EME 215 Field Internship (9)
27 hours laboratory
Prerequisite: *A minimum grade of 'B' in EME 210; or concurrent enrollment in EME 210*
Transfer acceptability: *CSU*
Assignment to a response vehicle with a field preceptor. Includes direct patient care responsibilities in providing advanced life support.

EME 220 Paramedic Refresher (2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8)
2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8 hours lecture
Prerequisite: *Provide proof of receiving a failing grade in one or more of the following courses: EME 207, 207L, 208, 208L, 210, 215 within the previous 24 months.*
Transfer acceptability: *CSU*
Provides students who were unsuccessful in one or more of the following courses, EME 207, 207L, 208, 208L, 210 or 215, an opportunity to refresh, strengthen, and maintain their clinical abilities and knowledge base.

EME 223 OB/Peds Block Refresher (1, 2)
1, 2 hours lecture
Prerequisite: *Provide proof of receiving a failing grade in one or more of the following courses: EME 210, 215 within the previous 24 months*
Corequisite: *EME 224*
Transfer acceptability: *CSU*
Provides students who were unsuccessful in one or more of the following courses, EME 210 or 215, an opportunity to refresh, strengthen, and maintain their academic knowledge base in obstetrical and pediatric medicine.

EME 224 Clinical Refresher (1.5)
½ hour lecture - 3 hours laboratory
Prerequisite: *Failure in EME 215*
Corequisite: *EME 223*
Transfer acceptability: *CSU*
Provides students who were unsuccessful in EME 215 an opportunity to refresh, strengthen, and maintain their clinical abilities and knowledge base.

EME 295 Directed Study in Emergency Medical Education (1, 2, 3)
3, 6, or 9 hours laboratory
Prerequisite: *Approval of project or research by department chairperson/ director*
Transfer acceptability: *CSU*
Independent study for students who have demonstrated skills and/or proficiencies in Emergency Medical Education subjects and have the initiative to work independently on projects or research outside the context of regularly scheduled classes. Students will work under the personal supervision of an instructor.

Engineering (ENGR)

Contact the Physics and Engineering Department for further information.
(760) 744-1150, ext. 2505
Office: NS-355B

Associate in Science Degrees -

AS Degree requirements are listed in Section 6 (green pages).
• Engineering

PROGRAMS OF STUDY

Engineering

Provides the background to begin upper division coursework and will prepare the student for entry level jobs that require a knowledge of engineering and engineering related topics. The highly sequential nature of the engineering curriculum necessitates completion of lower division requirements before being admitted into upper division courses.

Engineering students are urged to give priority to the completion of major field requirements over the completion of general education requirements. Engineering lower division requirements are not the same for different universities. These institutions recommend that their particular lower division requirements be completed before transfer. Students should seek early assistance in planning their specific program from the Counseling Department, the Transfer Center, or the Physics/Engineering Department.

A.S. DEGREE MAJOR

Program Requirements		Units
(Select a minimum of 11 units)		
DT/ENGR 101	AutoCAD Introduction to Computer Aided Drafting	
	or	
DT/ENGR 103	SolidWorks Introduction to 3D Design and Presentation	3
ENGR 126	Intro Electric/Computer Engineering	4
	or	
ENGR 245	Properties of Materials	4
ENGR 210	Electrical Network Analysis	3
ENGR 210L	Electrical Network Analysis Laboratory	1
ENGR 235	Engineering Mechanics Statics	3
ENGR 236	Engineering Mechanics Dynamics	3
Electives (Select a minimum of 30 units)		
Note that mathematics courses are often prerequisite to engineering and physics courses.		
MATH 140	Calculus/Analytic Geometry, First Course	5
MATH 141	Calculus/Analytic Geometry, Second Course	4
MATH 205	Calculus/Analytic Geometry, Third Course	4
MATH 206	Calculus with Differential Equations	4
PHYS 230	Principles of Physics	5
PHYS 231	Principles of Physics	5
PHYS 232	Principles of Physics	4
CHEM 110	General Chemistry	3
CHEM 110L	General Chemistry Laboratory	2
CHEM 115	General Chemistry	3
CHEM 115L	General Chemistry Laboratory	2
MINIMUM TOTAL UNITS		**41**

Recommended Elective: ENGR 100

ENG 100, ENG 202, and BIOL 100 are highly recommended as electives to fulfill General Education requirements.

