

American University of Sharjah

Catalog
1998-1999

Sharjah, United Arab Emirates

Founder and President

His Highness
**Shaikh Dr. Sultan Bin Mohammed
Al Qassimi**
Member of the Supreme Council, Ruler of Sharjah

His Highness founded the American University of Sharjah by Decree No. 8, dated 31 December 1996.

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American University of Sharjah

Academic Calendar 1998-99

Fall Semester

September	6	Sunday	Institutional TOEFL New Students
	7-9	Tuesday-Wednesday	Placement Tests
	12-13	Saturday-Sunday	Orientation Program
	12-13	Saturday-Sunday	Fall Registration - Continuing Students
	14-16	Monday-Wednesday	Fall Registration - New Students
	19	Saturday 8:00 am	Fall Semester classes begin
	19-23	Saturday-Wednesday	Drop/Add Period
November	16-20	Monday-Friday	Al Israa wal Miraj - Holiday
December	2	Wednesday	UAE National Day - Holiday
	12	Saturday	Institutional TOEFL Spring Admission
	12-16	Saturday-Wednesday	Pre-Registration
	25-26	Friday-Saturday	Holiday
	29	Tuesday 10:00 pm	Fall Semester classes end
	30	Wednesday 8:00 am	Deadline: Spring 1999 Early Admissions
	30	Wednesday	Study and Project Evaluation Period begins
January	1-2	Friday-Saturday	Gregorian New Year - Holiday
	6	Wednesday	Study and Project Evaluation Period ends
	9	Saturday 8:00 am	Fall Semester Examinations begin
	13	Wednesday 10:00 pm	Fall Semester Examinations end
	18-22	Monday-Friday 10:00 am	Eid al Fitr - Holiday and Midyear Vacation

Spring Semester

January	23-24	Saturday-Sunday	Placement Test for Spring Semester
	25	Monday	New Student Orientation
	23-25	Saturday-Monday	Spring 1999 Registration - Enrolled Students
	26-27	Tuesday-Wednesday	Spring 1999 Registration - New Students
	30	Saturday 8:00 am	Spring Semester classes begin
	30	Saturday	Drop/Add Period begins
February	3	Wednesday	Drop/Add Period ends
March	27-April 4	Friday-Sun. 10:00 pm	Eid Al-Adha & Wagfa, Spring Break
April	17	Saturday	Al-Hijra New Year - Holiday
	18	Sunday	Deadline for Submitting Applications - Fall 1999 & early admission decision
May	8-12	Saturday-Wednesday	Pre-Registration
	17	Monday 10:00 pm	Spring Semester classes end
	18-24	Tuesday-Monday	Study and Evaluation Period
	25	Tuesday 8:00 am	Spring Semester Examinations begin
	31	Monday 10:00 pm	Spring Semester Examinations end
June	7	Monday 10:00 pm	Spring Semester ends
	28	Monday	Prophet's Birthday - Holiday
August	6-7	Friday-Saturday	Accession to the Throne - Holiday

Islamic holidays are determined after sighting the moon. Thus, actual holiday dates may not coincide with the dates in this calendar.

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American University of Sharjah

- **An Overview**
 - **The University Campus**
 - **Athletics and Recreation**
 - **On-Campus Services**
-

education formed on the American model. It was conceived and founded by His Highness, Shaikh Dr. Sultan Bin Mohammed Al Qassimi, Member of the Supreme Council, Ruler of Sharjah.

The university began its educational program in the fall of 1997. Architecturally distinguished facilities are being constructed to accommodate 4,000 undergraduate students. The language of instruction is English. Baccalaureate degrees are offered in 20 majors by the faculty of the College of Arts and Sciences and three schools: Architecture and Design, Business and Management and Engineering. The major programs of study are described in this catalog.

The 1,518,000 m² (375 acres) **University City Campus** is located 10 miles (15 kilometers) from the center of Sharjah and is a short distance from both the Sharjah International and the Dubai International Airports. Situated between the western shore of the Arabian Gulf and the Gulf of Oman in the Arabian Sea, the Emirate of Sharjah has beautiful beaches with clear blue waters free of pollution. It also has a lovely and varied countryside.

The city of Sharjah boasts ten marvelous museums with splendid collections of artifacts and art objects as well as exhibitions in science and natural history. These institutions are sites for field trips, research and possibly internships. Sharjah hosts many cultural festivals, programs, educational conferences, fairs and economic

expos. These resources permit American University of Sharjah students to broaden their formal education as they could nowhere else in the region.

Located strategically between the Far East and the West, between Africa and Asia, Sharjah boasts both traditional and modern markets or *souqs* where goods and merchandise from all over the globe can be found. Sharjah is also a city of learning and culture which is illustrated by its designation by UNESCO as the Cultural Capital of the Arab World for 1998. Thus, Sharjah is an ideal setting for a university that intends to function at the crossroads of ancient cultural traditions; and contemporary intellectual life and professional training.

Islam is the official religion of the state and Arab Islamic culture predominates in the UAE. Yet, tolerance toward the large expatriate communities is the norm and the communities of other religious beliefs practice their religions freely within the UAE's cosmopolitan society. In that progressive spirit, AUS considers student applicants solely on the basis of their academic qualifications regardless of race, color, gender, religion, disabilities, age or national origin.

