Engineering Design Technology EDT
Surveying (Geomatics) SURVY

Degrees:
- **A.S. – Architectural/Structural Drafting**
- **A.S. – Electric (Power-Lighting Systems)**
- **A.S. – Engineering Design Technology**
- **A.S. – HVAC Systems Design**
- **A.S. – Mechanical (HVAC/Plumbing Systems)**
- **A.S. – Surveying (Geomatics)**

Certificates of Achievement:
- **Architectural/Structural Drafting**
- **Electric (Power-Lighting Systems)**
- **Engineering Design Technology**
- **HVAC Systems Design**
- **Mechanical (HVAC/Plumbing Systems)**
- **Surveying (Geomatics)**

Division of Advanced Technology
Donnetta Webb, Dean
Technology, room 106
916-558-2491

Architectural/Structural Drafting

Associate in Science Degree
Certificate of Achievement

Program Information
This degree and certificate program is designed for students pursuing employment or upgrade in employment in the fields of building Architectural design utilizing Manual and CAD drafting applications in Architectural, Engineering, or Construction related offices.

Engineering Design Technology is studied in lecture and drafting practice classes. Mathematics, science, and engineering fundamentals, which are all related to the content of this program, are studied in the Engineering Design Technology program or through recommended elective courses.

The program is open to all students. For information call 916-650-2758 or 558-2491.

Career Opportunities
This program is designed for students pursuing entry level employment in architectural, electrical, and mechanical engineering, and commercial construction drafting fields. Depending on their technical field of interest and capabilities, students who complete the program may find employment in any of the following types of jobs: Engineering Aide I, Engineering Aide II, Drafting Aide I, Drafting Aide II, Junior Drafter, Architectural Drafter, Mechanical Drafter/Designer Trainee, Electrical Drafter/Designer Trainee, Structural Drafter/Designer Trainer, Topographical Drafter/Designer Trainee, General Construction Drafter/Designer Trainee, General Construction Estimator Trainee, Computer Aided Drafter, or Technical Sales representatives.

Gainful Employment
For more information about program costs, graduation rates, median debt of program graduates, and other important information regarding gainful employment, please visit: http://www.losrios.edu/gainful-emp-info/gedt.php?major=051385C01

Program Costs
Normal student expenses for textbooks, personal equipment and supplies may be required. These expenses may vary each semester. If these expenses create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation
Completion of English and general mathematics. It is desirable, but not required, that a student complete courses in drafting, industrial arts shop courses, one year of algebra, plane geometry, general science, and introduction to computers.

Transfer Students
Students who, after completing this program, are planning to continue specialization in this field by transferring to a four-year college, should consult the Requirements of Transfer Institutions section in this catalog and the engineering or related major sections of the specific catalog for the institution to which they wish to transfer. Consultation with an SCC counselor is advised.

Upon completion of this program, the student will be able to:
- prepare architectural plans for buildings that conform with current industry standards.
- demonstrate an understanding of the process of architectural design by applying design principles to building design projects.

Required Program	**Units**
EDT 300 Basic Technical Drafting	3
EDT 310 Computer Aided Drafting	3
EDT 312 Intermediate Computer Aided Drafting	3
EDT 314 Advanced Computer Assisted Drafting and Design	2
EDT 316 REVIT-Architectural	3
EDT 320 Architectural/Structural Drafting	4
A minimum of 6 units from the following:	6
EDT 332 Mechanical Design Documents (3)	
EDT 336 Air Conditioning System Design (3)	
EDT 340 Plumbing and Piping Systems Design I (3)	
EDT 342 Plumbing and Piping Systems Design II (3)	
EDT 350 Electrical and Electronics Drafting/ Design Problem Solving (3)	
EDT 352 Electrical Design Documents (3)	
EDT 356 Building Electrical Systems Design (3)	
EDT 498 Work Experience in Engineering Design Technology (1 – 4)	
SURVY 300 Elementary Surveying (4)	
SURVY 310 Survey Map Production (4)	
MATH 335 Trigonometry with College Algebra (5)	
Total Units Required	**24**

Associate in Science (A.S.) Degree
The Associate in Science Degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement
The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better or equivalent as determined by the Engineering Design Technology Department.

Electric (Power-Lighting Systems)

Associate in Science Degree
Certificate of Achievement

Program Information
This degree is designed for students pursuing employment or upgrade in employment in the fields of building electrical power and lighting systems design utilizing Manual and CAD drafting applications in Architectural, Engineering, or Construction related offices.