COURSE OFFERINGS

ENGR 100 Introduction to Engineering (1)
1 hour lecture
Transfer acceptability: *CSU; UC*
An overview of the engineering profession including not only the different engineering fields but also the specialized demands and rewards of each. It will afford the opportunity for community building among the students, who usually are otherwise isolated in the community college milieu. Group projects in the course will encourage socialization and human relations training in what is often perceived as a dry and dull profession. Academic success strategies will be explained and practiced; ethical concepts will be examined through case histories and practical applications.

ENGR 101 AutoCAD Introduction to Computer Aided Drafting (3)
1½ hours lecture - 4½ hours laboratory
Note: *Cross listed as DT 101.*
Transfer acceptability: *CSU; UC – DT/ENGR 101 and 102 combined: maximum credit, one course*
An introduction to computer aided drafting using AutoCAD software and IBM compatible computers. Hands on experience with AutoCAD to include the following operations: preparing and editing drawings, storage and retrieval of drawings, and production of commercial quality drawings on a plotter. Introductory computer terminology and techniques in Windows.

ENGR 102 Advanced AutoCAD (3)
1½ hours lecture - 4½ hours laboratory
Prerequisite: *A minimum grade of 'C' in DT/ENGR 101*
Note: *Cross listed as DT 102.*
Transfer acceptability: *CSU; UC – DT 101 and 102 combined: maximum credit, one course*
Advanced theory and hands on operation of a CAD system. Emphasis is placed on large scale drawings, three dimensional software techniques, orthographic projections, and complex computer aided manufacturing applications.

ENGR 103 SolidWorks Introduction to 3D Design and Presentation (3)
1½ hours lecture - 4½ hours laboratory
Note: *Cross listed as DT 103.*
Transfer acceptability: *CSU*
Advanced theory and hands on operation of three-dimensional software techniques. Emphasis is placed on wireframe, surface, solid, and parametric three-dimensional modeling.

ENGR 104 SolidWorks Advanced 3D Design and Presentation (3)
1½ hours lecture - 4½ hours laboratory
Prerequisite: *A minimum grade of 'C' in DT/ENGR 103*
Note: *Cross listed as DT 104*
Transfer acceptability: *CSU*
Advanced theory and hands-on operation of solid and parametric three-dimensional models. Emphasis is placed on creating molds, advanced sheet metal design and developing dynamic assemblies.

ENGR 110 Technical Drafting I with AutoCAD (4)
2 hours lecture - 6 hours laboratory
Prerequisite: *A minimum grade of 'C' in DT/ENGR 101, or concurrent enrollment in DT/ENGR 101*
Note: *Cross listed as DT 110.*
Transfer acceptability: *CSU*
Fundamentals of drafting including lettering, sketching, instruments, geometric constructions, orthographic projections, dimensioning, tolerancing, sectional views and auxiliary views. Drafting will be performed on the computer using AutoCAD software.

ENGR 111 Technical Drafting II with AutoCAD (4)
2 hours lecture - 6 hours laboratory
Prerequisite: *A minimum grade of 'C' in DT/ENGR 110*
Note: *Cross listed as DT 111.*
Transfer acceptability: *CSU*
Advanced drafting practices using customized AutoCAD software. Basic studies will include pictorial drafting, descriptive geometry, and revolutions. Working/shop drawings in topography, developments, cabinet/millwork, structural steel, and welding will be performed. Emphasis is placed on increased productivity by customizing AutoCAD to the student's requirements.

ENGR 117 Geometric Dimensioning and Tolerancing (2)
1 hour lecture - 3 hours laboratory
Note: *Cross listed as DT/WELD 117*
Transfer acceptability: *CSU*
An introduction to geometric dimensioning and tolerancing ASME Y14.5-2009. Students will learn to identify, use appropriate geometric symbols and techniques of geometric dimension, and produce industrial quality drawings. Students will also learn to measure and verify geometric dimensions and tolerances of manufactured items.