The university is committed to a vision of itself as an independent institution on the American model, thoroughly grounded in Arab culture and serving the educational needs of the diverse populations of the region.



*Sharjah:
Cultural Capital
of the Arab World*

The American University of Sharjah (AUS) is a non-profit, co-educational institution of higher The university provides its students with a cultural and educational foundation for leadership in professional careers and service in an age of electronic communications, global economies, social pluralism and political interdependence. It also provides an educational environment in which students can actualize their individual potential and prepare to pursue their aspi-

rations. This mission will be achieved through a combination of traditional and innovative teaching methods.

The educational and cultural mission of the university is also expressed by its dedication to the preservation of a physical environment free from pollution and degradation. Our graduates will possess a conscious sense of ecological responsibility.

The University Campus

The American University of Sharjah is located in the University City that also includes the University of Sharjah and the College of Higher Technology. Leading up to the campus of the American University of Sharjah is a three-mile (4.7 kilometers) grand boulevard flanked by chandelier lights, palm trees, plants and grass that are elegantly maintained. Dividing the broad boulevard is an esplanade also lit by chandeliers and beautifully landscaped with colorful beds of flowers. The center of the American University campus is comprised of eight academic buildings, six of which flank a large, beautifully landscaped and lighted Academic Plaza in front of the Main Building. The stunning architecture of the Main and Academic Buildings features modern conveniences accented by graceful Arab style domes and arches that connect the academic buildings together on each side of the Academic Plaza. Off to the side of the Main Building is the complex of Engineering Buildings. In addition to the academic buildings, the university campus has a state-of-the-art gymnasium along with student restaurants and a coffee shop. The restaurants and coffee shop seat nearly a thousand people. The campus also includes four student residence halls, two each for men and women. Faculty housing complexes are also located on campus. The campus grounds are beautifully landscaped, with over 148,000 trees, shrubs and plants of many varieties.

The Main Building

Architecturally spectacular, the Main Building

houses the offices and Majlis of His Highness, the Founder and President of the University, Shaikh Dr. Sultan Bin Mohammed Al Qassimi. It also includes the offices of the Senior Advisor to His Highness for Higher Education, the Chancellor, the Director of Admissions and Registration (Registrar), the Continuing Higher Education Adult Center and other administrative units. The building has a restaurant and a coffee shop for faculty and staff as well as a VIP dining room. Most significantly, the building houses the state-of-the-art University Library. In the rear of the Main Building is an auditorium of about 1000 seats facing a stage that features theatrical, dance, musical and other art performances in addition to symposia, public events and other activities. The building also houses two smaller lecture halls of 280 and 150 seats that feature similar activities. The Campus Bookstore and the University Post Office are located on the ground floor of the Main Building.

The Academic Buildings

Six Academic Buildings are located on both sides of the Academic Plaza facing the Main Building. The Academic Buildings house classrooms and lecture halls of varied sizes, science and computer laboratories, workshops, studios and dark rooms as well as offices for faculty. On the southwest side of the Main Building is the

complex of Engineering Buildings that houses the School of Engineering.

The University Library

The University Library occupies the third floor in the Main Building. The Library is in the process of acquiring over ten thousand volumes, a large number of academic and scientific journals, on-line electronic programs, non-print media and other acquisitions and technologies. The reference collection of the Library is being equipped with atlases, bibliographies, encyclopedias, directories, guides, periodical indexes in print, CD-ROMs and ebscohost (on-line electronic) formats. Several on-line databases are also being acquired. Reference librarians assist in finding information, conduct bibliographic searches, including on-line searches, and offer instruction on library use for students. The library offers excellent quiet study space for students.

Residence Halls

Four residence halls on campus accommodate 600 students per year. They include private, semi-private and shared (or double occupancy) rooms. Private rooms have a private bath and kitchenette, semi-private rooms are two separate rooms that share a bathroom and a kitchenette and shared rooms are single rooms with two occupants who share a bathroom and a kitchenette. Men who share a room also share common bathroom facilities.

Architecture and Design Facilities

The School of Architecture and Design is housed in two separate buildings on the Academic Plaza. The Design Building has classrooms and studios with special equipment to handle drawing, graphics, printmaking and production of images by electronic media. The multimedia program which has video film making and sound equipment is also in the same building. The

Architecture Building houses design studios with integrated computer access, a control center for digital media, the faculty research station and a model building workshop.

Language Resource Center

The English Language Resource Center is located in the Languages Building on the Academic Plaza. The center can serve 25 students simultaneously using audio, video, slides and computer-assisted instruction. State-of-the-art computerized teaching labs provide interactive learning in English and will include other languages the future.

Computer Laboratories

The Office of Information Technology (IT) serves the computer related administrative, instructional and research needs of students, faculty and administrators. Assistance is provided for personal computer resources and for computer labs in several buildings around the campus. IT maintains a campus-wide network and the university's gateway to the internet for academic purposes. The computer network uses fiber-optic cables interconnecting the whole campus, including the residence halls and faculty housing. Specialized labs are available for students of English language, business, engineering, computer engineering and for other areas of the arts and sciences. Throughout the academic year, a variety of training classes are offered to help members of the university community (students, faculty, staff and administration) use the computing resources.