Engineering Design Technology is studied in lecture and drafting practice classes. Mathematics, science, and engineering fundamentals, which are all related to the content of this program, are studied in the Engineering Design Technology program or through recommended elective courses. General Education courses complete the recommended classes for the Engineering Design Technology curriculum.

The program is open to all students. For information call 916-650-2758 or 558-2491.

Career Opportunities
This program is designed for students pursuing entry level employment in architectural, electrical, and mechanical engineering, and commercial construction drafting fields. Depending on their technical field of interest and capabilities, students who complete the program may find employment in any of the following types of jobs: Engineering Aide I, Engineering Aide II, Drafting Aide I, Drafting Aide II, Junior Drafter, Architectural Drafter, Mechanical Drafter/Designer Trainee, Electrical Drafter/Designer Trainee, Structural Drafter/Designer Trainer, Topographical Drafter/Designer Trainee, General Construction Drafter/Designer Trainee, General Construction Estimator Trainee, Computer Aided Drafter, or Technical Sales representatives.

Gainful Employment
For more information about program costs, graduation rates, median debt of program graduates, and other important information regarding gainful employment, please visit: http://www.losrios.edu/gainful-emp-info/gedt.php?major=051386C01

Program Costs
Normal student expenses for textbooks, personal equipment and supplies may be required. These expenses may vary each semester. If these expenses create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation
Completion of English and general mathematics. It is desirable, but not required, that a student complete courses in drafting, industrial arts shop courses, one year of algebra, plane geometry, general science and introduction to computers.

Upon completion of this program, the student will be able to:
- prepare electrical plans for buildings that conform with current industry standards.
- demonstrate an understanding of the process of electrical design by applying design principles to building design projects.

Required Program	**Units**
EDT 300 Basic Technical Drafting	3
EDT 310 Computer Aided Drafting	3
EDT 312 Intermediate Computer Aided Drafting	3
EDT 314 Advanced Computer Assisted Drafting and Design	2
EDT 317 REVIT-MEP	3
EDT 352 Electrical Design Documents	3
EDT 356 Building Electrical Systems Design	3
A minimum of 7 units from the following:	7
EDT 320 Architectural/Structural Drafting (4)	
EDT 332 Mechanical Design Documents (3)	
EDT 336 Air Conditioning System Design (3)	
EDT 340 Plumbing and Piping Systems Design I (3)	
EDT 342 Plumbing and Piping Systems Design II (3)	
EDT 356 Building Electrical Systems Design (3)	
EDT 498 Work Experience in Engineering Design Technology (1 – 4)	
SURVY 300 Elementary Surveying (4)	
SURVY 310 Survey Map Production (4)	
MATH 335 Trigonometry with College Algebra (5)	
Total Units Required	**27**

Associate in Science (A.S.) Degree
The Associate in Science degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement
The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better or equivalent as determined by the Engineering Design Technology Department.

Engineering Design Technology

Associate in Science Degree
Certificate of Achievement

Program Information
This degree and certificate program is designed for students pursuing employment or upgrade in employment in the fields of building design utilizing Manual and CAD drafting applications in Architectural, Engineering, or Construction related offices.

Engineering Design Technology is studied in lecture and drafting practice classes. Mathematics, science, and engineering fundamentals, which are all related to the content of this program, are studied in the Engineering Design Technology program or through recommended elective courses. General Education courses complete the recommended classes for the Engineering Design Technology curriculum.

The program is open to all students. For information call 916-650-2758 or 558-2491.

Career Opportunities
This program is designed for students pursuing entry level employment in architectural, electrical, and mechanical engineering, and commercial construction drafting fields. Depending on their technical field of interest and capabilities, students who complete the program may find employment in any of the following types of jobs: Engineering Aide I, Engineering Aide II, Drafting Aide I, Drafting Aide II, Junior Drafter, Architectural Drafter, Mechanical Drafter/Designer Trainee, Electrical Drafter/Designer Trainee, Structural Drafter/Designer Trainer, Topographical Drafter/Designer Trainee, General Construction Drafter/Designer Trainee, General Construction Estimator Trainee, Computer Aided Drafter, or Technical Sales representatives.

Gainful Employment
For more information about program costs, graduation rates, median debt of program graduates, and other important information regarding gainful employment, please visit: http://www.losrios.edu/gainful-emp-info/gedt.php?major=051085C01

Program Costs
Normal student expenses for textbooks, personal equipment and supplies may be required. These expenses may vary each semester. If these expenses create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation
Completion of English and general mathematics. It is desirable, but not required, that a student complete courses in drafting, industrial arts shop courses, one year of algebra, plane geometry, general science and introduction to computers.