ENGR 126 Introduction to Electrical and Computer Engineering (4)
3 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in MATH 140*
Transfer acceptability: *CSU*
Introductory concepts covering a broad range of topics in Electrical and Computer Engineering presented in an integrated approach at a hands-on level. Students work in small teams to analyze, build, and test a small programmable robot for competition at the end of the semester. Provides basic understanding and skills for students to later build their theoretical understanding in more advanced physics and engineering courses.

ENGR 151 CAD/CAM Machining (3)
1½ hours lecture - 4½ hours laboratory
Note: *Cross listed as as DT/WELD 151*
Transfer acceptability: *CSU*
Hands-on operation of importing three-dimensional solid and parametric three-dimensional models into CAD/CAM operations.

ENGR 197 Engineering Topics (.5-5)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.
Transfer acceptability: *CSU*
Topics in Engineering. See Class Schedule for specific topic offered. Course title will designate subject covered.

ENGR 210 Electrical Network Analysis (3)
3 hours lecture
Prerequisite: *A minimum grade of 'C' in ENGR 210L and PHYS 231, or concurrent enrollment in ENGR 210L and PHYS 231*
Transfer acceptability: *CSU; UC*
Circuit analysis by reduction methods, source transformations, loop and nodal analysis, OPAMP model for networks, \transient analysis, alternating current circuits, impedance, power and phasor diagrams.

ENGR 210L Electrical Network Analysis Laboratory (1)
3 hours laboratory
Prerequisite: *A minimum grade of 'C' in ENGR 210, or concurrent enrollment in ENGR 210*
Transfer acceptability: *CSU; UC*
Laboratory exercises of circuit analysis by reduction methods, source transformations, loop and nodal analysis, OPAMP model for networks, transient analysis, alternating current circuits, impedance, power and phasor diagrams.

ENGR 226 Printed Circuit Board Design (3)
1½ hours lecture - 4½ hours laboratory
Note: *Cross listed as as DT 226*
Transfer acceptability: *CSU*
Instruction in printed circuit board design generally required for entry level positions in the electronic industry. Includes artwork and complete documentation for analog and digital multi-layer, flexible and high-speed boards using current IPC standards. Drafting will be performed on the computer using high-end printed circuit board software.

ENGR 227 Advanced Printed Circuit Board Design (3)
1½ hours lecture - 4½ hours laboratory
Prerequisite: *A minimum grade of 'C' in DT/ENGR 226*
Note: *Cross listed as as DT 227*
Transfer acceptability: *CSU*
Advanced problems and instruction in printed circuit board design generally required for entry-level position in the electronic industry. Special emphasis will be placed on advanced applications including surface mount technology. Includes artwork and complete documentation for analog and digital multi-layer, flexible and high-speed boards using current IPC standards. Drafting will be performed on the computer using AutoCAD and PADS software.

ENGR 235 Engineering Mechanics – Statics (3)
3 hours lecture
Prerequisite: *A minimum grade of 'C' in PHYS 230 and MATH 140*
Transfer acceptability: *CSU; UC*
Force systems and equilibrium conditions. Engineering problems covering structures, machines, distributed forces, and friction. Graphical and algebraic solutions, and vectorial analysis.

ENGR 236 Engineering Mechanics – Dynamics (3)
3 hours lecture
Prerequisite: *A minimum grade of 'C' in ENGR 235*
Transfer acceptability: *CSU; UC*
Fundamental principles of bodies in motion; kinetics and kinematics of particles; system of particles; central force; work and energy; linear and angular momentum; moments and products of inertia; vibrations and time response; engineering applications.

ENGR 245 Properties of Materials (4)
3 hours lecture - 3 hours laboratory
Prerequisite: *A minimum grade of 'C' in CHEM 110 and 110L*
Transfer acceptability: *CSU,UC*
Physical properties of engineering materials. Atomic, molecular, and crystal lattice characteristics. Relations between these and mechanical, thermal, electrical, corrosion, and radiation properties. Metallic, ceramic, polymer, and agglomerate materials. Selection, treatment, and use of materials.

ENGR 295 Directed Study in Engineering (1, 2, 3)
3, 6, or 9 hours laboratory
Prerequisite: *Approval of project or research by department chairperson*
Transfer acceptability: *CSU*
Designed for the student who has demonstrated a proficiency in engineering subjects and the initiative to work independently on a particular sustained project which does not fit into the context of regularly scheduled classes.

