Astronomy

ASTR 4  Solar System Astronomy  5 Units
(Same general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Five hours lecture.
Analyze the physical principles, logic, and development of solar system astronomy from ancient times through the space age. Examine earth and sky relationships, exploration of the solar system by spacecraft and earth-based methods, similarities and differences between Earth and other planets, theories of the origin of the planetary system, and properties of other stars’ planetary systems. Includes multimedia planetarium demonstrations.

ASTR 10  Stellar Astronomy  5 Units
(Same general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Five hours lecture.
Analyze the physical principles, logic, and development of stellar astronomy from ancient times to the present, with emphasis on recent developments. Examine the relationship of earth to its deep-space environment and contrast the Sun to other types of stars. Synthesize the organization in space and time of the hierarchy of the cosmos from stellar systems through the universe on its largest observable scale, and investigate the observational strategies and equipment that are used to investigate it.

Astronomy

AUTO 50A  Introduction to Automotive Principles  4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 212), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Four hours lecture per week (equal to forty-eight hours lecture per quarter).
A selective study of the automobile’s engine systems. Knowledge and skills necessary for basic repair, maintenance, and troubleshooting of today’s engine systems. May be used to fulfill the prerequisite to the Automotive Technology Program.

AUTO 50B  Applied Automotive Principles  2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 212), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A (may be taken concurrently).
Four hours lecture/laboratory per week (equal to forty-eight hours lecture/laboratory per quarter).
Basic lecture/laboratory experiences in automotive repair and maintenance as related to the engine and its supporting systems.

AUTO 51A  Introduction to Automotive Principles - Chassis Systems  4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 212), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Four hours lecture per week (equal to forty-eight hours lecture per quarter).
A selective study of the automobile’s chassis and drive line systems. Knowledge and skills necessary for basic repair, maintenance, and troubleshooting of today’s chassis and drive line systems. Can be used to fulfill the prerequisite to the Automotive Technology Program.

AUTO 51B  Applications of Automotive Principles (Chassis Systems)  2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 212), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 51A (may be taken concurrently).
Four hours lecture/laboratory per week (equal to forty-eight hours lecture/laboratory per quarter).
Basic lecture/laboratory experiences in automotive repair and maintenance as related to: suspension, steering, braking and drive line components.

AUTO 53A  Automotive Mechanisms  3 Units
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 212), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Six hours lecture/laboratory per week (equal to seventy-two hours lecture/laboratory per quarter).
The application of physical principles to the operation of mechanical, hydraulic, and hydromechanical systems, using an applied physics technique.
AUTO 60E Automotive Fuel Injection 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A, 50B, 60, 60A, 60B, 60C, and 60D.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).

AUTO 60F No-Start Diagnosis 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A, 50B, 60, 60A, 60B, 60C, 60D and 60E.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).
Principles of troubleshooting procedures and techniques to analyze and repair of “no start” problems in the fuel, ignition, and electrical systems of an automobile. Preparation for Automotive Service Excellence (ASE) examination in Areas A6, A8, and L1.

AUTO 60G Advanced Scan Tool Diagnosis 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A, 50B, 60, 60A, 60B, 60C, 60D and 60E.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).

AUTO 60H Advanced Drivability and Onboard Diagnostics 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A, 50B, 60, 60A, 60B, 60C, 60D and 60E.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).

AUTO 60J Advanced Lab Scope and Waveform Diagnosis 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A, 50B, 60, 60C, 60D, 60E, 60F and 60G.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).
Diagnosis of automotive electronic systems using a laboratory oscilloscope and a power graphing meter. Related use of other basic test equipment, including a digital multimeter and scan tool. Advanced waveform analysis. Preparation for Automotive Service Excellence (ASE) examination in Areas A6, A8, and L1.

AUTO 60K Advanced Body Electrical 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 60A, 60B and 60G.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).

AUTO 60M Hybrid Electric Vehicles 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 60A, 60B and 60G.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).

AUTO 60N Hybrid Vehicle Safety and Maintenance 2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or 212 or equivalent; Automotive Technology 60A and 60B. Two hours lecture per week (equal to twenty-four hours lecture per quarter).
Exploring the use of hybrid electric power for vehicle transportation. Topics will include: safety, maintenance of hybrid propulsion and internal combustion systems, drivability, and storage battery technology. Various designs of hybrid vehicles and their integrated systems from multiple manufacturers will be discussed. This course also fulfills the Toyota Technician Education Network training requirement for the T-256 course. This course is suitable for students interested in alternative fuels or power and energy technology.

AUTO 61A Automotive Brake Systems 4 1/2 Units
(Formerly Automotive Technology 61.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).
Operation of automotive brake systems. Repair, maintenance and troubleshooting.

AUTO 61B Electronically Controlled Brake Systems 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 62A.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).
Computer controlled automotive brake systems, including service, maintenance, troubleshooting and repair procedures.

AUTO 62A Automotive Suspension, Steering, and Alignment 9 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Nine hours lecture per week (equal to one-hundred-eight hours lecture per quarter).
Operation of automotive suspension, steering and alignment systems. Overview of maintenance, repair and troubleshooting procedures.

AUTO 62B Advanced Wheel Alignment 9 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 62B.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).
Advanced study of wheel alignment systems. Emphasis is placed on diagnostic inspection and repair procedures.

AUTO 63 Automatic Transmissions and Transaxles 9 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Nine hours lecture per week (equal to one-hundred-eight hours lecture per quarter).

AUTO 63A Automotive Drive Train 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).

AUTO 63B Automatic Transmission 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).

All courses are for unit credit and apply to a De Anza associate’s degree unless otherwise noted.
AUTO 63C Automotive Transaxles 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Four and one-half hours lecture per week (equal to forty-four hours lecture per quarter).

AUTO 63D Transmission Diagnostic and Repair Techniques 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Four and one-half hours lecture per week (equal to forty-four hours lecture per quarter).
Diagnostic and repair techniques for automatic transmissions and transaxles. Emphasis on development of diagnostic procedures and repair techniques. Preparation for Automotive Service Excellence (ASE) certification examinations A2 and A3.

AUTO 64 Automotive Machining and Engine Repair 9 Units
(Formerly Automotive Technology 64A and 64B.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50B.
Nine hours lecture per week (equal to one-hundred-eight hours lecture per quarter).
Repair and rebuilding of engine cylinder heads and block components, engine assembly and testing. Includes theory, diagnosis, disassembly, cleaning, inspection and failure analysis. Preparation for Automotive Service Excellence (ASE) examinations for areas A1 and M1, M2, and M3.

AUTO 64HP High Performance Engine Preparation 9 Units
Prerequisite: Automotive Technology 64; or Automotive Technology 64A and 64B.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 50A and 50B.
Nine hours lecture per week (equal to one-hundred-eight hours lecture per quarter).
Precision and performance engine preparation. Includes selection and matching of engine and valve train components for maximum efficiency and output.