Transfer Students
Students who, after completing this program, are planning to continue specialization in this field by transferring to a four-year college, should consult the Requirements of Transfer Institutions section in this catalog and the engineering or related major sections of the specific catalog for the institution to which they wish to transfer. Consultation with an SCC counselor is advised.

Upon completion of this program, the student will be able to:
- prepare architectural, mechanical, and electrical plans for buildings that conform with current industry standards.
- demonstrate an understanding of the process of architectural design, mechanical design, and electrical design by applying design principles to building design projects.

Required Program	Units
EDT 300 Basic Technical Drafting	3
EDT 310 Computer Aided Drafting	3
EDT 312 Intermediate Computer Aided Drafting	3
EDT 314 Advanced Computer Assisted Drafting and Design	2
EDT 316 REVIT-Architectural	3
EDT 317 REVIT-MEP	3
EDT 320 Architectural/Structural Drafting	4
EDT 332 Mechanical Design Documents	3
EDT 336 Air Conditioning System Design	3
EDT 340 Plumbing and Piping Systems Design I	3
EDT 342 Plumbing and Piping Systems Design II	3
EDT 352 Electrical Design Documents	3
EDT 356 Building Electrical Systems Design	3
A minimum of 2 units from the following:	2
EDT 498 Work Experience in Engineering Design Technology (1 – 4)	
EDT 356 Building Electrical Systems Design (3)	
SURVY 300 Elementary Surveying (4)	
SURVY 310 Survey Map Production (4)	
MATH 335 Trigonometry with College Algebra (5)	
Total Units Required	**41**

Suggested Elective
HCD 310

Associate in Science (A.S.) Degree
The Associate in Science Degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement
The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better or equivalent.

HVAC Systems Design
CADD (Heating, Ventilating, Air Conditioning)

Associate in Science Degree
Certificate of Achievement

Program Information
This degree is designed for students pursuing employment or upgrade in employment in the fields of Heating, Ventilation, and Air Conditioning (HVAC) systems design utilizing Manual and CAD drafting applications in Architectural, Engineering, or Construction related offices.

Engineering Design Technology is studied in lecture and drafting practice classes. Mathematics, science, and engineering fundamentals, which are all related to the content of this program, are studied in the Engineering Design Technology program or through recommended elective courses. General Education courses complete the recommended classes for the Engineering Design Technology curriculum.

The program is open to all students. For information call 916-558-2232 or 558-2491.

Career Opportunities
This program is designed for students pursuing entry level employment in architectural, electrical, and mechanical engineering, and commercial construction drafting fields. Depending on their technical field of interest and capabilities, students who complete the program may find employment in any of the following types of jobs: Engineering Aide I, Engineering Aide II, Drafting Aide I, Drafting Aide II, Junior Drafter, Architectural Drafter, Mechanical Drafter/Designer Trainee, Electrical Drafter/Designer Trainee, Structural Drafter/Designer Trainer, Topographical Drafter/Designer Trainee, General Construction Drafter/Designer Trainee, General Construction Estimator Trainee, Computer Aided Drafter, or Technical Sales representatives.

Gainful Employment
For more information about program costs, graduation rates, median debt of program graduates, and other important information regarding gainful employment, please visit: http://www.losrios.edu/gainful-emp-info/gedt.php?major=051087C01

Program Costs
Normal student expenses for textbooks, personal equipment and supplies may be required. These expenses may vary each semester. If these expenses create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation
Completion of English and general mathematics. It is desirable, but not required, that a student complete courses in drafting, industrial arts shop courses, one year of algebra, plane geometry, general science and introduction to computers.

Transfer Students
Students who, after completing this program, are planning to continue specialization in this field by transferring to a four-year college, should consult the Requirements of Transfer Institutions section in this catalog and the engineering or related major sections of the specific catalog for the institution to which they wish to transfer. Consultation with an SCC counselor is advised.

Upon completion of this program, the student will be able to:
- prepare mechanical designs (HVAC) for buildings that conform with current industry standards.
- demonstrate an understanding of the process of mechanical design (HVAC) by applying design principles to building design projects.

