

ENGINEERING/ARCHITECTURAL DRAFTING

2009 – 2010

18 Months

Credits Required for Graduation: 72

Associate of Applied Science (A.A.S.) Degree

Turn Ideas into Reality

The Engineering/Architectural Drafting program trains engineering technicians to skillfully transfer rough sketches and basic ideas into accurate, precise, universally understood drawings. Students will spend equal time studying the basics of architectural drafting, mechanical drafting and civil engineering technology. During the course, students will be trained to calculate the strengths, costs and quantities of materials.

Blueprint for Success

If you enjoy the idea of surveying, designing and solving problems, then engineering/architectural drafting could be a good career choice. The very latest in state-of-the-art equipment is employed in the Engineering/ Architectural Drafting program. Students will be exposed to computer aided drafting, total stations, data collectors, global positioning systems, and related software on computers. It is definitely in the student's best interest to have strong math and communication skills.

Employment Opportunities

As the country continues to grow, so does the need for engineering technicians. Job opportunities are found in manufacturing, transportation and the construction industry. Further employment opportunities include state and federal agencies, architectural and consulting firms, public utilities, highway departments and the military. Graduates of the Engineering/Architectural Drafting program enter a field that provides challenges and offers continued advancement potential.

Who Can Be A Drafting Professional?

Engineering/Drafting individuals represent their employer positively through professionalism in dress, work habits and contact with customers. They need to deal with stress effectively, communicate clearly, and maintain positive relationships with co-workers, management and customers.

Students entering the program also are expected to have a strong background in Math, English and Computer Literacy.

Recommended Background Courses

Although not required, the following courses would be beneficial to this course of study prior to attending Lake Area Technical Institute: Basic Drafting, Algebra, Geometry, Trigonometry, Communications, Math, English, and Computer.

Engineering/Architectural Drafting Technology Courses

AED 100 – Automated External Defibrillator (.5 credit)
■ CIS 102 – Windows Applications for Technicians (3 credits)
ENG 103 – Mechanical Drafting I Lab (3 credits)
ENG 108 – Introduction to Engineering Drawing Theory (1.5 credits)
ENG 109 – Architectural Drafting I Theory (2.5 credits)
ENG 112 – Architectural Drafting I Lab With CAD (5 credits)
ENG 143 – Computer-Assisted Drafting I (3 credits)
ENG 144 – Computer-Assisted Drafting II (3 credits)
ENG 150 – Introduction to Mechanical Theory II (1 credit)
ENG 151 – Theory of Surveying Practice (2 credits)
ENG 153 – Mechanical Drafting Lab II (2 credits)
ENG 156 – Basic Civil Drafting (1 credit)
ENG 176 – Basic Surveying Procedures (3 credits)
ENG 203 – Applied Civil Mathematics (2 credits)
ENG 215 – Concrete Technology (1 credit)
ENG 223 – Advanced Surveying Procedures (6 credits)
ENG 229 – Advanced Civil Drafting with CAD (6 credits)
Selected Behavioral Science (3 credits)
Selected Communications (3 credits)
Selected Mathematics (3 credits)
Selected Social Science (3 credits)

Courses For Architectural Option

ENG 245 – Architectural Drafting II Theory (3 credits)
ENG 260 – Architectural Presentation (1.5 credits)
ENG 272 – Applied CAD II - Architectural (10 credits)

Courses For Mechanical Option

ENG 250 – Engineering Drawing II Theory (3 credits)
ENG 261 – Mechanical Presentation (1.5 credits)
ENG 271 – Advanced Mechanical Drafting With CAD (10 credits)

COURSE DESCRIPTIONS

AED 100 – Automated External Defibrillator (.5 credit) To prepare individuals in the workplace to provide care for breathing emergencies, perform cardiopulmonary resuscitation (CPR), and use an automated external defibrillator (AED) for victims of sudden cardiac arrest.