AUTO 65P Clean Air Car Course 7 Units
Prerequisite: Automotive Technology 60, 60B, and 60E, and one year of related automotive experience.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Seven hours lecture per week (equal to eighty-four hours lecture per quarter).
Review of automotive emissions control systems. Computer controlled fuel delivery systems, including diagnosis and repair of systems. Preparation for Automotive Service Excellence (ASE) certification examinations for areas A7, A9, and A10.

AUTO 65R California ASE Alternative Training A6 2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 60, 60A and 60B.
Two hours lecture per week (equal to twenty-four hours lecture per quarter).
Review of On-board Diagnostics Generation I (OBDI). Extensive coverage of On-board Diagnostics Generation II (OBDII) operating system, testing procedures and strategies. Preparation for Automotive Service Excellence (ASE) examination in areas A6, A8, L1, and Inspection and Maintenance (I&M) technician update requirements.

AUTO 65S California ASE Alternative Training A8 2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 60, 60A, 60B and 60C.
Two hours lecture per week (equal to twenty-four hours lecture per quarter).
An approved course by the Bureau of Automotive Repair (BAR) as an alternative to meet the ASE A8 certification prerequisites for obtaining a smog technician license.

AUTO 65V California ASE Alternative Training L1 2 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Service Excellence (ASE) Certification A6 and A8.
Two and one-half hours lecture per week (equal to thirty hours lecture per quarter).
Approved by the Bureau of Automotive Repair (BAR) as an alternative to meet the ASE L1 certification prerequisites for obtaining a smog technician license.

AUTO 65W Advanced Clean Air Car Course 2 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Service Excellence (ASE) Certification A6, A8 & L1.
Two and one-half hours lecture per week (equal to thirty hours lecture per quarter).
Automotive technician training program for California's Inspection and Maintenance Program (I & M Program). This course meets the Bureau of Automotive Repair (BAR) requirement for obtaining an Advanced Emissions Specialist (EA) Smog Check License.

AUTO 66 Automotive Air Conditioning 4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Automotive Technology 60.
Four and one-half hours lecture per week (equal to fifty-four hours lecture per quarter).
Operation and service of automotive air conditioning refrigeration and electrical control systems. Includes retrofitting. Emphasis on diagnosis and repair of systems. Preparation for Automotive Service Excellence (ASE) certification examination in area A7.

AUTO 69X Smog Check Update 1 Unit
One hour lecture for each unit of credit.
(Any combination of Automotive Technology 69X, 69Y, and 69Z may be taken up to six times for credit.)
A legally mandated course required by the California Bureau of Automotive Repair (BAR) to obtain a renewal Smog Check License every two years. This applies to all State Licensed Smog Check Technicians. The latest Smog Check Program changes and updates will be covered. The State Smog Check License renewal examination will be given at the end of the course. The unit value of the course will depend on the curriculum and hours of instruction specified by BAR for the current two year cycle.

AUTO 69Y Smog Check Update 1 1/2 Units
Two and one-half hours lecture per week (equal to thirty hours lecture per quarter).

AUTO 69Z Smog Check Update 2 Units
Three and one-half hours lecture per week (equal to forty-five hours lecture per quarter).

AUTO 69A Automotive Brake Systems 5 Units
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours lecture-laboratory per quarter).
Repair, maintenance and troubleshooting of automotive braking systems.

AUTO 91A Active Brake Systems 1 1/2 Units
Prerequisite: Automotive Technology 91A.
Three hours lecture-laboratory per week (equal to thirty-six hours lecture-laboratory per quarter).
Repair, maintenance and troubleshooting of automotive active/antilock brake systems.

AUTO 92A Automotive Steering and Suspension 5 Units
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours lecture-laboratory per quarter).
Repair, maintenance and troubleshooting of suspension and steering systems.

AUTO 92B Automotive Alignment 5 Units
Prerequisite: Automotive Technology 92A and an approved Automotive Technology Course Sequence Contract.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours lecture-laboratory per quarter).
Automotive alignment systems, including repair, maintenance and troubleshooting. Service and repair procedures.

AUTO 92C Automotive Electronic Chassis Controls 1 1/2 Units
Prerequisite: Automotive Technology 92B.
Three hours lecture-laboratory per week (equal to thirty-six hours lecture-laboratory per quarter).
Computer controlled automotive suspension and steering systems, including repair, maintenance, troubleshooting, and service procedures.

AUTO 92D Uni-Body Alignment 1 1/2 Units
Prerequisite: Automotive Technology 92C.
Three hours lecture-laboratory per week (equal to thirty-six hours lecture-laboratory per quarter).
Gauging, analyzing, repairing and alignment of uni-body systems.
AUTO 93C  Automatic Transmissions  5 Units
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Three hours lecture-laboratory per week (equal to thirty-six hours lecture-
laboratory per quarter).
Components of the final drive train including design features and service techniques.

AUTO 93B  Standard Transaxles  1 1/2 Units
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours
lecture-laboratory per quarter).
Reconditioning cylinder short block assemblies and components including balancing,
assembly and testing.

AUTO 93D  Automatic Transaxles  1 1/2 Units
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Three hours lecture-laboratory per week (equal to thirty-six hours lecture-
laboratory per quarter).
A detailed study of automatic transaxles. Power flow, service requirements and repair
procedures will be covered.

AUTO 93E  Diagnostic Techniques  1 Unit
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Two hours lecture-laboratory per week (equal to twenty-four hours lecture-
laboratory per quarter).
A detailed study of automatic transaxles. Power flow, service requirements and repair
procedures will be covered.

AUTO 93F  Automotive Transmission Service  5 Units
Prerequisite: Approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours
lecture-laboratory per quarter).
Operation of rear axles, transfer cases, clutches, automatic and standard
transmissions and transaxles. Diagnostic, inspection and repair procedures for
these powertrain components.

AUTO 94D  Automotive Machining and Engine Service  5 Units
Prerequisite: Automotive Technology 94C; approved Automotive Technology
Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours
lecture-laboratory per quarter).
Precision and performance engine preparation with emphasis on improvements in
volumetric efficiency. Includes selection and matching of components for maximum
efficiency within mandated emissions requirements.

AUTO 94E  Automotive Machining and Engine Service  5 Units
(Formerly Automotive Technology 94E.)
Prerequisite: Automotive Technology 94D.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours
lecture-laboratory per quarter).
Complete automotive machine shop practice including engine repair, assembly,
testing, and installation. Researching service and installation procedures and parts
and labor estimating.

AUTO 94F  Automotive Machining and Engine Service  5 Units
(Formerly Automotive Technology 94F.)
Prerequisite: Automotive Technology 94E.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Ten hours lecture-laboratory per week (equal to one-hundred-twenty hours
lecture-laboratory per quarter).
Practice and skill development with emphasis on precision and productivity in
rebuilding, servicing, and installing engines. Research and prepare equipment
operation and maintenance instructions.