Required Program	Units
EDT 300 Basic Technical Drafting	3
EDT 310 Computer Aided Drafting	3
EDT 312 Intermediate Computer Aided Drafting	3
EDT 314 Advanced Computer Assisted Drafting and Design	2
EDT 317 REVIT-MEP	3
EDT 332 Mechanical Design Documents	3
EDT 336 Air Conditioning System Design	3
A minimum of 10 units from the following:	10
EDT 320 Architectural/Structural Drafting (4)	
EDT 340 Plumbing and Piping Systems Design I	
EDT 342 Plumbing and Piping Systems Design II (3)	
EDT 350 Electrical and Electronics Drafting/Design Problem Solving (3)	
EDT 352 Electrical Design Documents (3)	
EDT 356 Building Electrical Systems Design (3)	
EDT 498 Work Experience in Engineering Design Technology (1 – 4)	
MATH 335 Trigonometry with College Algebra (5)	
Total Units Required	**30**

Associate in Science (A.S.) Degree
The Associate in Science degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement
The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better or equivalent.

Mechanical (HVAC/Plumbing Systems)

Associate in Science Degree
Certificate of Achievement

Program Information
This degree is designed for students pursuing employment or upgrade in employment in the building design fields of Heating, Ventilation and Air Conditioning (HVAC) and Plumbing utilizing Manual and CAD drafting applications in Architectural, Engineering, or Construction related offices.

Engineering Design Technology is studied in lecture and drafting practice classes. Mathematics, science, and engineering fundamentals, which are all related to the content of this program, are studied in the Engineering Design Technology program or through recommended elective courses. General Education courses complete the recommended classes for the Engineering Design Technology curriculum.

The program is open to all students. For information call 916-650-2758 or 558-2491.

Career Opportunities
This program is designed for students pursuing entry level employment in architectural, electrical, and mechanical engineering, and commercial construction drafting fields. Depending on their technical field of interest and capabilities, students who complete the program may find employment in any of the following types of jobs: Engineering Aide I, Engineering Aide II, Drafting Aide I, Drafting Aide II, Junior Drafter, Architectural Drafter, Mechanical Drafter/Designer Trainee, Electrical Drafter/Designer Trainee, Structural Drafter/Designer Trainer, Topographical Drafter/Designer Trainee, General Construction Drafter/Designer Trainee, General Construction Estimator Trainee, Computer Aided Drafter, or Technical Sales representatives.

Gainful Employment
For more information about program costs, graduation rates, median debt of program graduates, and other important information regarding gainful employment, please visit: http://www.losrios.edu/gainful-emp-info/gedt.php?major=051387C01

Program Costs
Normal student expenses for textbooks, personal equipment and supplies may be required. These expenses may vary each semester. If these expenses create a financial burden, students should consult the Financial Aid Office for possible assistance.

Recommended High School Preparation
Completion of English and general mathematics. It is desirable, but not required, that a student complete courses in drafting, industrial arts shop courses, one year of algebra, plane geometry, general science and introduction to computers.

Transfer Students
Students who, after completing this program, are planning to continue specialization in this field by transferring to a four-year college, should consult the Requirements of Transfer Institutions section in this catalog and the engineering or related major sections of the specific catalog for the institution to which they wish to transfer. Consultation with an SCC counselor is advised.

Upon completion of this program, the student will be able to:
- prepare mechanical and plumbing plans for buildings that conform with current industry standards.
- demonstrate an understanding of the process of mechanical and plumbing design by applying design principles to building design projects.

Required Program	Units
EDT 300 Basic Technical Drafting	3
EDT 310 Computer Aided Drafting	3
EDT 312 Intermediate Computer Aided Drafting	3
EDT 314 Advanced Computer Assisted Drafting and Design	2
EDT 317 REVIT-MEP	3
EDT 332 Mechanical Design Documents	3
EDT 336 Air Conditioning System Design	3
EDT 340 Plumbing and Piping Systems Design I	3
EDT 342 Plumbing and Piping Systems Design II	3
A minimum of 3 units from the following:	3
EDT 320 Architectural/Structural Drafting (4)	
EDT 350 Electrical and Electronics Drafting/Design Problem Solving (3)	
EDT 352 Electrical Design Documents (3)	
EDT 356 Building Electrical Systems Design (3)	
EDT 498 Work Experience in Engineering Design Technology (1 – 4)	
SURVY 300 Elementary Surveying (4)	
SURVY 310 Survey Map Production (4)	
MATH 335 Trigonometry with College Algebra (5)	
Total Units Required	**29**

Associate in Science (A.S.) Degree
The Associate in Science degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement
The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better or equivalent.