A computing telephone hotline will be established to offer troubleshooting assistance for standard software packages, hardware and communications support.

Science and Engineering Laboratories

The Science and Engineering Programs are

equipped with state-of-the-art laboratories and equipment. Chemistry and chemical engineering laboratories are equipped with standard chemical instrumentation, including balances, centrifuges, pH-meters, spectrophotometers and chromatographic equipment, and special labs for polymer chemistry. The physics labs are equipped with all the standard equipment and the latest

electronic technology equipment. Civil, electrical and mechanical engineering laboratories and workshops, located in the Engineering Buildings near the Academic Plaza, are also equipped with state-of-the-art equipment to complement the high quality curricula designed for educating the engineers of the future.

Athletics and Recreation

The Sports Complex and Fitness Center

The American University of Sharjah has a Sports Complex housing an olympic-size swimming pool, a health fitness center and various athletic courts including basketball, volleyball, tennis, squash and others. Athletic fields and basketball, volleyball and tennis courts are also located on the outer ring of the campus. The university has a leisure center with exercise and fitness equipment, a swimming pool and a childrens playground in the housing complex for faculty.

Intramural Sports

The university is establishing an intramural

sports program that will be an exciting complement to a student's academic, social and cultural education. The program offers a variety of sports including basketball, soccer, swimming, tennis, and volleyball. Involvement in intramural sports activity is a wonderful opportunity for students to make new acquaintances, develop new friendships and enjoy the benefits of physical activity and exercise.

Recreational Facilities

Racquetball, tennis, basketball and volleyball courts are located in the Sports Complex and in adjoining fields outside. A football field will also be located near the complex.

On-Campus Services

Campus Bookstore

Located on the ground floor of the Main Building, the Campus Bookstore carries all required textbooks, various other categories of books, art supplies, stationery and notebooks, gifts and many other items of use to students.

of Architecture Building on the main Academic Plaza. Various meal plans are in the process of being developed. Some residence halls are equipped with vending machines of varied foods and beverage products. Most residence halls are equipped with kitchenettes including a refrigerator and hot plates.

Dining Services

The university campus houses a student dining room and a coffee shop located behind the School

Student Health Center

The Student Health Center, located in the base-

ment of the Languages Building on the main Academic Plaza, provides primary medical care, minor emergency care and health education services to students and faculty. The clinical staff currently consists of two physicians supported by two registered nurses. The hours of operation are Saturday through Wednesday, 8:00 am to 5:00 pm. Service is provided on Thursday and Friday for emergencies only.

Counseling and Psychological Services

Counseling and Psychological Services is staffed by psychological professionals including clinical, counseling and learning psychologists. This office provides personal psychological, learning and socio-cultural services and is located in the Student Center.

Transportation and Parking

Parking lots are provided on university grounds for faculty and students free of charge. Vehicles must be registered with the Business Services Office and must display a valid parking sticker permit. Visitor parking is also available in the University Parking Lots.

University Post Office and Mail Service

All mail coming to university offices and to those residing on campus arrives at:

P.O. Box 26666, Sharjah, UAE

Mail is distributed by the University Post Office and is delivered to all administrative offices at their respective locations. The post office also maintains individual post office boxes for the university community.

Student Accounts

Following their admission to the university, students handle all financial transactions, in-

cluding the payment of their tuition and any other fees, through the Office of Student Accounts.

Financial Aid

There are three types of financial aid available to students. The first is for UAE nationals sponsored by governmental agencies and covers tuition and residence hall fees. The second is open to students of any nationality in the form of scholarships awarded on the basis of high scholastic achievement and financial need. In addition, students may be able to aid themselves financially through employment in university programs.

Career Center

To help students identify, explore and pursue career options, the university will be establishing a Career Center. Through the center, students will receive guidance in researching career opportunities, preparing a resume or curriculum vitae (CV), interviewing, conducting a job search and in addressing other career planning issues.

Admissions and Degree Programs

- **Admissions**
- **University Degree Requirements**
- **University Graduation Requirements**
- **Nondegree Study**

The American University of Sharjah places particular emphasis on quality education. Applicants are considered on the basis of their qualifications regardless of race, color, gender, religion, disabilities, age or national origin. The most qualified candidates will be selected to fill the places available in any school or college.

The university requires regular attendance at all classes, lectures, laboratory sessions and seminars. Pursuing one's education through correspondence or by merely passing the university examinations is not permitted.

Since the medium of instruction is English, a good command of the language, both oral and written, is essential to the student's success in the degree programs.

The Office of Admissions and Registration is responsible for the admission of students to all schools and to the College of Arts and Sciences. All inquiries, requests for application forms and subsequent correspondence should be addressed to:

American University of Sharjah
Director of Admissions and Registration
P.O. Box 26666
Sharjah, United Arab Emirates

Admission is valid for the semester for which a student applies. If an applicant is granted admission for a certain semester and fails to register, the application may be considered for the following semester only.

