

COM 113 Fund Speech Communication 3 Credits

Principles and theories of speech communication. Participation in public speaking and interpersonal communication activities.

Mathematics (one course required): Choose from the courses listed below or any higher-level math course. Excludes MATH 389

MATH 116 Technical Mathematics I 3 Credits

Provides technical mathematical core material so that the student gains practical problem solving experience. May include arithmetic operation, integers, exponents, scientific notation, algebraic expressions, equations, metric system, trigonometry, and logarithms. This course satisfies the general education requirement for occupational/technical AAS degree. It is recommended that students have completed prerequisites within two years of enrolling in this course.

MATH 116E Technical Mathematics Expanded 3-5 Credits

Provides technical mathematical core material so that the student gains practical problem solving experience. May include arithmetic operation, integers, exponents, scientific notation, algebraic expressions, equations, metric system, trigonometry, and logarithms. This course satisfies the general education requirement for occupational/technical AAS degree.

MATH 120 Fund of College Math 3 Credits

Includes set theory, logic, consumer mathematics, measurement, geometry, probability, and statistics. Course is broad in scope, emphasizing applications. It is recommended that students have completed prerequisites within two years of enrolling in this course.

MATH 120E Fund of College Math Expanded 3 Credits

Fundamentals of College Mathematics with Corequisite Support: Includes real numbers, consumer mathematics, variation, functions, relations, graphs, geometry, probability, and statistics. Course is broad in scope, emphasizing applications. Fulfills the lower-division mathematics requirement for a Bachelor of Arts Degree. Satisfies mathematics requirement for baccalaureate degrees.

MATH 126 Precalculus I 3 Credits

A third course in algebra that stresses polynomial, quadratic, rational, exponential, and logarithmic functions, including their graphs and applications; complex numbers; systems of equations; and basic operations with matrices and determinants, including Cramer's rule. It is recommended that students have completed prerequisites within two years of enrolling in this course.

MATH 126E Precalculus I Expanded 3 Credits

Precalculus I Expanded with Co-requisite support: Includes equations, relations, functions, graphing; polynomial, rational, exponential, logarithmic, and circular functions with applications; coordinate geometry of lines and conics; analytic trigonometry; matrices and determinants; and binomial theorem. It is recommended that students have completed prerequisites within two years of enrolling in this course.

STAT 152 Intro to Statistics 3 Credits

Includes descriptive statistics, probability models, random variables, statistical estimation and hypothesis testing, linear regression analysis, and other topics. Designed to show the dependence of statistics on probability. It is recommended that students have completed prerequisites within two years of enrolling in this course.

Human Relations (one course required)**BUS 110 Human Relations Employmnt 1-3 Credits**

Introduces students to the principles and skills of effective communication in business and professional settings. It provides information on how to communicate with superiors, co-workers, subordinates, clients, and customers. Three-credit course includes a computation component. Repeatable up to a total of three credits.

HMS 200 Ethics in Human Services 3 Credits

Real life applications for personal and professional boundaries, beliefs, ethics, values, morals, and codes of conduct in human relationships using ethical decision-making, problem-solving, and critical-thinking activities are emphasized. This course may be repeated up to three times for continuing education credit. (Check with individual licensing boards prior to registering).

MGT 283 Intro Human Resource Mgt 3 Credits

Duties and responsibilities of personnel management. Areas covered include employee needs, human relationships, orienting and training employees, benefit programs, and economics of supervision.

PSY 208 Psy of Human Relations 3 Credits

Explores the relationships between human beings and assists in the development of interpersonal communication skills which can be used personally and professionally.

Program Requirements**Entrepreneurship or Small Business Management Requirement (one course required)****BUS 102 Intro to Entrepreneurship 3 Credits**

Course serves as the foundation for the GBC Associate of Applied Science--Entrepreneurship Emphasis degree program. Introduces techniques, principles, and challenges facing today's entrepreneurs using practical examples.