Surveying (Geomatics)

Associate in Science Degree
Certificate of Achievement

Program Information
The curriculum provides the student with instruction in survey theory and fundamentals of office and field practice. The objective is to prepare students for employment as described above. Material is sufficient, when coupled with the legally required experience, to prepare the student for the State licensing examinations conducted by The Board of Registration for Professional Engineers. There are numerous specialties in survey employment, and early counseling is suggested to help select the proper optional classes.

Career Opportunities
Students may find employment in field jobs as surveyor assistants to do specific jobs as rod, chain, level, and instrument person and notekeeper. In office jobs, students may do survey computations, draw maps of property lines, topographic maps and profiles of construction sites, and compute acreage. Employers are private survey and engineering firms and government agencies throughout the United States. Job titles are Boundary, Technicians, Survey Technicians, Engineering Technicians, Engineering Aide, and Survey Aide.

Gainful Employment
For more information about program costs, graduation rates, median debt of program graduates, and other important information regarding gainful employment, please visit: http://www.losrios.edu/gainful-emp-info/gedt.php?major=051135C01

Recommended High School Preparation
Courses in algebra, trigonometry, physics, and geography

Material is sufficient, when coupled with the legally required experience, to prepare the student for the State licensing examinations conducted by The Board of Registration for Professional Engineers.

Upon completion of this program, the student will be able to:

- operate all surveying measurement instruments commonly in use within the profession.
- demonstrate a knowledge of the techniques and methodology of surveying measurement.
- select appropriate survey measuring instruments to accurately complete a variety of surveying projects.
- list specific requirements of local agencies for approval and filing of survey maps such as, record of surveys, parcel maps, subdivision maps, preliminary and final maps, and also improvement plans.
- demonstrate an understanding of boundary surveying and photogrammetric surveys, theory of geodetic and control surveys, Global Positioning Systems, Geographic Information System and electronic surveys.
- demonstrate knowledge of statutory and common law regulating the surveying industry.
- discuss various types of land ownership and classify effects and intent of various land transfers and transactions.
- prepare and interpret different forms of legal descriptions of land ownership and transfer.

Required Program	**Units**
SURVY 300 Elementary Surveying	4
SURVY 320 Advanced Survey	4
SURVY 330 Special Surveying Projects	4
SURVY 340 Basics of Photogrammetry	3
SURVY 350 Boundary Control and Legal Principles	4
SURVY 352 Evidence and Procedures for Boundary Location	4
A minimum of 3 units from the following:	3
SURVY 310 Survey Map Production (4)	
SURVY 360 Survey Business Practices (3)	
GEOG 330 Introduction to Geographic Information Systems (3)	
Total Units Required	**26**

Associate in Science (A.S.) Degree
The Associate in Science degree may be obtained by completion of the required program, plus general education requirements, plus sufficient electives to meet a 60-unit total. See SCC graduation requirements.

Certificate of Achievement
The Certificate of Achievement may be obtained by completion of the required program with grades of "C" or better.

Engineering Design Technology (EDT)

EDT 300 Basic Technical Drafting 3 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This is an introductory manual drafting course for design, architectural, and engineering students. Studies include drafting instrument care and use, sketching, scale reading, drafting conventions, lettering, orthographic and pictorial drawings, dimensioning techniques, sections, auxiliary views, and surface developments. The building design process is presented through an architectural design project. Students are required to provide their own drafting equipment.

EDT 302 Building Trades Blueprint Reading 2 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 36 hours LEC
This is a course in blueprint reading and sketching related to building trades. Architectural, structural, electrical and mechanical drawings, details, and specification requirements will be examined in detail for residential, commercial, and industrial construction.

EDT 310 Computer Aided Drafting 3 Units

Prerequisite: EDT 300 with a grade of "C" or better; or equivalent; or concurrent enrollment in EDT 300.
Course Transferable to UC/CSU
Hours: 36 hours LEC; 54 hours LAB
This course is an introduction to computer-assisted drafting (CAD). Topics include, but are not limited to: Entity Editing; Linetypes; Layers; Entity Drawing; Object Snaps; Grips; Polylines; Dimensioning; Multilines; Pictorial Drawings; Program Customization; Drawing Plotting and Printing; Selection Sets and Blocks. Instruction is provided in the commands, application, techniques, standards and settings of CAD software to produce basic technical drawings that conform to current industry standards.