University Divisions and Degree Programs

1. The **College of Arts and Sciences** offers Bachelor of Arts degrees (B.A.) in:
 - Arabic Language and Literature
 - Computer Science
 - English Language
 - English Literature
 - Translation
2. The **School of Architecture and Design** offers programs leading to the following degrees:
 - Bachelor of Architecture
 - Bachelor of Design in Interior Architecture
 - Bachelor of Design in Multimedia
 - Bachelor of Design in Visual Communications
 - Bachelor of Science in Design
3. The **School of Business and Management** offers Bachelor of Science in Business Administration degrees (B.S.B.A.) with concentrations in:
 - Accounting
 - Finance and Banking
 - Management
 - Management and Information Systems
 - Marketing
4. The **School of Engineering** offers programs leading to the degree of Bachelor of Science (B.S.) in the following degree programs:
 - Chemical Engineering
 - Civil Engineering
 - Computer Engineering
 - Electrical and Electronic Engineering
 - Mechanical Engineering

Procedures for Applying

Every applicant is required to submit a completed application and the following documents:

- A. *Recognized secondary school certificate*
- B. *The grades of the last three years of secondary school, including general average and rank*
- C. *When applicable, a certified document of the results of the official secondary school examinations*
- D. *Four recent photographs*
- E. *A photocopy of the identity card or passport*
- F. *TOEFL scores*
- G. *A non-refundable application fee of Dirhams 150 or its equivalent in other currencies*

Early Admission Decisions

The Admissions Office will consider and process completed applications upon their receipt prior to the deadlines noted below.

Application Deadlines for Admission

Applications must be on file in the Admissions Office by the following dates:

First Year Applicants (Freshmen)

Fall (UAE and International) by August 15

Spring (UAE and International) by January 1

Transfer Applicants

Fall (UAE and International) by August 15

Spring (UAE and International) by January 1

Applications received after the deadline may be considered for the intended degree program as long as class space remains and if it is possible to receive and process the necessary documents in time for registration.

Transfer applicants must submit an official transcript of each collegiate institution previously attended. Attendance at all institutions must be reported whether or not credit was earned and whether or not transfer credit is desired. Failure to report all previous academic work will be considered sufficient cause for rejection of an application. (Please see *Transfer Admissions Re-*

quirements From Other Institutions in this section of the catalog).

Admissions Requirements

To be considered for admission as a first year student, a candidate must hold a recognized secondary school certificate and pass the TOEFL exam with a minimum score of 500.

Secondary Certificates

Secondary school certificates are awarded either by a Ministry of Education or by private schools and institutions. The university recognizes certificates awarded by ministries of education, however, some countries award two levels of secondary school certificates. In this case, the university recognizes the higher certificate.

The university accepts certificates awarded by private secondary schools which are recognized by their host country.

Other certificates, such as the General Certificate of Secondary Education (GCSE) and the International Baccalaureate (IB), are recognized by the university.

Specific Secondary School Certificates and Program Admission Requirements

Secondary school programs are divided into a variety of branches: literary, scientific, technical and vocational.

Literary Certificates

Literary certificates qualify applicants to be considered for admission to the first year Arts, and consequently, to any arts major offered by the College of Arts and Sciences. They also admit applicants to any major offered by the School of Business and Management and the School of Architecture and Design.

Scientific Certificates

Scientific certificates qualify applicants for admission consideration to any of the programs

offered by the three schools or the College of Arts and Sciences.

Technical and Vocational Secondary School Certificates

These certificates admit to a major that corresponds to the nature of the technical or vocational secondary school program. For example, a technical secondary school certificate in electricity entitles its holder to apply to electrical engineering.

Other Certificates

GCE, GCSE, IGCSE

The Ministry of Education in the UAE recognizes these certificates as equivalent to the Secondary School Certificate of the UAE under the following conditions:

1. The school awarding these certificates is recognized by the Ministry of Education and the school teaches Islamic education and Arabic language following the curriculum as set by the Ministry.
2. The student has successfully completed the twelfth grade.
3. The student has passed five of the following subjects :
 - geography
 - history
 - general sciences
 - English language
 - economics
 - mathematics
 - physics
 - chemistry
 - biology
 - French
 - business administration

Certificates like the GCE with advanced levels, the Lebanese Baccalaureate Part II, the French Baccalaureate (II) and the German Abitur

entitle their holders for admissions consideration to the First Year.

As far as the GCE is concerned, two subjects at the *A* level and five at the *O* level are required with a minimum grade of *C*. Depending on their respective branches, the Lebanese and French Baccalaureates entitle their holders to apply for admission to a major that corresponds to the nature of the branch: Literary, Scientific or Mathematics. The Mathematics branch is required for engineering.

International Baccalaureate (IB)

For the holders of the International Baccalaureate to be considered for admission to the university, they must have three subjects at the higher level and three at the subsidiary level. However, the School of Engineering requires mathematics or physics at the higher level.

Advanced Standing

Students who achieve the IB Higher Level, GCE *A* Level, the Lebanese Baccalaureate, the French Baccalaureate (II), the German Abitur or the American Advanced Placement tests in all subjects may be given advanced placement credits.