MGT 103 Intro to Sm Business Mgt 3 Credits

Environment and management of the small business enterprise, problems in initiating the business, financial and administrative control, marketing programs and policies, management of business operations, legal and governmental relationships.

Instrumentation Requirements**EIT 233 Intro to Instrumentation****3-4 Credits**

Successful completion of this course will provide the student with an understanding of the concepts of instrumentation as used in industry and why the accompanying skills are an exciting and highly sought after trade. Common pneumatic and electronic instruments that are used to control processes in refineries, power plants, mines, and most manufacturing facilities will be discussed.

EIT 240 Adv Topics in Instrument**2 Credits**

Focuses on some of the more specialized instrumentation systems found in industry such as analyzers, weight scales, and wireless systems. Analyzer applications for pH, CO, CO₂, NO_x, SO₂, HCN, and conductivity are becoming more critical to plant processes for environmental reasons. Weight scales are necessary for raw material accounting and inventory. Wireless systems are increasingly demonstrating their usefulness in low cost installations as security issues are resolved.

EIT 315 Pres/Lev/Flw Measurement**4 Credits**

Exploration of the physics of pressure, level, and flow. Calculations are derived from formulas that pertain to fluids and solids and used to configure instruments for the purpose of process control. The types of instruments that are presented in this course are found in every industry that produces or manufactures a product. Labs will consist of configuring and calibrating instrumentation to precise standards based on the theory learned in the class lecture.

EIT 323 Installation and Configuration**3 Credits**

Provides students with an understanding and practical application of safe and efficient methods of installation and maintenance of process instrumentation. Includes instrument piping, electrical wiring, and mechanical structures as related to physical, chemical, electrical, hydraulic, and pneumatic processes. Configuration of control loop elements is included with detailed exercises on 'live' trainers.

EIT 333 Prcss & Instrmnt Diagram**3 Credits**

P&ID drawings are integral to understanding how manufacturing process works. P&IDs are the prelude to loop diagrams and other various schematics. All of these drawings are used by technicians for troubleshooting, wiring, and tubing. AutoCAD drafting basics are required to develop P&ID and loop drawings.

EIT 336 Control Valves/Regulators**4 Credits**

The theory and operation of valves and associated pneumatic and hydraulic devices used in the control of gasses and fluids.

EIT 348 Temp Measure & Control**3 Credits**

The measurement and control of industrial heat and temperature processes.

EIT 368 Measurement Sys Analysis**2 Credits**

Designed to demonstrate the importance of accurate and reliable measurements in process control systems. Covers how to deal practically with inaccuracies and the methods to minimize the downside effects of inadequate measurement systems.

EIT 437 Intro to Control Systems**3 Credits**

Successful completion of this course will provide the student with an understanding of the concepts pertaining to analog control using Programmable Logic Controllers. Selection of hardware including processor architecture, input/output module wiring, programming, controller installation, and system troubleshooting. Students will learn PID control systems by utilizing PLC hardware/software in a 'live' process. Loop tuning methodology, controller feed-forward, feedback, cascade, and ratio control will be incorporated on process simulators.

EIT 468 Advanced Control Systems**3 Credits**

This course provides in-depth instruction in the design, development, and troubleshooting of programmable logic controllers (PLC), and distributed control systems (DCS) projects utilizing human machine interfaces (HMI) applications. Hands on hardware setup, programming, process monitoring and troubleshooting, and configurations of industrial networking.

Suggested Course Sequence

1st Semester - Fall

Course Credits EIT 233 4 EIT 315 4 EIT 323 3 EIT 333 3 EIT 368 2 English/Communications* 3-5` Mathematics* 3-6
TOTAL 22-27 *Choose with advisor

2nd Semester - Spring

Course Credits EIT 240 2 EIT 336 4 EIT 348 3 EIT 437 3 EIT 468 3 BUS 102 or MGT 103 3 Human Relations* 1-3 TOTAL
19-21 *Choose with advisor