EDT 312 Intermediate Computer Aided Drafting 3 Units

Prerequisite: EDT 300 and EDT 310 with grades of "C" or better; or equivalent.
Course Transferable to UC/CSU
Hours: 36 hours LEC; 54 hours LAB
This is a second course in Computer Aided Drafting (CAD) that emphasizes advanced CAD commands. Topics include but are not limited to: File Management Techniques; CAD Layer Management; Geometric Calculator; Filters and Selection Sets; Dimensioning Settings; AutoCAD Customization; Toolbar and Menu Customization; Macros; POP Sections; Menugroups and Image Tile Menus; Preferences, Profiles; Advanced Plotting Techniques; Attributes; Scripts and Bill of Materials. This course offers in-service training and upward mobility training to the professional CAD drafter. Emphasis is on in-office related production skills and program customization.

EDT 314 Advanced Computer Assisted Drafting and Design 2 Units

Prerequisite: EDT 300 and EDT 310 with grades of "C" or better; or equivalent.
Advisory: EDT 312 with grade "C" or better or equivalent.
Course Transferable to UC/CSU
Hours: 18 hours LEC; 54 hours LAB
This course covers advanced study in computer aided drafting with emphasis on construction related topics. Course topics include, but are not limited to: basic three-dimensional studies, pictorial (isometric) and three dimensional drawings and dimensioning; customization using the AutoLISP programming language; use of database application to integrate drawing and schedule information in project drawing sets; 3D and UCS Coordinate Systems; Spherical and Cylindrical Coordinates; Solids and Primitives; Solid Model Editing 3D Objects; Wireframes; 3D Faces, Rendering; Light Sources and Backgrounds; Raster and PostScript Files, and applications of CAD to drawing development. The concepts also relate to other computer drafting applications.

EDT 316 REVIT-Architectural 3 Units

Prerequisite: EDT 300 a with grade of "C" or better; or equivalent. EDT 310 with grades of "C" or better; or equivalent.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course provides instruction in the AutoDesk software package REVIT Architecture. Topics covered include but are not limited to: Building Information Modeling (BIM), parametric 3D design, tools for creating and analyzing projects, and automated tools for documentation.

EDT 317 REVIT-MEP 3 Units

Prerequisite: EDT 300 with a grade of "C" or better; or equivalent. EDT 310 with grades of "C" or better; or equivalent.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course provides instruction in the AutoDesk software package REVIT MEP (Mechanical Electrical Plumbing). Topics covered include but are not limited to: Building Information Modeling (BIM), parametric 3D design tools for creating and analyzing HVAC, Plumbing and Piping systems, and Power, Lighting, and Signal systems.

EDT 318 Beginning 3D Modeling Using Pro/E 3 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course provides an introduction to Pro/Engineer (Creo Elements) mechanical design software. Topics covered include, but are not limited to: 3D modeling, parametric design, model relations, tools for creating and analyzing projects, and detail and assembly drawings.

EDT 320 Architectural/Structural Drafting 4 Units

Prerequisite: EDT 300 and EDT 310 with grades of "C" or better or equivalent.
Course Transferable to CSU
Hours: 36 hours LEC; 108 hours LAB
This course provides instruction in drafting practices involving building construction drawings and specifications and surveying practices related to architectural and engineering construction work.

EDT 330 Air Conditioning, Plumbing and Piping Design 3 Units

Prerequisite: EDT 300 and EDT 310 with grades of "C" or better or equivalent.
Course Transferable to CSU
Hours: 54 hours LEC
This course provides instruction in the design of building heating, ventilation and air conditioning (HVAC), and plumbing and piping systems. Topics include but are not limited to: cooling and heating load calculations, HVAC zoning, systems and equipment selection, ductwork systems, controls, and plumbing and industrial piping systems.

EDT 332 Mechanical Design Documents 3 Units

Prerequisite: EDT 300 and EDT 310 with grades of "C" or better or equivalent.
Advisory: EDT 336; Concurrent enrollment in EDT 336.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course provides instruction in the preparation of mechanical construction documents for building HVAC, plumbing, and piping systems using computer aided drafting programs. Course work involves applying mechanical design calculations to building mechanical systems. EDT 336 should be taken concurrently with this course.

EDT 336 Air Conditioning System Design 3 Units

Prerequisite: None.
Advisory: Concurrent enrollment in EDT 332.
Course Transferable to CSU
Hours: 54 hours LEC
This course focuses on the calculations of heat gain and heat loss in buildings, types of HVAC systems, equipment selection, ductwork design, building environmental comfort considerations, psychrometrics, and building temperature control systems. EDT 332 should be taken concurrently with this course.