AUTO 99A  Automotive Electricity, Battery,
and Cranking Systems  6 1/4 Units
Prerequisite: Automotive Technology 50B; approved Automotive Technology
Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory per week (equal to one-hundred-
fifty hours lecture-laboratory per quarter).
(May be taken up to three times for credit.)
Automotive electricity including the electron theory, fundamentals of circuit
construction and interpretation, principles of magnetism as applied to electric
motors, relays and coils. Diagnosis, troubleshooting and servicing of automotive
battery and cranking systems including system repair procedures. Developing skills
in the use of test equipment including the DVOM and electrical load testing tools
for the analysis and diagnosis of these types of electrical systems.

AUTO 99B  Automotive Charging, Ignition,
and Accessory Systems  6 1/4 Units
Prerequisite: Automotive Technology 99A; approved Automotive Technology
Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211),
or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory per week (equal to one-hundred-
fifty hours lecture-laboratory per quarter).
(May be taken up to three times for credit.)
The fundamentals of automotive electronic devices as they apply to the automotive
charging and ignition systems. Emphasis on diagnosis of these systems using test
instruments including the oscilloscope. Introduction to automotive accessory systems
including wiring and repair techniques. Skill development in the understanding of
the electrical wiring diagram networks as provided by manufacturers.
AUTO 99C Introduction to Engine Performance Systems 6 1/4 Units
Prerequisite: Automotive Technology 99B; approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory per week (equal to one-hundred-fifty hours lecture-laboratory per quarter).
(May be taken up to three times for credit.)
Electronically controlled automotive systems. Fundamentals of automotive microprocessors and automotive onboard computers. Testing techniques for system input and output devices. Diagnosis, troubleshooting, and repairing the automotive fuel supply system including carburetion and feedback carburetion. Diagnosis, troubleshooting, and repair techniques for no-start conditions. Procedure development for analyzing and repairing common problems of fuel, ignition, electrical and basic engine mechanical systems which effect engine performance of the automobile.

AUTO 99D Intermediate Engine Performance Systems 6 1/4 Units
Prerequisite: Automotive Technology 99C; approve Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory per week (equal to one-hundred-fifty hours lecture-laboratory per quarter).
(May be taken up to three times for credit.)
Electronically controlled engine performance systems. Diagnosing, troubleshooting, and repairing the automotive fuel-injection systems of domestic automobiles. Testing techniques for system input and output devices using automotive scanners and oscilloscopes.

AUTO 99E Basic Engine Performance Diagnostic Procedures 6 1/4 Units
Prerequisite: Automotive Technology 99D; approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory per week (equal to one-hundred-fifty hours lecture-laboratory per quarter).
(May be taken up to three times for credit.)
Automotive technician training program to include each system which aids in increasing fuel economy and in the reduction of emissions and pollutants from the automobile. Diagnosing and troubleshooting the systems controlling automotive performance and drivability.

AUTO 99F Intermediate Engine Performance Diagnostic Procedures 6 1/4 Units
Prerequisite: Automotive Technology 99E; approved Automotive Technology Course Sequence Contract.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory per week (equal to one-hundred-fifty hours lecture-laboratory per quarter).
(May be taken up to three times for credit.)
Performance tuning of automotive gasolene engines. Emphasis on reference material dealing with repair procedures, specifications, and efficient tune-up procedures. Intermediate level for usage of computer scanners and oscilloscopes. Diagnosing, troubleshooting, and repairing the systems designed for the control of engine temperature.

BIOL 5 Biology of Birds 5 Units
(Formerly Biology 57.)
(See general education pages for the requirement this course meets)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, three hours laboratory.
A general introduction to the biology of birds, including anatomy, physiology, ecology, evolution, behavior, conservation, distribution, and relationships between birds and people around the world.(Includes Saturday field trips.)

BIOL 6A Form and Function in the Biological World 6 Units
(See general education pages for the requirement this course meets)
Prerequisite: Satisfactory score on the Chemistry Placement Exam, or grade of C or better in either Chemistry 1A or 50.
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, six hours laboratory.
Introduction to biology and the scientific method for students beginning the biology majors' series. Study of the structure and physiological processes of living organisms, with an emphasis on plants and animals.

BIOL 6B Cell and Molecular Biology 6 Units
Prerequisite: Biology 6A.
Advisory: English Writing 1A or English as a Second Language 5; Mathematics 114 or equivalent.
Four hours lecture, six hours laboratory.
Introduction to cellular structure and function, biological molecules, bioenergetics, and molecular genetics, and cell proliferation. The laboratory includes extensive hands-on experimentation in molecular biology.

BIOL 6C Evolution and Ecology 6 Units
Prerequisite: Biology 6B.
Advisory: English Writing 1A or English as a Second Language 5; Mathematics 114 or equivalent.
Four hours lecture, six hours laboratory.
Principles of evolution and ecology. Includes evolution within populations, the origin of species and higher taxa, and ecology at the levels of populations, communities, and ecosystems. The laboratory portion of the course includes hands-on research and a detailed look at how biology is done.

BIOL 8 Biology of Women 4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture.
Designed for non-science majors to explore women's anatomical and physiological characteristics and their management for good health. The emphasis is on the biological processes and principles organizing a "typical" female life progression, with a secondary focus on the structural and functional dimorphism of human body systems. It also aims at recognizing components of the scientific process distorted in the historical view of women and the impact that societal and cultural biases have on behavior and on female health issues.

BIOL 10 Introductory Biology 5 Units
(Not open to students who have completed Biology 6A, 6B, 6C, or equivalent.)
(See general education pages for the requirement this course meets)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, three hours laboratory.
An introduction to biology as a branch of the biological sciences and to its basic unifying principles, with selected application to the scientific method, evolutionary concepts, genetic modification, biotechnology, ecology, ecological crises and human impacts.

BIOL 11 Human Biology 5 Units
(Not open to students who have completed Biology 6A, 6B or 6C, or equivalent; or Biology 40A, 40B or 40C, or equivalent.)
(See general education pages for the requirement this course meets)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, four hours laboratory.
A general introduction to biology and its principles, emphasizing the biology of humans. The course will cover the unifying principles of biology, with emphasis on the basic anatomy and physiology of the human body, as well as on common health issues and their impacts on cultural, ethnic and gender groups.

BIOL 13 Marine Biology 5 Units
(See general education pages for the requirement this course meets)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture, four hours laboratory.
An introduction to physical and chemical oceanography, marine animals, marine plants, and marine ecology with major emphasis on natural history of marine life. Bays, estuaries and open oceans are described as habitats. Marine biology as a branch of the biological sciences, employs the scientific method.(Includes two Saturday field trips.)

BIOL 15 California Ecology 5 Units
(See general education pages for the requirement this course meets)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture, three hours laboratory.
An introduction to ecology and field biology as a branch of the biological sciences and its relationship to the scientific method. Review of plants and animal adaptations to their natural environments and the impact of pollution, degradation of habitat, and human population, on life.