Program Fact Sheet

■ **CIS 102 – Windows Applications for Technicians (3 credits)** Using a Windows-based microcomputer and related software, you will gain an understanding and basic operational knowledge about the Windows XP operating system, Microsoft Office word processing, and spreadsheets, presentation software, and publishing software. You will demonstrate this knowledge by scoring at least 80% on assignments, related objective, and performance tests.

ENG 103 – Mechanical Drafting I Lab (3 credits)
Drawing mechanical problems with the knowledge gained from ENG 108.

ENG 108 – Introduction to Engineering Drawing Theory (1.5 credits) Introduction to basic tools, major equipment and inking tools and techniques used in drafting.

ENG 109 – Architectural Drafting I Theory (2.5 credits) Residential design; working drawings, foundations, structural systems and building materials; site conditions; dimensioning; details.

ENG 112 – Architectural Drafting I Lab With CAD (5 credits) Production of a set of working drawings with the knowledge gained from ENG 109.

ENG 143 – Computer-Assisted Drafting I (3 credits)
Axonometrics, dimension drawings, advanced commands, basic civil software.

ENG 144 – Computer-Assisted Drafting II (3 credits)
Using advanced CAD commands to create drawings representative of those needed in industry.

ENG 150 – Introduction to Mechanical Theory II (1 credit) An introduction to some of the intermediate styles of drawings that can be created.

ENG 151 – Theory of Surveying Practice (2 credits)
Performance of basic surveying operations.

ENG 153 – Mechanical Drafting Lab II (2 credits)
Drawing intermediate mechanical problems with the knowledge gained from ENG 150.

ENG 156 – Basic Civil Drafting (1 credit) Drawing of maps from basic field notes and general information.

ENG 176 – Basic Surveying Procedures (3 credits)
A practical application of surveying techniques and equipment used by most civil engineering firms. Students participate in survey crews.

ENG 203 – Applied Civil Mathematics (2 credits)
Basic calculations of size, area, and volume, and application of that knowledge to working drawings.

ENG 215 – Concrete Technology (1 credit) An analysis of concrete used in construction: types, application, sampling/testing and quantity estimation.

ENG 223 – Advanced Surveying Procedures (6 credits)
A lab/application course in performing topographic, property and construction surveys.

ENG 229 – Advanced Civil Drafting With CAD (6 credits)
A lab/application course with emphasis on transforming field notes into typical civil engineering plans.

ENG 245 – Architectural Drafting II Theory (3 credits)
Working drawings including dimensioning, details, electrical, and heating systems, and plumbing.

ENG 250 – Engineering Drawing II Theory (3 credits)
Manufacturing processes; threads, fasteners and springs; axonometric projection; oblique projection; welding representation; auxiliary views; sectional views; tolerancing; gears and cams.

ENG 260 – Architectural Presentation (1.5 credits)
Drawing of one and two-point perspectives, and rendering of perspectives.

ENG 261 – Mechanical Presentation (1.5 credits)
Drawing of one and two-point perspectives, and rendering of perspectives.

ENG 271 – Advanced Mechanical Drawing With CAD (10 credits) Manipulation and use of mechanical software.

ENG 272 – Applied CAD II – Architectural (10 credits)
Manipulation and use of architectural software.

■ **Students who transfer in two credits in computer science will take CSC 101 – Computer Essentials for 1 credit.**

To fulfill graduation requirements, students must select one course in each of the areas listed. Courses marked with an asterisk can be transferred directly to the university system under the terms of articulation agreements.

Behavioral Science

PSYC 100 – Psychology of Human Relations
PSYC 101 – General Psychology *

Communications

COMM 101 – Contemporary Communication
ENGL 101 – Composition *
SPCM 101 – Fundamentals of Speech *

Mathematics

MATH 100 – Applied General Math
MATH 101 – Intermediate Algebra
MATH 102 – College Algebra *

Social Science

ECON 105 – Leadership in the Global Workplace
ECON 201 – Principles of Microeconomics I *
ECON 202 – Principles of Macroeconomics II *
SOC 100 – Introduction to Sociology *