EDT 340 Plumbing and Piping Systems Design I 3 Units

Prerequisite: None.
Advisory: EDT 300 with a grade of "C" or better; or equivalent. Concurrent enrollment in EDT 342.
Course Transferable to CSU
Hours: 54 hours LEC
This course provides instruction in the design of domestic water supply, water heating, and gas piping systems for residential, and commercial buildings including, study of the materials, methods, codes, and practices. EDT 342 should be taken concurrently with this course.

EDT 342 Plumbing and Piping Systems Design II 3 Units

Prerequisite: None.
Advisory: EDT 300 with a grade of "C" or better; or equivalent. Concurrent enrollment in EDT 340.
Course Transferable to CSU
Hours: 54 hours LEC
This course provides instruction in the design of plumbing waste, vent, storm drainage, and fuel gas piping systems for residential and commercial buildings including study of the materials, methods, codes, and practices. EDT 340 should be taken concurrently with this course.

EDT 350 Electrical and Electronics Drafting/Design Problem Solving 3 Units

Prerequisite: None.
Advisory: Concurrent enrollment in EDT 352.
Course Transferable to CSU
Hours: 54 hours LEC
This course involves problem solving related to electrical and electronics drafting, formula solutions, application of Ohms Law, series-parallel circuitry, inductors, capacitors electric motors, electrical power formulas, voltage loss and general lighting calculations. EDT 352 should be taken concurrently with this course.

EDT 352 Electrical Design Documents 3 Units

Prerequisite: EDT 300 and EDT 310 with grades of "C" or better or equivalent.
Advisory: Concurrent enrollment in EDT 350, or EDT 356.
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course provides instruction in the preparation of electrical construction documents for residential and light commercial buildings using computer aided drafting programs. Course work involves applying electrical design calculations to building electrical power wiring, motor, and lighting systems. EDT 356 or EDT 350 should be taken concurrently with this course.

EDT 356 Building Electrical Systems Design 3 Units

Prerequisite: None.
Advisory: Concurrent enrollment in EDT 352.
Course Transferable to CSU
Hours: 54 hours LEC
This is a basic course on electrical systems for residential and commercial buildings with emphasis on practical industry, materials, methods, and Title 24 codes. EDT 352 should be taken concurrently with this course.

EDT 494 Topics in Engineering Design Technology .5-4 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 36 hours LEC; 108 hours LAB
This specialized course has been developed in cooperation with industry to address emerging training needs.

EDT 495 Independent Studies in Engineering Design Technology 1-3 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 162 hours LAB
Independent study of an Engineering Design Technology topic or research project. This course is for students who wish to develop an in-depth understanding in fundamental topics of Engineering Design Technology and to learn to work in a collaborative atmosphere with instructors and other students. Instructor approval is required to enroll in this course.

EDT 498 Work Experience in Engineering Design Technology 1-4 Units

Prerequisite: EDT 300 and 310 with grades of "C" or better
General Education: AA/AS Area III(b)
Enrollment Limitation: According to Education Code Title V regulations, a student cannot earn academic credits in a Work Experience class unless s/he has either a job or an internship.
Course Transferable to CSU
Hours: 18 hours LEC; 300 hours LAB
This course provides students with opportunities to develop or add marketable skills related to their vocational study programs. Course content will include understanding the application of the student's education to the workforce; the responsibilities of an internship (where applicable); completion of Title V Education Code papers (the student's Application, Learning Objectives, Time sheet, and Evaluations), which document the student's progress and hours spent at the work or internship site; and developing workplace (soft) skills identified by the Secretary's Commission on Achieving Necessary Skills (SCANS) Competencies, as well as by local employers. In addition, the student is required to fulfill 18 hours lecture and 75 hours of related, paid work experience or 60 hours of volunteer work experience for one unit; 75 or 60 hours of related work experience for each additional unit. The program allows the transfer student to combine practical, paid or non-paid work experience with college training. The course may be taken up to four times when there is new or expanded learning on the job for a total of 16 units. Only one Work Experience course may be taken per semester.

EDT 499 Experimental Offering in Engineering Design Technology .5-4 Units

Prerequisite: None
Course Transferable to CSU
Hours: 54 hours LEC; 54 hours LAB
See Experimental Offerings

Surveying (SURVY)

SURVY 300 Elementary Surveying 4 Units

Prerequisite: None.
Advisory: MATH 335 with a grade of "C" or better.
Course Transferable to UC/CSU
Hours: 45 hours LEC; 81 hours LAB
This course provides an introduction to the principles and practices of plane surveying. Survey instrumentation and methods of measuring distances, angles, and differences in elevation will be presented. Fundamental surveying methods including traversing, area computations, and use and care of electronic survey equipment will be stressed. Computation methods associated with surveying will be covered.