Proficiency Tests

Test of English as a Foreign Language

To complete the requirements for admission to any college/school, applicants must take the TOEFL. A minimum score of 173 on the international TOEFL is required for admission to the First Year. (Note: The AUS TOEFL code is 0526). TOEFL scores are valid for two calendar years only. Students who do not attain the minimum score of 173 in TOEFL but who otherwise meet AUS admission standards will be admitted to the Intensive English Program at the university.

Placement Tests

All applicants who attain the minimum score or more in TOEFL are required to sit for an English placement test administered by the university. The purpose of this test is to determine

the English course in which the student will be placed.

Placement tests in mathematics, chemistry and physics are required for all applicants admitted to engineering. Architecture and computer science applicants will take placement tests in mathematics and physics. A placement test in business mathematics is required for applicants admitted to the School of Business and Management. All accepted applicants may sit for the Computer Literacy test. No student is allowed to sit for the placement test more than once for any given admissions session.

Transfer Applicants

The university approves in principle the admission of transfer applicants. Candidates transferring from institutions of higher education are eligible for admissions consideration subject to the following conditions:

1. They are transferring from a recognized institution of higher education.
2. Prior to their admission to the institution from which they are transferring, they had met the requirements for admission to this university.
3. They meet the English Language proficiency requirements. Transfer applicants may be given credit for courses completed in the institutions from which they are transferring if they obtained grades on those courses of not less than *B* and on the condition that those courses are approved for a degree at this university.

Transfer/Advanced Standing

Transfer applicants are required to submit official transcripts of their high school and college/university records. They are also required to submit the syllabus and course descriptions for courses they seek to transfer. The decision regarding which credits are awarded is made solely by the appropriate academic division and dean/chairperson at AUS.

Transfer applicants may be given transfer credit for courses required in their majors if they

obtained grades of not less than *B* in those courses. For courses that are not required for majors, transfer credits will be given if the grades received were not less than *C*.

A maximum of 75 transfer credit hours will be accepted from four-year colleges and/or universities and a maximum of 60 credit hours will be accepted from two-year colleges. Individual teaching units determine the exact number or percentage of credits that apply toward a student's specific degree program.

Readmission

A student whose studies at the university are interrupted for a period of one semester or more must submit a formal application for readmission and a reapplication fee of Dhs. 150 to the Office of Admissions. This must be done at least two months before the beginning of the semester for which the student wishes to be readmitted unless written permission to study at another collegiate institution was secured in advance or the student has been granted an official leave of absence.

Students who were in good standing when they left the university and who have maintained a satisfactory grade point average at another recognized college or university are assured of readmission.

Applicants with Disabilities

Depending on available facilities, the university intends to provide special services to applicants with certain disabilities. Those who need special services are requested to contact the Dean of Student Affairs at AUS. This information will be treated confidentially.

Admission of University Employees

Employees of the American University of Sharjah who meet the minimum admissions requirements and received at least the minimum scores necessary on the English proficiency test and on other required tests are given admission by the Director of Admissions and Registration at the university as part-time students. However, prior to their admission, they must secure the per-

mission of their immediate supervisor in the unit in which they are employed. The maximum course load allowed per semester for this category of students is 3 credits.

Choice of School/College and Major

School or college admission may be pursued in two ways:

- An applicant can apply to two schools
- An applicant can apply to one school and to the College of Arts and Sciences

Applicants can apply to two majors within each school or college. Preference for the school or college and majors is to be indicated in a numbered list with Number 1 being the most desired choice.

Orientation Program

Prior to registration, the university organizes an orientation program for all new students to acquaint them with university life. This is achieved through campus tours and visits, meetings, lectures, demonstrations and other relevant activities.

Registration Guide

A registration guide is distributed to every student before the registration period begins. The guide divides students into various groups and indicates the registration steps along with the place, date and time for each step. Every school and college also publishes a list of course offerings for each program. Students are urged to carefully read the registration guide and the lists of courses offered each semester.

Registration involves three main steps:

1. Advisors' consultation
2. Selection and registration of courses
3. Payment of fees

Registration in the student's absence or by way of proxy is not permitted. Registrants are urged to make sure that all documents required for finalizing their admission, particularly those indicated in the letter of admission, are submitted

to the Office of the Director of Admissions and Registration before registration begins.

Advisement and Consultation

All students are assigned advisors and advising appointments which are indicated in the registration guides. Each student is responsible for consulting his or her registration guide for this information and for meeting with his or her advisor at the appropriate time.

The selection of courses must be undertaken initially by the registrants themselves. During this stage they prepare drafts of their semester schedule and present it for their advisor's approval. A special form for this purpose is provided by the Office of Admissions and Registration. Once the courses are agreed upon, they are entered into the computer so that the student can proceed to the payment of fees.

Students should bring the following to meet with their advisor:

1. Letter of admission
2. Identity cards or passports
3. Draft of their semester schedule

The advisor and student then identify the courses the student needs and wishes to take.

Payment of Fees

With the schedule card signed by the advisor, the student proceeds to the cashier's station to pay the fees on the date indicated in the registration guide. The fees must be paid in full. No student is considered registered unless the fees are fully settled.