BIOL 26 Introductory Microbiology 6 Units
Prerequisite: Biology 40A, 40B and 40C, or equivalent, with a grade of C or better.
Four hours lecture, six hours laboratory.
Introduction to the sciences and the scientific method as exemplified by the study of microbiology. Morphology, metabolism, growth and genetics of bacteria and other microorganisms; chemical and physical means of control; the disease process and immunity. The importance of microorganisms to mankind; techniques and methods of microbiology.
BIOL 40A  Human Anatomy and Physiology  5 Units  
Prerequisite: Satisfactory score on the Biology 40A Placement Test or Chemistry 1A or Chemistry 50 or Chemistry 30A with a grade of C or better.  
Advisory: English Writing 1A or English as a Second Language 5.  
Four hours lecture, three hours laboratory.  
An introduction to the disciplines of anatomy and physiology. Basic principles of human anatomy and physiology as exemplified in the study of cell chemistry, cell biology, histology and the integumentary, skeletal and muscular systems with emphasis on homeostatic mechanisms.

BIOL 40B  Human Anatomy and Physiology  5 Units  
Prerequisite: Biology 40A with a grade of C or better.  
Four hours lecture, three hours laboratory.  
Study of the nervous, circulatory, and respiratory systems.

BIOL 40C  Human Anatomy and Physiology  5 Units  
Prerequisite: Biology 40B with a grade of C or better.  
Four hours lecture, three hours laboratory.  
Study of the endocrine system, lymphatic system, digestive system, metabolism, uriniferous and reproductive systems, embryological development and classical Mendelian and modern biochemical genetics including genetic engineering.

BIOL 45  Introduction to Human Nutrition  4 Units  
Prerequisite: Biology 40A, 40B and 40C, or equivalent, with a grade of C or better.  
Advisory: English Writing 1A or English as a Second Language 5.  
Four hours lecture.  
Biological function and chemical classification of nutrients. Effects of nutritional deficiencies and excesses. Recommended nutrient intakes and the role of diet in the development of chronic disease.

BIOL 54G  Applied Human Anatomy and Physiology: Levels of Organization  1 1/2 Units  
Not open to students with credit in Biology 6A, 6B or 6C; or 40A, 40B or 40C; or equivalent.  
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.  
One hour lecture, one and one-half hours laboratory.  
Survey of human anatomy and physiology with emphasis on homeostatic limits of the human body. Topics to be discussed include basic introduction and body organization, chemical basis of life, the cell and its metabolism, tissues, and the skin. (Especially designed for students planning careers in medical assisting, Licensed Vocational Nursing, education, speech, home economics, psychology, physical education and/or recreation.)

BIOL 54H  Applied Human Anatomy and Physiology: Support, Movement, and Integration  1 1/2 Units  
Not open to students with credit in Biology 6A, 6B or 6C; or 40A, 40B or 40C; or equivalent.  
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.  
One hour lecture, one and one-half hours laboratory.  
Survey of human anatomy and physiology with emphasis on homeostatic limits of the human body. The skeletal, muscular and nervous systems including somatic and special senses. (Especially designed for students planning careers in medical assisting, Licensed Vocational Nursing, education, speech, home economics, psychology, physical education and/or recreation.)

BIOL 54I  Applied Human Anatomy and Physiology: Coordination and Transport  1 1/2 Units  
Not open to students with credit in Biology 6A, 6B or 6C; or 40A, 40B or 40C; or equivalent.  
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.  
One hour lecture, one and one-half hours laboratory.  
Survey of human anatomy and physiology with emphasis on homeostatic limits of the human body. The endocrine, cardiovascular, and lymphatic systems and the blood. (Especially designed for students planning careers in medical assisting, Licensed Vocational Nursing, education, speech, home economics, psychology, physical education and/or recreation.)

BIOL 54J  Applied Human Anatomy and Physiology: Absorption, Excretion, and Reproduction  1 1/2 Units  
Not open to students with credit in Biology 6A, 6B or 6C; or 40A, 40B or 40C; or equivalent.  
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.  
One hour lecture, one and one-half hours laboratory.  
Survey of human anatomy and physiology with emphasis on homeostatic limits of the human body. The respiratory, urinary, reproductive, and digestive systems, water and electrolyte balance, nutrition and pregnancy. (Especially designed for students planning careers in medical assisting, Licensed Vocational Nursing, education, speech, home economics, psychology, physical education and/or recreation.)

BIOL 77  Special Projects in Biology  1 Unit  
BIOL 77X  2 Units  
BIOL 77Y  3 Units  
(Formerly Biology 49, 49X and 49Y respectively.)  
Prerequisite: Consent of instructor and division dean.  
Three hours laboratory for each unit of credit.  
(Any combination of Biology 77, 77X and 77Y may be taken up to six times, not to exceed 18 units, as long as the projects are different each time.)  
Individual research in the biological sciences. Specific projects determined on consultation with the instructor. Outside reading and written report required.

BUS 10  Introduction to Business  5 Units  
(Formerly Business 20.)  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Five hours lecture.  
An overview of the business disciplines, including a brief introduction to marketing, accounting, finance, management, human resources, information technologies, economics, international business, business planning, and the role of business in society.

BUS 16  Business Law I  5 Units  
Advisory: English Writing 1A or English as a Second Language 5; Business 10.  
(Also listed as Paralegal 18. Student may enroll in either department, but not both, for credit.)  
Five hours lecture.  
The American legal system and laws applicable to business emphasizing contract, sales and agency laws, the impact of the legal system on business, and ethical considerations in the business environment.

BUS 21  Business and Society  5 Units  
(See general education pages for the requirement this course meets.)  
Advisory: English Writing 1A or English as a Second Language 5; Economics 2.  
Five hours lecture.  
An introduction to the study of the interactions and interdependencies between business, government, and society. Course will examine many individual cases of conflict between business and society, both current and historical, and will guide students to explore the lessons these cases hold for all current and future business managers.

BUS 51  Customer Service  4 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Four hours lecture.  
Developing effectiveness in customer service situations and understanding the complex challenges of effective customer service. Adapting customer service techniques to build long term, successful customer relationships in a culturally diverse world.

BUS 51A  Customer Service - Module 1  1 Unit  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
One hour lecture.  
Developing effectiveness in customer service situations and understanding the complex challenges of effective customer service. Adapting customer service techniques to build long term, successful customer relationships in a culturally diverse world.
BUS 51B Customer Service - Module 2 1 Unit
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
One hour lecture.
Developing effectiveness in customer service situations and understanding the complex challenges of effective customer service. Adapting customer service techniques to build long term, successful customer relationships in a culturally diverse world.

BUS 51C Customer Service - Module 3 1 Unit
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
One hour lecture.
Developing effectiveness in customer service situations and understanding the complex challenges of effective customer service. Adapting customer service techniques to build long term, successful customer relationships in a culturally diverse world.

BUS 51D Customer Service - Module 4 1 Unit
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
One hour lecture.
Developing effectiveness in customer service situations and understanding the complex challenges of effective customer service. Adapting customer service techniques to build long term, successful customer relationships in a culturally diverse world.