SURVY 310 Survey Map Production 4 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 45 hours LEC; 81 hours LAB
This course provides an exposure to the special procedures and requirements unique to computer-assisted survey mapping. Fundamental survey drafting methods and types of maps will be stressed. Conformance with local agency and State of California mapping requirements will be addressed. Students will work with state of the art computer hardware and software to produce industry standard survey maps.

SURVY 320 Advanced Survey 4 Units

Prerequisite: SURVY 300 with a grade of "C" or better; or equivalent.
Advisory: Completion of, or concurrent enrollment in MATH 335 with a grade of "C" or better.
Course Transferable to CSU
Hours: 45 hours LEC; 81 hours LAB
This course focuses on real-world surveying applications such as primary control, construction layout and staking, horizontal and vertical curves, above and underground structural staking, subdivision lotting, and street improvement construction. Introduction to boundary surveying and photogrammetric surveys, California State Plane Coordinate System, and theory of geodetic and control surveys. GPS, GIS, and electronic surveys and mapping are also introduced. Students will need a hand-held electronic scientific style calculator equipped with trigonometric capabilities.

SURVY 324 Global Positioning Surveying (GPS) 3 Units

Prerequisite: SURVY 320 with a grade of "C" or better
Course Transferable to CSU
Hours: 36 hours LEC; 54 hours LAB
This course is an introduction to the methods, techniques, tools, and applications of GPS for use in Land Surveys. It will also present factors of geodesy for surveying, enabling the student to understand and use the mathematical parameters of the earth's shape and effect on survey measurements.

SURVY 330 Special Surveying Projects 4 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 45 hours LEC; 81 hours LAB
This course focuses on real world surveying applications, construction control, layout and staking, horizontal and vertical curves, above and underground structural staking, subdivision lotting, and street improvement construction. This course will provide an introduction to boundary surveying and photogrammetric surveys, theory of geodetic and control surveys. Global Positioning Systems (GPS), Geographic Information System (GIS), and electronic surveys and mapping are also included.

SURVY 340 Basics of Photogrammetry 3 Units

Prerequisite: SURVY 320 with a grade of "C" or better, or equivalent work experience.
Course Transferable to CSU
Hours: 54 hours LEC
This course provides an introduction to the theory and practice of Photogrammetry, including image systems and quality, theory of stereo photography, and orientation and design of stereo models. The class will also address design and operating principles of stereo plotting and photogrammetric and orthophoto mapping. This course also focuses on considerations for flight and control planning, control identification techniques, advanced field completion surveys, and property line investigations. Two field trips are required.

SURVY 350 Boundary Control and Legal Principles 4 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 72 hours LEC
This course provides instruction in the concepts and legal principles associated with the historic and current practices of surveying and mapping procedures used in locating boundaries and land ownership lines. This course has been developed for those in the fields of surveying, civil engineering, title insurance, and real estate.

SURVY 352 Evidence and Procedures for Boundary Location 4 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 72 hours LEC
This is a continuation of boundary location with emphasis on procedures rather than principles. It provides an introduction to the historical development, current concepts, and evidence and procedures used in boundary determination. Techniques of gathering and evaluating evidence used in boundary locations and methods of presenting that evidence in the form of maps and descriptions are emphasized. This course is designed for those in the fields of engineering, land surveying, land law, real estate, and title insurance.

SURVY 360 Survey Business Practices 3 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 54 hours LEC
The course provides an introduction to surveying business economics; contracts and specifications; organizing, staffing, hiring, training, and supervision of professional/technical personnel; surveyor-client relationships; and ethics of practice.

SURVY 495 Independent Studies in Surveying 1-3 Units

Prerequisite: None.
Course Transferable to CSU
Hours: 162 hours LAB
UC transfer credit will be awarded only after the course has been evaluated by the enrolling UC campus. The units completed for this course cannot be counted towards the minimum 60 units required for admissions.

SURVY 498 Work Experience in Surveying 1-4 Units

Prerequisite: None
Course Transferable to CSU
Hours: 18 hours LEC; 75 hours LAB
See Work Experience

SURVY 499 Experimental Offering in Surveying .5-4 Units

Prerequisite: None
Course Transferable to UC/CSU
Hours: 54 hours LEC; 54 hours LAB
See Experimental Offerings. UC transfer credit will be awarded only after the course has been evaluated by the enrolling UC campus. The units completed for this course cannot be counted towards the minimum 60 units required for admissions.