AUS accepts the following methods of payment:

- Cashiers checks
- Certified personal checks on local banks
- Cash
- Credit Cards



The many faces of AUS

University Degree Requirements

Students are governed by the following minimum requirements for the bachelor's degree. Each specific degree program has further major and major related requirements that are detailed in the respective teaching unit sections below.

Credit Hour and Residence Requirements

All bachelor degrees require completion of at least 120 credit hours (138 in most engineering programs and 166 in architecture) of course work. At least 45 of the last 60 must be completed in residence at the American University of Sharjah. A minimum of 21 credit hours must be completed at the American University of Sharjah in upper-level courses in the student's major. A maximum of 75 credit hours may be transferred towards a bachelor's degree.

Two Bachelor's Degrees

Two bachelor's degrees may be earned at the American University of Sharjah if a student satisfies both major related requirements within two departments, two schools, or one school and the College of Arts and Sciences and accrues *at least* 150 credit hours or more if the degree is professional (more for students of Architecture). Students should consult their advisors and the appropriate department chair.

Grade Point Average

Students enrolled in a degree program must maintain an overall grade point average of at least 2.00 (a *C* average) in order to remain in good standing to graduate.

Major Requirements

Each student in a degree program must complete *at least* 36 credit hours in the degree major and in related courses, no fewer than 21 of which must be

earned in upper-level courses taken in residence at the American University of Sharjah.

A grade of *C* (a 2.00 GPA) or better is required for each major, major related or minor course. Course grades lower than *C* (2.00 GPA) in the major will have to be repeated or an equivalent course will need to be taken to satisfy the major requirement involved.

Declaration of Major

Normally, students declare their academic major by applying to a particular school or college and to a major program within that school or college for admission. If a student is admitted with an undeclared major, he/she must formally choose and declare a major by the end of his/her second year (sophomore year).

Double Major

A student may complete a double major (two majors) by satisfactorily passing and completing the major and major related course work required by two departments or by two schools (or by one school and the College of Arts and Sciences).

A student may apply the same course to both majors if it meets both sets of requirements. If the double major is pursued in two schools (or by one school and the College of Arts and Sciences) rather than in two departments of the same school/college, the student must designate when declaring the two majors which school/college he or she will be enrolled.

Interdisciplinary Majors

In addition to the established major programs, students have the option of constructing their own major program leading to a bachelor's degree in Interdisciplinary Studies. To design and com-

plete an interdisciplinary major, a student must have the approval of three faculty members who represent the various disciplines involved in the interdisciplinary field.

Interdisciplinary major programs must include at least 42 credit hours, including 36 credit hours carefully selected to form an academically sound, unified and well defined program and 6 credit hours in independent study for senior thesis. At least 75% of the 36 credit hours must be upper level as defined by the teaching units that offer them.

For permission to undertake an interdisciplinary major, the student applies to the dean of the school/college in which he or she is enrolled. A maximum of 18 credit hours of work completed prior to the semester in which the application is made may be included in the program. The 6 credit hours of an independent study for a senior thesis must be supervised by the major adviser and must be focused on the program's central concept.

Minors

All minor programs in the student's school/college or in other schools (or in the College of Arts and Sciences) consist of a minimum of 18 credit hours including at least 9 credit hours in upper-level courses in the discipline. At least 9 credit hours of the minor must be taken in residence at the American University of Sharjah.

A grade of *C* (2.00 GPA) or better is required for each course used to satisfy the requirements of the minor.

Specific course requirements for minors are listed under departmental programs. Students should consult their advisers and/or the department about the procedure for declaring a minor. Minors are noted as comment on the student's permanent record (transcript) at the time of graduation, but will not appear on the diploma.

Change or Transfer of Major

There are two categories of transfers:

1. Transfer from one department to another in the same school or college.

2. Transfer from one school or college to another within the university.

Transfer Within a College

This category refers to a change of major within a school or college. To be eligible for transfer the student must meet the requirements for admission to the new major.

A student seeking transfer must submit to the new department a special application provided by the Office of Admissions and Registration together with a transcript of his or her record. The new department makes the decision on the student's admission.

Applicable transfer credits may be granted with a minimum grade point average (GPA) of 2.00 or *C* grade toward the completion of graduation requirements in the new major.

Transfer from One School or College to Another

A student transferring from one school or college to another within the university is considered as a new student by the school or college to which the transfer takes place. Thus, the student must submit a regular application for admission including his/her transcript of record. The deadline for submitting applications is the same as that of new applicants. Applicable credits may be granted for courses that are required for the new major.

University Graduation Requirements

Every student must successfully complete the following requirements to graduate:

- *Arabic Language and Culture Requirement*
- *English Language Competency*
- *Mathematics and Statistics Requirement*
- *Computer Literacy and Information Access Requirement*
- *Oral Communication or Dramatic Expression Requirement*
- *Science Requirement*
- *General Education Requirement*

Arabic Language and Culture Requirement

All students must satisfy the Arabic language and culture requirement by passing with a *C* grade (2.00 GPA) or better in any one (1) of the following Arabic courses:

- ARA 100 Arabic for Non-Native Speakers
- ARA 101 Readings in Arabic Heritage I
- ARA 102 Readings in Arabic Heritage II
- ARA 103 Composition for Native Speakers of Arabic
- ARA 201 Arabic Literature in Translation
- ARA 206 Modern Arabic Prose
- ARA 304 Modern Arabic Poetry
- ARA 401 Literary Criticism

Students who transfer to the American University of Sharjah may also satisfy the requirement in the following way:

Transferring 3 hours of acceptable college level Arabic credits with a grade of *C* or better. Arabic course credits acceptable for transfer must be approved by the chair of the Arabic Department.

