Instrumentation and Automation Certificate

Program Requirements

Catalog Department Overview # (https://catalog.uaf.edu/academic-departments/process-technology/)

Minimum Requirements for Instrumentation and Automation Certificate: 39 credits

Students must earn a C grade or better in each course.

		Credits
General University Requirements		
Complete the general university requirements. (https://catalog.uaf.edu/certificates/#gurcertificatestext)		
Certificate Requirements		
Complete the certificate requirements. (https://catalog.uaf.edu/certificates/#certificaterequirementstext)		6-10
Instrumentation and Automation Program Requirements		
Complete the following:		
CITS F203	Information Technology Support Fundamentals	4
CITS F204	Introduction to Computer Networks	3
CITS F205	Introduction to Coding and Programming	3
ELT F101	Basic Electronics: DC Physics	4
ELT F102	Basic Electronics: AC Physics	4
ELT F246	Automation and Industrial Instrumentation	3
PRT F140	Industrial Process Instrumentation I	3
PRT F144	Industrial Process Instrumentation II	3
PRT F240	Industrial Process Automation	3
PRT F248	Valve Maintenance and Instrumentation	3
Total Credits		**39-43**

Upon completion of the Instrumentation Technology Certificate, students are prepared to sit for the Process Instrumentation Certification through the NAPTA North American Process Technology Alliance.

Roadmaps

Catalog Department Overview #

Roadmaps provide suggested semester-by-semester study plans for programs and are based on full-time enrollment, unless otherwise specified.

- This roadmap should be used in conjunction with regular academic advising sessions. All students are encouraged to meet with their advisor or mentor each semester.
- Certain courses and milestones must be completed in the specified semester to ensure on-time graduation.
- Transfer credits may affect the roadmap.
- Requirements, course availability, and sequencing may change.
- Courses marked with (*) are recommended.

First Year

Fall	Credits	Spring	Credits
CITS F203[20]	4	CITS F204[20]	3
ELT F101[20]	4	CITS F205[20]	3
MATH F105 (*)[10]	4	ELT F102[20]	4
		PRT F140[20]	3
	12		**13**

Second Year

Fall	Credits	Spring	Credits
PRT F144[20]	3	ELT F246[20]	3
PRT F248[20]	3	PRT F240[20]	3
Degree Requirement - Communication	3	Degree Requirement - Human Relations	3
	9		**9**

Total Credits 43

Footnote Definitions

General Education Requirements	Degree Requirements	Program & Other Requirements
1—Communication	8—Alaska Native-themed	20—Program Requirement
2—Arts	9—Communication	21—Capstone Requirement
3—Humanities	10—Computation	22—Concentration Course
4—Social Sciences	11—Ethics	23—General Elective
5—Additional Arts, Humanities or Social Sciences	12—Humanities	24—Minor Course
6—Mathematics	13—Human Relations	25—Upper Division
7—Natural Sciences	14—Humanities or Social Sciences	26—Program Elective
	15—Library & Information Research	
	16—Mathematics	
	17—Natural Sciences	
	18—Other	
	19—Social Sciences	

Learning Outcomes

Catalog Department Overview #

Program Learning Outcomes are specific, measurable statements that define the knowledge and skills students will gain by the end of the program.

Graduates of this program will be able to:

- Understand the physics of pressure, temperature, level and flow measurement; mechanical and electrical aspects of instruments used to control dynamics of processes; dynamics of automatic control including proportional control, automatic reset, derivative action and integral timing
- Demonstrate knowledge of commonly used process measurement devices, control methods and strategies, and the proper selection, identification, design, installation and operation of instrumentation

- Demonstrate knowledge of industrial process valve maintenance and instrumentation, including calibration, configuration, troubleshooting and use of valves with instrumentation
- Demonstrate knowledge of basic fundamentals, terms and units of DC and AC electrical theory; graduates will have the ability to use test equipment, hand tools and techniques of soldering
- Demonstrate the knowledge and ability to develop, construct and function check a student team created process control loop
- Meet expected outcomes in communications, computation and human relations as listed by the core