BUS 52 Supervision in the Public Sector 5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture.
A comprehensive study of the vital aspects of Supervision in the Public Sector with a focus on practical advice in how to handle real-life, on the job situations. Effectively performing supervisory duties in a culturally diverse society.

BUS 54 Business Mathematics 5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Five hours lecture.
Basic mathematical operations and concepts as related to business and personal finance.

BUS 55 Introduction to Entrepreneurship 5 Units
(Formerly Small Business 96A.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture.
A practical study of the operations and essential skills required in small and start-up businesses. Emphasis on the opportunities and problems faced by entrepreneurs in meeting competition, purchasing, selling, staffing and financing an independent business. This course will prepare students for developing business plans.

BUS 56 Human Relations in Business 5 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Five hours lecture.
Human relations behavior in business organizations emphasizing personal and interpersonal relationships; developing leadership for business success; future trends.

BUS 57 Human Resource Management 4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent; Business 10 or 96A.
Four hours lecture.
Personnel administration: recruitment, selection, placement, development, and maintenance of the work force to meet individual, organizational diversity, and societal objectives.

BUS 58 The Business Plan 3 Units
(Formerly Small Business 95F.)
Advisory: Business 55.
Three hours lecture.
Effectively organize the resources required to establish a new business and obtain financing by writing an analysis of the prospective business enterprise.

BUS 59 Promoting Your Small Business 5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture.
Affordable methods of promotion for small businesses. Emphasis on Internet marketing, public relations, relationship marketing, database marketing, and guerrilla marketing tactics. A promotion plan for the students’ (existing or planned) businesses will be developed.

BUS 60 International Business Management 5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Five hours lecture.
International Business and its functions in a diverse global economy. Understanding cross-border trade and investment; distance, time zone and language issues; national differences in government regulation, culture and business systems.

BUS 61 Introduction to Technical Writing 5 Units
Prerequisite: English Writing 1A or English as a Second Language 5.
(Also listed as English Writing 61 and Technical Writing 61. Student may enroll in only one department for credit.)
Five hours lecture.
Technical writing skills focusing on basic techniques of exposition for the technical field, functional description, process writing, technical vocabulary, correct usage, and accurate editing.

BUS 62 Survey of Technical Writing 5 Units
Prerequisite: Business 61 or English Writing 61 or Technical Writing 61 (may be taken concurrently).
(Also listed as English Writing 62 and Technical Writing 62. Student may enroll in only one department for credit.)
Five hours lecture.
Technical writing skills focusing on short document formats, production of sections of various technical documents, and incorporation of graphics within text.

BUS 63 Technical Publications 5 Units
Prerequisite: Business 61 or English Writing 61 or Technical Writing 61.
(Also listed English Writing 63 and Technical Writing 63. Student may enroll in only one department for credit.)
Five hours lecture.
Technical writing and editing skills applied through individual and group assignments with emphasis on planning, scheduling, and producing longer reports, manuals, and instructions. Development of organizational skills and individual documentation solutions.

BUS 64 Technical Writing Seminar 5 Units
Prerequisite: Business 62 or 63; or English Writing 62 or 63; or Technical Writing 62 or 63.
(Also listed as English Writing 64 and Technical Writing 64. Student may enroll in only one department for credit.)
Five hours lecture.
Technical communication and editing skills applied through the preparation and presentation of a complete document according to the standards of the student's chosen technical field.

BUS 65 Leadership 5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture.
Developing effectiveness in leadership situations and understanding the complex challenges of leadership. Adapting leadership techniques to build successful relationships in a culturally diverse world.

BUS 67A Federal Income Tax 4 Units
(Formerly Business 67.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; Accounting 1A or 60 (may be taken concurrently).
(Also listed as Accounting 67A. Student may enroll in either department, but not both, for credit.)
Four hours lecture.
A study of current federal income tax law and the procedures for preparing an individual's tax return.

BUS 67B Advanced Individual Income Tax: California Emphasis 4 Units
(Formerly Business 68A.)
Prerequisite: Accounting 67A or Business 67A.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Accounting 1A or 60.
(Also listed as Accounting 67B. Student may enroll in either department, but not both, for credit.)
Four hours lecture.
Advanced study of current federal income tax law and California income tax law as it relates to individuals.

BUS 69 Investment Fundamentals 4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Four hours lecture.
Introduction to securities investment; securities characteristics and rights; selection and purchase of stock; analysis of financial statements; investment methods; technical market and stock analysis; impact on financial planning.
BUS 70  Principles of E-Business  5 Units
Five hours lecture.
Theory and practice of effectively conducting and managing business over the Internet. Insights into e-business models, strategy, technology, auctions, and marketing. Students are expected to complete computer assignments.

BUS 80  Effective Organizational Communication  4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
(Also listed as Speech 70. Student may enroll in either department, but not both, for credit.)
Four hours lecture.
A study of organizational communication concepts and theories. Impact of networks, superiors, subordinate and message patterns, team building, climate, cultural and gender influences, communication technology, ethics, and globalization on organizational effectiveness. Emphasizes development of communication skills useful for working productively in a dynamic, collaborative, multicultural work environment.

BUS 85  Business Communication  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Computer Applications and Office Systems 84A and 84B.
Three hours lecture.
Application of writing skills to business communications; public relations functions of business correspondence.

BUS 87  Introduction to Selling  4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Four hours lecture.
Application of business and behavioral sciences in a selling environment. Building successful relationships in a culturally diverse world.

BUS 88  Managing Technology Projects  4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
(Also listed as Computer Information Systems 79. Student may enroll in either department, but not both, for credit.)
Four hours lecture, one and one-half hours laboratory.
Introduction to the theory and practice of the design and management of technology projects including planning, performing, and monitoring of projects. Subjects explored are estimating costs and schedules, analyzing client expectations, guiding diverse groups of people toward a common goal, while earning a profit. Use of common software packages for project management.

BUS 89  Advertising  5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture.
Historical, economic, and social aspects of advertising; role of the advertising agency; media alternatives and the development of creative advertising copy; development of advertising budgets; analysis of successful advertising campaigns.

BUS 90  Principles of Marketing  5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture.
Fundamentals of marketing: product planning and development; pricing strategies; marketing channels.

BUS 91  Introduction to Personal Finance  3 Units
Three hours lecture.
Students are introduced to a range of personal financial planning fundamentals including spending habits, taxes, saving, investing, and insurance. Discussion will include planning for major life events such as paying for college, buying a home, and retiring comfortably.

BUS 92  Estate Planning and Taxation  4 Units
(Also listed as Accounting 92. Student may enroll in either department, but not both, for credit.)
Four hours lecture.
Introduction to a range of estate planning tools and processes including probate, wills, trusts, gifts and living wills. Common estate planning strategies with an emphasis on gift, estate and income tax planning are reviewed. Planning for common family circumstances is also reviewed.

BUS 93  Consumer Behavior  3 Units
Advisory: Business 90.
Three hours lecture.
Examination of the central economic and social roles consumers play in developed market economies. From a marketing perspective, the course analyzes: 1) how consumers judge and choose from the variety of products and services offered in competitive markets, 2) the factors that influence shopping and buying, and 3) how people use, enjoy (or not) and dispose of their purchases.