English Language Competency Requirement

All students must be able to write with a level of mastery equal to the demands of school or college course work. In addition, students need to acquire

the critical reading and comprehension skills necessary in all their courses.

Students satisfy the English language competency requirement by passing with a *C* grade (2.00 GPA) or better in four (4) of the following Communications courses:

- COM 101 Academic Writing
- COM 102 Writing and Reading Across the Curriculum
- COM 203 Genre Analysis
- COM 204 Advanced Academic English
- COM 205 English for Media
- COM 206 English for Business
- COM 207 English for Engineering

COM 101 Academic Writing and COM 102 Writing and Reading Across the Curriculum *must* be completed in the First Year (Freshman) or before the completion of 30 credit hours.

Students whose native language is English may substitute other Communication or English Literature courses if they obtain the approval of the chair of the Department of English.

The English Language Competency requirements may also be satisfied through examination or through a combination of examination and course work with the following results:

- An Advanced Placement English Test score of 4 or 5 and passing an additional 9 credit hours of Communication courses at the 200 level with a *C* grade (2.00) or better.
- A CLEP (College Level Examination Program) College Composition exam score of 75% and passing an additional 6 credit hours of Communication courses at the 200 level with a grade of *C* (2.00 GPA) or better.

Students who transfer to the American University of Sharjah may also satisfy the requirement in one of the following ways:

- Completing the CLEP College Composition exam with a score of 75% and passing an additional 9 credit hours of Communication courses at the 200 level with a grade of *C* (2.00 GPA) or better.
- Transferring up to 3 credit hours of acceptable Communication credit and passing an additional 9 credit hours of Communication courses at the 200 level with a grade of *C* (2.00 GPA) or better.
- Transferring 6 credit hours of acceptable Communication credits and taking an additional 6 credit hours of Communications courses at the 200 level.

Mathematics and Statistics Requirement

All students must have mastery of quantitative reasoning and university level mathematical skills. Students must satisfy this requirement by the end of the Second (Sophomore) Year or before the completion of 60 credit hours.

Students may satisfy the Mathematics and Statistics requirement by passing with a grade of *C* (2.00) or better:

- STA 201 Introduction to Statistics

And, one (1) of the following courses in Mathematics:

- MTH 100 Fundamentals of Logic and Geometry
- MTH 101 Mathematics for Business
- MTH 103 Calculus I

Students may pass the Mathematics and Statistics requirement by passing the respective Mathematics and Statistics competency exams or with an AP standing.

Computer Literacy Requirement

All American University of Sharjah students must be computer literate and know how to access information through digital technology. Students must satisfy the Computer Literacy and Information Access Requirement by passing CMP 101 Computer Literacy (4 credit hours), CMP 102 (for engineering students only), CMP 103 or ARC 230 with a grade of *C* (2.00 GPA) or better. Students may receive a waiver for CMP 101 by passing a university-administered computer skills

placement test. (Exception: Engineering students are required to take CMP 102 and are not eligible for the waiver). In this case, students must fulfill the requirement by taking one course from a list of approved courses in which information technology is integrated into the content or the course is taught in digital format.

Oral Communication or Requirement

American University of Sharjah graduates are expected to be well-rounded students who are likely to become leaders in their communities. In preparation for their future role in business, government or non-governmental agencies and in their communities, they will be required to acquire skills in public speaking, debating, dramatic expression and other forms of public communication. Students must satisfy the Public Speaking requirement by passing with a grade of *C* (2.00 GPA) or better:

- COM 208 Public Speaking

OR

- COM 209 Dramatic Expression

Science Requirement

All American University of Sharjah students must have university-level knowledge of scientific reasoning and the experimental sciences.

Students may satisfy the Science requirement by passing any two (2) of the following courses with a grade of *C* (2.00 GPA) or better:

- CHM 101 General Chemistry I

- CHM 102 General Chemistry II

OR CHM 103 Chemistry for Everyday Life

- PHY 100 Conceptual Physics

- PHY 101 General Physics I

- PHY 102 General Physics II

- PHY 103 Astronomy

- PHY 104 Physics for Architecture

- PHY 105 Physics for Business

General Education Requirement

Students may satisfy the General Education Requirement by completing at least 12 credit hours or four (4) courses in the Humanities and Social Sciences curricula.

