL SYSTEMS TECHNOLOGY CURRICULUM BY SEMESTERS Degree (Day)

		Hours/Week Class	Lab	Wk. Exp.	Sem. Hrs Credit
First Year: Fall Semester					
BPR 111	**Blueprint Reading	1	2	0	2
CIS 113	*Computer Basics	0	2	0	1
ELC 113	*Basic Wiring I	2	6	0	4
ELC 126	**Electrical Computations	2	2	0	3
ISC 112	**Industrial Safety	2	0	0	2
MNT 110	**Intro. to Maintenance Proc.	1	3	0	2
		8	**15**	**0**	**14**
First Year: Spring Semester					
AHR 120	HVACR Maintenance	1	3	0	2
ELC 112	*DC/AC Electricity	3	6	0	5
ELC 115	*Industrial Wiring	2	6	0	4
WLD 112	*Basic Welding Processes	1	3	0	2
		7	**18**	**0**	**13**
First Year: Summer Session					
ENG 111	*Expository Writing	3	0	0	3
- - -	Humanities/Fine Arts	3	0	0	3
PHY 121	*Applied Physics I	3	2	0	4
		9	**2**	**0**	**10**
Second Year: Fall Semester					
ELC 117	*Motors & Controls	2	6	0	4
ELC 125	Diagrams and Schematics	1	2	0	2
MEC 111	*Machine Processes I	1	4	0	3
- - -	Social/Behavioral Science	3	0	0	3
		7	**12**	**0**	**12**
Second Year: Spring Semester					
ELC 128	Introduction to PLC	2	3	0	3
HYD 110	Hydraulics/Pneumatics I	2	3	0	3
MAC 124	CNC Milling	1	3	0	2
MEC 110	Introduction to CAD/CAM	1	2	0	2
MNT 111	Maintenance Practices	2	2	0	3
		8	**13**	**0**	**13**
Second Year: Summer Session					
ELN 260	Prog. Logic Controllers	3	3	0	4
ENG 114	*Prof Research & Reporting	3	0	0	3
		6	**3**	**0**	**7**

***Courses required for diploma (day and evening)**
****Courses required for diploma and certificate (day and evening)**

INDUSTRIAL SYSTEMS TECHNOLOGY CURRICULUM BY SEMESTERS Degree (Evening)

		Hours/Week Class	Lab	Wk. Exp.	Sem. Hrs Credit
First Year: Fall Semester					
BPR 111	**Blueprint Reading	1	2	0	2
ELC 126	**Electrical Computations	2	2	0	3
ISC 112	**Industrial Safety	2	0	0	2
MNT 110	**Intro. to Maintenance Proc.	1	3	0	2
		6	**7**	**0**	**9**
First Year: Spring Semester					
ELC 112	*DC/AC Electricity	3	6	0	5
ELC 113	*Basic Wiring I	2	6	0	4
		5	**12**	**0**	**9**
First Year: Summer Session					
CIS 113	*Computer Basics	0	2	0	1
PHY 121	*Applied Physics I	3	2	0	4
		3	**4**	**0**	**5**
Second Year: Fall Semester					
ELC 115	*Industrial Wiring	2	6	0	4
ENG 111	*Expository Writing	3	0	0	3
WLD 112	*Basic Welding Processes	1	3	0	2
		6	**9**	**0**	**9**
Second Year: Spring Semester					
ELC 117	*Motors & Controls	2	6	0	4
MEC 111	*Machine Processes I	1	4	0	3
		3	**10**	**0**	**7**
Second Year: Summer Session					
- - -	Humanities/Fine Arts	3	0	0	3
HYD 110	*Hydraulics/Pneumatics I	2	3	0	3
		5	**3**	**0**	**6**
Third Year: Fall Semester					
ELC 125	Diagrams and Schematics	1	2	0	2
MNT 111	Maintenance Practices	2	2	0	3
		3	**4**	**0**	**5**
Third Year: Spring Semester					
AHR 120	HVACR Maintenance	1	3	0	2
ELC 128	Introduction to PLC	2	3	0	3
MEC 110	Introduction to CAD/CAM	1	2	0	2
		4	**8**	**0**	**7**
Third Year: Summer Session					
ENG 114	*Prof Research & Reporting	3	0	0	3
- - -	Social/Behavioral Science	3	0	0	3
		6	**0**	**0**	**6**
Fourth Year: Fall Semester					
ELN 260	Prog. Logic Controllers	3	3	0	4
MAC 124	CNC Milling	1	3	0	2
		4	**6**	**0**	**6**

TOTAL SEMESTER HOURS CREDIT FOR DEGREE: 69
TOTAL SEMESTER HOURS CREDIT FOR DIPLOMA: 39
TOTAL SEMESTER HOURS CREDIT FOR CERTIFICATE: 14

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