BUS 95A  Project Management - A Practicum  5 Units
Prerequisite: Business 10 or equivalent experience.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
(Also listed as Computer Information Systems 95A. Student may enroll in either department, but not both, for credit.)
Five hours lecture.
Focus on your role as a Project Manager; selecting a project; selecting a team; documentation and tracking of a project using Project Manager Book of Knowledge (PMBOK) Theory.

BUS 96A  Principles of Management  5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture.
Roles, functions, and responsibilities of management; the external environments and their impact on management.

BUS 97  Topics in Business  1/2 Unit

BUS 97W  1 Unit

BUS 97X  2 Units

BUS 97Y  3 Units

BUS 97Z  4 Units
Credit course - Does not apply to De Anza Associate degree.
Prerequisite: Background or experience in business appropriate to topic, or consent of instructor.
One hour lecture for each unit of credit.
(Any combination of Business 97, 97W, 97X, 97Y and 97Z may be taken up to six times, not to exceed 18 units, as long as the topics are different each time.)
A planned program of exposure to actual business practices designed to broaden students' perspective. Concepts and theories as applied to the specific topic.

BUS 98U-Z  6 Units
BUS 98Y  5 Units
BUS 98W  3 Units
BUS 98X  4 Units
BUS 98Y  5 Units
BUS 98Z  6 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
(Also listed as Accounting 98U-Z, Computer Applications and Office Systems 98U-Z, and Computer Information Systems 98U-Z. Student may enroll in only one department for credit.)
Four hours laboratory per unit of supervised internship in an authorized office or agency.
(Any combination of Accounting 98U-Z, Business 98U-Z, Computer Applications and Office Systems 98U-Z, and Computer Information Systems 98U-Z may be taken up to six times, not to exceed 18 units, for credit. During each internship, students will be placed at different employer locations, different working environments, and/or given different assignments within the same company or department--thus providing the students with various opportunities to learn different skills. Students may repeat the same internship location and working environment if the student, employer, and instructor believe it would provide the student with increased work experience.)
Off-campus supervised experiential education/internship for Business/Computer Systems Division students in research or business office environments related to student's major. Practical application of knowledge, skills and abilities acquired in student's major. Opportunity for additional hands-on training. Exposure to varied corporate, state and federal protocols, methodologies and practices in a professional environment.

CAD and Digital Imaging

CDI 51  Geometric Dimensioning and Tolerancing  2 Units
(Formerly CAD and Digital Imaging 51C.)
Four hours lecture/laboratory.
Geometric dimensioning and tolerancing, utilizing ANSI Y 14.5M Standards as they apply to engineering and manufacturing drawings and machining.

CDI 56  Special Projects in CAD  1 Unit
CDI 56X  2 Units
CDI 56Y  3 Units
Prerequisite: Approved Special Projects Contract and appropriate technical background to support the completion of project objectives.
Three hours laboratory for each unit of credit.
(Any combination of CAD and Digital Imaging 56, 56X and 56Y may be taken up to six times, not to exceed 18 units, as long as the projects are different each time.)
Projects advancing student's knowledge and experience in a selected area of CAD.

All courses are for unit credit and apply to a De Anza associate's degree unless otherwise noted.
CDI 57B Simultaneous Product Development 4 Units
Eight hours lecture-laboratory.
Product design using 3D CAD software. Application of simultaneous product development and design.

CDI 58B Unigraphics NX (Beginning) 4 Units
Eight hours lecture-laboratory.
Fundamentals of computer-aided design and drafting using Unigraphics software. Application of Unigraphics in creating manufacturing models.

CDI 59B Unigraphics (Update) 4 Units
Eight hours lecture-laboratory.
Principles and application changes in the Unigraphics software and system. Designed to upgrade users to the latest version yearly.

CDI 60C SolidWorks (Beginning) 4 Units
Eight hours lecture-laboratory.
Fundamentals of computer-aided design and drafting using SolidWorks software. Application of SolidWorks in creating manufacturing models.

CDI 60D SolidWorks (Beginning) 4 Units
Eight hours lecture-laboratory.
Fundamentals of computer-aided design and drafting using SolidWorks software. Application of SolidWorks in creating manufacturing models.

CDI 61C SolidWorks (Intermediate) 4 Units
Prerequisite: CAD and Digital Imaging 60C.
Eight hours lecture-laboratory.
Intermediate-level application of SolidWorks in creating solid models and drawings. Introduction to surface features and basic surface modeling techniques.

CDI 61D SolidWorks (Intermediate) 4 Units
Prerequisite: CAD and Digital Imaging 60D.
Eight hours lecture-laboratory.
Advanced CAD modeling techniques using SolidWorks. Emphasis is on surface modeling and “top-down” design.

CDI 62C SolidWorks (Advanced) 4 Units
Prerequisite: CAD and Digital Imaging 61C.
Eight hours lecture-laboratory.
Advanced CAD modeling techniques using SolidWorks. Emphasis is on surface modeling and “top-down” design.

CDI 62D SolidWorks (Advanced) 4 Units
Prerequisite: CAD and Digital Imaging 61D.
Eight hours lecture-laboratory.
Advanced CAD modeling techniques using SolidWorks. Emphasis is on surface modeling and “top-down” design.

CDI 63A SolidWorks (SURFACES) 4 Units
Eight hours lecture-laboratory.
Surface design using SolidWorks software. Application of surfaces in creating product models and molds for industry.

CDI 63D SolidWorks (PDMWorks) 4 Units
Four hours lecture-laboratory.
Product data management using PDMWorks software. Application of PDM for controlling and manipulating design files. PDMWorks is a CAD data management solution that captures file revision histories. Product design teams use this program to access files, determine project status, and observe modification history of engineering projects.

CDI 67D SolidWorks (CosmosWorks) 4 Units
Eight hours lecture-laboratory.
Application of CosmosWorks to SolidWorks to validate and optimize 3D models by measuring stress and displacement distributions of new designs through simulating responses to structural and thermal loads.

CDI 69C SolidWorks (Update) 4 Units
Eight hours lecture-laboratory.
Principles and application changes in the SolidWorks software and system. Designed to upgrade users to the latest version yearly.

CDI 69D SolidWorks (Update) 4 Units
Eight hours lecture-laboratory.
Principles and application changes in the SolidWorks software and system. Designed to upgrade users to the latest version yearly.

CDI 70C Pro/ENGINEER Wildfire 4.0 (Beginning) 4 Units
Eight hours lecture-laboratory.
Fundamentals of part design, using Pro/ENGINEER. Application of operating system, software, hardware, and peripherals in creating 3-D manufacturing models with Pro/ENGINEER.

CDI 70D Pro/ENGINEER Wildfire 5.0 (Beginning) 4 Units
Eight hours lecture-laboratory.
Fundamentals of part design, using Pro/ENGINEER. Application of operating system, software, hardware, and peripherals in creating 3-D manufacturing models with Pro/ENGINEER.