English (ENG)

Contact the English Department for further information.
(760) 744-1150, ext. 2392
Office: P-2

Associate in Arts Degrees -

AA Degree requirements are listed in Section 6 (green pages).
• English

PROGRAM OF STUDY

English

Focuses on the English language and literatures in English. Provides the background for students to succeed in diverse fields, such as advertising and marketing, teaching, journalism and telecommunications, law, technical writing, and business administration. Prepares students for upper division course work in English. For specific transfer requirements, the student should consult an academic counselor or the catalog for the school to which he or she wishes to transfer.

AA DEGREE MAJOR

Program Requirements		**Units**
ENG 205 and	Introduction to Literature	3
ENG 202 or	Critical Thinking /Composition	
ENG 203	Critical Thinking/Composition Through Literature	4

Literature Surveys (Select 9 Units) Of these nine units, students must take either a two-semester survey of British literature or a semester each of British and United States literature.

ENG 210	Survey of British Literature I	3
ENG 211	Survey of British Literature II	3
ENG 220	Survey of World Literature I	3
ENG 221	Survey of World Literature II	3
ENG 225	Literature of the United States I	3
ENG 226	Literature of the United States II	3

Elective Courses (Select 2 courses) Any of the above courses not previously taken or pick from the following:

ENG 135	Introduction to Creative Writing	4
ENG 136	Intermediate Creative Writing	4
ENG 137	The Literary Magazine: History/Production	4
ENG 215	Introduction to the British Novel	3
ENG 230	Introduction to the American Novel	3
ENG 240	Introduction to Classical Mythology	3
ENG 245	Survey of Biblical Literature	3
ENG 250	Introduction to Shakespeare	3
ENG 255	Literature and Ideas	3
ENG 260	Literature Through Film	3
ENG 265	Science Fiction	3
ENG 270	Popular Literature	3
ENG 280	Women and Literature	3
ENG 290	Comic Books as Literature	3
TOTAL UNITS		**22 - 24**

COURSE OFFERINGS

Any student wishing to earn an A.A. degree must complete ENG 100 with a grade of 'C' or better. The student must participate in the English placement process before enrolling in any English or English as a Second Language composition class except ENG 10 and 150. The eligibility will indicate whether the student may enroll in ENG 50 or ENG 100. Students whose first language is not English may find, however, that ESL instruction meets their needs better than immediate enrollment in ENG 10 or 50. Such students may take one or more ESL classes (ESL 101, 102, 103) instead; then by again participating in the English placement process, they may qualify for ENG 50 or ENG 100. Non resident international students may be required to take one or more classes of English as a Second Language. Students should sign up for English assessment as soon as possible because some students may take three or more semesters to finish the competence requirement in English. Please contact the Counseling Department for the English assessment schedule.

Courses numbered under 50 are non-degree courses.
Courses numbered under 100 are not intended for transfer credit.

ENG 10 English Essentials (4)
4 hours lecture
Note: *A grade of 'C' or better is required for eligibility for ENG 50*
Non-degree Applicable
Offers basic instruction in grammar, usage, mechanics, sentence structure, and paragraph and essay development.

ENG 50 Introductory Composition (4)
4 hours lecture
Recommended preparation: *Eligibility for or concurrent enrollment in READ 50*
Prerequisite: *ENG 10 or eligibility determined through the English placement process*
Note: *A grade of 'C' or better is required for eligibility for ENG 100*
A writing course for the student who wants to develop fundamental essay writing skills, acquire an A.A. degree, or enter a transfer program, but who needs further preparation in composition skills.

ENG 97 English Topics (1-4)
Units awarded in topics courses are dependent upon the number of lecture hours required of the student. Refer to Class Schedule.
Topics in English. See class schedule for specific topic covered. Course title will designate subject covered.

ENG 100 English Composition (4)
4 hours lecture
Prerequisite: *A minimum grade of 'C' in ENG 50 or eligibility determined through the English placement process*
Note: *May not be taken for Pass/No Pass grading*
Transfer acceptability: *CSU; UC*
Practice in expository and argumentative writing based on analytical reading and critical thinking. Topics include methods of invention, organization and development, principles of basic research, and the elements of style.