CDI 71C Pro/ENGINEER Wildfire 4.0 (Intermediate) 4 Units
Prerequisite: CAD and Digital Imaging 70C.
Eight hours lecture-laboratory.
Assembly creation and drawing output using Pro/ENGINEER.

CDI 71D Pro/ENGINEER Wildfire 5.0 (Intermediate) 4 Units
Prerequisite: CAD and Digital Imaging 70D.
Eight hours lecture-laboratory.
Assembly creation and drawing output using Pro/ENGINEER.

CDI 72C Pro/ENGINEER Wildfire 4.0 (Advanced) 4 Units
Prerequisite: CAD and Digital Imaging 71C.
Eight hours lecture-laboratory.
Advanced CAD using Pro/ENGINEER including fixture design, and manufacturing using Pro/NC, and Expert Machinist.

CDI 72D Pro/ENGINEER Wildfire 5.0 (Advanced) 4 Units
Prerequisite: CAD and Digital Imaging 71D.
Eight hours lecture-laboratory.
Advanced CAD using Pro/ENGINEER including fixture design, and manufacturing using Pro/NC, and Expert Machinist.

CDI 73C Pro/ENGINEER Wildfire 4.0 (Pro/SURFACES) 4 Units
Prerequisite: CAD and Digital Imaging 70C.
Eight hours lecture-laboratory.
Principles of sheet metal design using Pro/ENGINEER Pro/SURFACES.

CDI 73D Pro/ENGINEER Wildfire 5.0 (Pro/SURFACES) 4 Units
Prerequisite: CAD and Digital Imaging 71D.
Eight hours lecture-laboratory.
Principles of sheet metal design using Pro/ENGINEER Pro/SURFACES.

CDI 74C Pro/ENGINEER Wildfire 4.0 (Pro/SHEETMETAL) 4 Units
Prerequisite: CAD and Digital Imaging 71C.
Eight hours lecture-laboratory.
Surface design using Pro/ENGINEER software. Application of Surfaces in creating product models for industry.

CDI 74D Pro/ENGINEER Wildfire 5.0 (Pro/SHEETMETAL) 4 Units
Prerequisite: CAD and Digital Imaging 71D.
Eight hours lecture-laboratory.
Surface design using Pro/ENGINEER software. Application of Surfaces in creating product models for industry.

CDI 75C Pro/ENGINEER Wildfire 4.0 (Pro/MOLD) 4 Units
Prerequisite: CAD and Digital Imaging 71C.
Eight hours lecture-laboratory.
Pro/MOLD design using Pro/ENGINEER software. Application of Pro/MOLD in creating manufacturing models.

CDI 75D Pro/ENGINEER Wildfire 5.0 (Pro/MOLD) 4 Units
Prerequisite: CAD and Digital Imaging 71D.
Eight hours lecture-laboratory.
Pro/MOLD design using Pro/ENGINEER software. Application of Pro/MOLD in creating manufacturing models.

CDI 76C Pro/ENGINEER Wildfire 4.0 (Pro/CABLE) 4 Units
Prerequisite: CAD and Digital Imaging 71C.
Eight hours lecture-laboratory.

CDI 76D Pro/ENGINEER Wildfire 5.0 (Pro/CABLE) 4 Units
Prerequisite: CAD and Digital Imaging 71D.
Eight hours lecture-laboratory.

CDI 77C Pro/ENGINEER Wildfire 4.0 (Pro/MECHANICA) 4 Units
Prerequisite: CAD and Digital Imaging 71C.
Eight hours lecture-laboratory.
Application of Pro/MECHANICA to validate and optimize 3D models by measuring stress and displacement distributions of new designs through simulating responses to structural loads.
CDI 100Z  2 Units
CDI 100Y  1 1/2 Units
CDI 100X  1 Unit

Application assignments.
Pass-No Pass (P-NP) course.
Taken up to six times for credit.
Any combination of CAD and Digital Imaging 100, 100X, 100Y and 100Z may be taken up to six times for credit.
Pass-No Pass (P-NP) course.
Use of CAD Technology labs for those who need/desire more time to complete application assignments.

CDI 112A Digital Imaging Software (Photoshop)  4 Units
(Students may receive credit for either Computer Applications and Office Systems 112A (or 112I and 112Q); Arts 112A (or 112I and 112Q); or CAD and Digital Imaging 112A (or 112I and 112Q).)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 90GA.
(Also listed as Arts112A and Computer Applications and Office Systems 112A. Student may enroll in only one department for credit.)
Eight hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles using digital imaging software to produce graphics for Web sites. Introduction to digital imaging terminology and software. This course is for the content person to produce Web pages using digital images.

CDI 112I Digital Imaging Software I (Photoshop)  2 Units
(Students may receive credit for either Computer Applications and Office Systems 112A (or 112I and 112Q); Arts 112A (or 112I and 112Q); or CAD and Digital Imaging 112A (or 112I and 112Q).)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 90GA.
(Also listed as Arts 112I and Computer Applications and Office Systems 112I. Student may enroll in only one department for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic principles of using digital imaging software to produce graphics for Web sites. Introduction to digital imaging terminology and software. This course is for the content person to produce Web pages using digital images.

CDI 112Q Digital Imaging Software II (Photoshop)  2 Units
(Students may receive credit for either Computer Applications and Office Systems 112A (or 112I and 112Q); Arts 112A (or 112I and 112Q); or CAD and Digital Imaging 112A (or 112I and 112Q).)
Prerequisite: Arts 112I or CAD and Digital Imaging 112I or Computer Applications and Office Systems 112I.
(Also listed as Arts 112Q and Computer Applications and Office Systems 112Q. Student may enroll in only one department for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles of using digital imaging software to produce graphics for Web sites. Introduction to digital imaging terminology and software. This course is for the content person to produce Web pages using digital images.

CDI 114A Web Graphics/Animation Software (Flash)  3 Units
(Students may receive credit for either Computer Applications and Office Systems 114A (or 114I and 114Q); or Arts 114A (or 114I and 114Q); or CAD and Digital Imaging 114A.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 112A (or 112I and 112Q); Arts 112A (or 112I and 112Q); or CAD and Digital Imaging 112A (or 112I and 112Q).
(Also listed as Arts 112A and Computer Applications and Office Systems 112A. Student may enroll in only one department for credit.)
Six hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles of graphics/animation for the Web. Web graphics/animation terminology and software. This course is for the content person to build a Web site.

CDI 116A Web Development Graphics Software (Illustrator)  4 Units
(Students may receive credit for either Computer Applications and Office Systems 116A (or 116I and 116Q); or Arts 116A (or 116I and 116Q); or CAD and Digital Imaging 116A.)
Prerequisite: Computer Applications and Office Systems 112A (or 112I and 112Q); or Arts 112A (or 112I and 112Q); or CAD and Digital Imaging 112A (or 112I and 112Q).
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
(Also listed as Arts 116A and Computer Applications and Office Systems 116A. Student may enroll in only one department for credit.)
Eight hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles of using vector-based graphics software to produce graphics for Web sites. Introduction to vector-based graphics terminology and software. This course is for the content person to produce vector graphic images.
CDI 117A Advanced Digital Imaging Software (Photoshop) 3 Units
Prerequisite: Computer Applications and Office Systems 112A, or Arts 112A, or CAD and Digital Imaging 112A.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 900A.
(Also listed as Arts 117A and Computer Applications and Office Systems 117A. Student may enroll in only one department for credit.)
Six hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Advanced principles and techniques of using digital imaging software to produce graphics for Web sites and printed media. Integration of digital imaging software with Web authoring software. This course is for the content person wishing to produce digital images for Web pages and print media.

CDI 118A Advanced Web Graphics/ Animation Software (Flash) 3 Units
Prerequisite: Computer Applications and Office Systems 114A, or Arts 114A, or CAD and Digital Imaging 114A.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 900A.
(Also listed as Arts 118A and Computer Applications and Office Systems 118A. Student may enroll in only one department for credit.)
Six hours lecture-laboratory.
Pass-No Pass (P-NP) course.
An advanced Flash course that is projects and portfolio based and taught from a designer perspective. Students will be taught how to build a portfolio and animated multimedia presentations. Basic programming skills will be taught along with developing interactive Web-based multimedia presentations using ActionScripts, sound and graphics.

CANTONESE

CANT 1 Elementary Cantonese (First Quarter) 5 Units (See general education pages for the requirement this course meets.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Five hours lecture, one hour laboratory.
Cantonese language and culture of Southeast China in the region of Guandung Province is presented and studied. Basic speaking, listening, reading and writing of Cantonese will be introduced within a cultural context. Emphasis will be on language as an expression of culture. Language laboratory practice will be a part of the regular instruction to reinforce pronunciation, grammar, syntax and conversation.

CANT 2 Elementary Cantonese (Second Quarter) 5 Units (See general education pages for the requirement this course meets.)
Prerequisite: Cantonese 1.
Five hours lecture, one hour laboratory.
Presentation and study of Cantonese language and culture of Guandung Province. Basic speaking, listening, reading and writing of Cantonese will be introduced within a cultural context. Emphasis will be on language as an expression of culture. Language laboratory practice will be a part of the regular instruction to reinforce pronunciation, grammar, syntax and conversation. Further development of material is presented in Cantonese 1.

CANT 3 Elementary Cantonese (Third Quarter) 5 Units (See general education pages for the requirement this course meets.)
Prerequisite: Cantonese 2.
Five hours lecture, one hour laboratory.
Presentation and study of Cantonese language and culture of Guandung Province. Basic speaking, listening, reading and writing of Cantonese will be introduced within a cultural context. Emphasis will be on language as an expression of culture. Language laboratory practice will be a part of the regular instruction to reinforce pronunciation, grammar, syntax and conversation. Further development of material is presented in Cantonese 2.

CANT 60A Cantonese - Introductory Conversation (First Quarter) 3 Units
Three hours lecture.
An introduction to the language and cultures of Cantonese-speaking communities. Spoken Cantonese will be introduced with focus on pronunciation and vocabulary, in connection with elements of Chinese and Cantonese culture necessary to understand the language. Intensive drills in the patterns and idioms of daily speech will be supported by sufficient grammar to give flexibility in the spoken language.

CANT 60B Cantonese - Introductory Conversation (Second Quarter) 3 Units
Prerequisite: Cantonese 60A or equivalent.
Three hours lecture.
The next course in the introductory conversation Cantonese sequence, following Cantonese 60A. Continues the introduction to the language and culture of Cantonese-speaking communities. The vocabulary and grammatical structures mastered in Cantonese 60A will be consolidated and further developed, in conjunction with elements of Chinese and Cantonese culture. Emphasis will be on practical communication for everyday use, particularly conversational fluency.

CANT 60C Cantonese - Introductory Conversation (Third Quarter) 3 Units
Prerequisite: Cantonese 60B or equivalent.
Three hours lecture.
The next course in the introductory conversation Cantonese sequence, following Cantonese 60B. Continues the introduction to the language and culture of Cantonese-speaking communities. The vocabulary and grammatical structures mastered in Cantonese 60B will be consolidated and further developed, in conjunction with elements of Chinese and Cantonese culture. Focus will be on speaking and comprehension proficiency.

CANT 61A Cantonese - Intermediate Conversation (First Quarter) 3 Units
Prerequisite: Cantonese 60C or equivalent.
Three hours lecture.
The first course in the intermediate conversation Cantonese sequence, following Cantonese 60C. Continues the introduction to the language and culture of Cantonese-speaking communities in the world. The vocabulary and grammatical structures mastered in Cantonese 61A will be consolidated and further developed, in conjunction with elements of Chinese and Cantonese culture and history to be discussed in class. Elements of Chinese for business are further introduced such as meeting discussions.

CANT 61B Cantonese - Intermediate Conversation (Second Quarter) 3 Units
Prerequisite: Cantonese 61A or equivalent.
Three hours lecture.
The high intermediate level of conversation, following Cantonese 61B. Continues the introduction to the language and culture of Cantonese-speaking communities in the world. The vocabulary and grammatical structures mastered in Cantonese 61B will be consolidated and further developed, in conjunction with elements of Chinese and Cantonese culture and history. Current events from newspaper/media will be discussed and elements of Chinese for business are further introduced such as every day commercial transactions.

CANT 61C Cantonese - Intermediate Conversation (Third Quarter) 3 Units
Prerequisite: Cantonese 61B or equivalent.
Three hours lecture.
The high intermediate level of conversation, following Cantonese 61C. Continues the introduction to the language and culture of Cantonese-speaking communities in the world. The vocabulary and grammatical structures mastered in Cantonese 61C will be consolidated and further developed, in conjunction with elements of Chinese and Cantonese culture and history. Elements of Chinese for business are further introduced such as every day commercial transactions.

CAREER LIFE PLANNING

CLP 70 Self-Assessment 4 Units (See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
(Student may enroll in either Career Life Planning 70 or 75, but not both, for credit.)
Four hours lecture.
Examine the decision-making process by exploring theories in career development and other factors such as familial, social, and cultural issues that influence career and lifestyle choices. Utilize self-assessment inventories to identify individual interests, values, skills, and personality types as they relate to career/college major options. Become familiar with career development software, related technology and develop skills to enhance the job search process.

CLP 75 College Major and Career Options 2 Units (Also listed as Arts 117A and Computer Applications and Office Systems 117A. Student may enroll in only one department for credit.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Two hours lecture.
Pass-No Pass (P-NP) course.
Identify your compatible college majors and career options by completing a variety of self-assessment inventories. Examine how individual, family, social, and cultural perspectives influence the college major and career decision-making process. Review college major and career myths, the purpose and structure of higher education, and organizational structures found in employment settings.

All courses are for unit credit and apply to a De Anza associate's degree except otherwise noted. 2009-2010 De Anza College Catalog