Six credit hours must be taken from the Humanities set and six from the Social Sciences set:

Humanities

- Arabic Literature
- Cultural Studies
- English Language
- English Literature
- History
- History of Material Culture

Social Sciences

- Anthropology
- Economics
- Political Science
- Psychology
- Sociology

Nondegree Study

Nondegree status is the designation used for students who are enrolled in credit courses at the American University of Sharjah and are not currently pursuing a degree program. Some students begin their studies in nondegree status while others do not wish to pursue a degree program. Credit earned in courses at the American University of Sharjah in nondegree status may be applied to a degree program in one of the schools or in the College of Arts and Sciences in accordance with the guidelines below.

Enrollment Criteria

Nondegree students may enroll in any university course for which they have the necessary academic background and qualifications. Courses are open to:

- High school graduates
- Students in good standing at other accredited colleges or universities
- Students with undergraduate degrees (bachelor's degrees)

American University of Sharjah students who have not completed their degree program and students who have been dismissed from the university in the previous twelve months are not allowed to register with nondegree status.

Registration

Nondegree students must register for courses through the Office of Admissions and Registration. Information on university degree programs and nondegree programs is available at the Office of Admissions and Registration. This office is staffed by experienced academic advisors who are familiar with the particular needs of part-time and adult students.

Academic Standards And Regulations

Nondegree students are held to the same academic standards as degree students. The student must maintain a 2.00 GPA.

Transferring from Nondegree to

Degree Status

Students wishing to transfer from nondegree status to degree status may apply to have up to 30 of their nondegree credit hours applied toward a degree program. To apply to a degree program, students must submit the appropriate application forms and supporting documents to the Office of Admissions and Registration.



*Different perspectives
of Sharjah*

Academic Regulations

- **Academic Advising**
 - **Academic Policy**
 - **University Honors and Awards**
-

Academic advising is an essential element of the educational process. The American University of Sharjah requires advisor-student conferences at least once a semester, but students have the responsibility for selecting their courses, meeting course prerequisites, and adhering to university policies and procedures. The advisor assists the student in obtaining a well-balanced education and in interpreting university policies and procedures. Students may also consult faculty, department or program chairs and deans. The university is responsible for ensuring that advising resources maintain high standards for serving students effectively and efficiently.

Students are assigned academic advisors who help them in selecting their course of study and in planning their schedules. Their advisors also approve their schedules each semester. The names of advisors will be announced by the departments concerned.

Student Responsibility

Students are responsible for their behavior, academic or otherwise, at the American University of Sharjah. The university expects that students, as mature members of the academic community, will adhere to the highest standards of personal and academic integrity and taste.

To protect their academic status, students should seek the appropriate approval of their academic program advisors. It is recommended that students keep their own records of all transactions with the

university (registration schedules and forms, grade reports, payment records, etc.). It is also advisable to keep copies of all tests, papers, etc., submitted in fulfillment of course work.

University Liability

Students, staff, faculty and guests are responsible for their personal property, clothing and possessions. The university does not carry any insurance to cover losses of such articles nor does it assume any responsibility for such losses.

Courses and Class Schedules

Course Prefix Number, Title, Credit Hours and Additional Information

Each discipline or field of study offered by the university is summarized by a three or four letter prefix, followed by a number indicating the level of the course content. Below is an example:

ENG 207 The Beginnings of the Novel (3);

In this example, ENG is the course prefix (which represents English) and 207 is the course number.

This particular course is a second level course in English Literature (denoted by the 200 level number). This course is more advanced than 100 level introductory courses such as ENG 110 Survey of English Literature I and ENG 111 Survey of English Literature II.

The number in parentheses following the title of a course indicates the number of credit hours the student will earn upon successful completing the course.

In some cases, particularly in science courses, three digits are given to indicate course credit information. Below is an example:

PHY 101 General Physics I (3-3-4), every semester.

In this example, the first digit in the parentheses refers to the number of class contact hours per week the course requires, the second digit denotes the number of laboratory or practice hours required weekly and the third digit refers to the number of credit hours the student will receive upon successfully completing the course. The number of class contact hours per week for each course is normally three, unless otherwise indicated.

Additional information may also be provided in the course heading. In the PHY 101 example above, *every semester* appears after the credit hours information. In planning to meet program requirements, students should consider that courses marked *every semester* can be taken any semester. All others are offered once per year unless otherwise indicated.

When the frequency of the course offering is not indicated, the course is offered at the discretion of the department. Students should check with the respective academic departments for such information.

Certain courses also have prerequisites, co-requisites and/or other criteria that are noted immediately following the course description.

Course Value

All courses are valued in credit hours. Generally, each credit hour is equal to 50 minutes of class instruction a week. Each laboratory credit hour is equal to 120-180 minutes of laboratory experience.

Class Periods

Except for laboratory, workshop and specialized design, and studio classes, ordinarily classes meet three days a week in 50-minute sessions. The university operates on a five-day schedule, from Saturday through Wednesday. Thursday and Friday are the weekend days. Continuing education and other specialized programs may meet in the evenings and on weekend days.

Independent reading or research courses, study projects, internships, practicums and similar kinds of study opportunities meet according to the special arrangements of the school or college, department or faculty members concerned.

Course Descriptions and Syllabi

Descriptions of permanent courses currently in the university curriculum are listed by course number and title in another section of this catalog. Nonrecurring topics courses are published each semester in the *Schedule of Classes*. Course syllabuses are available from department or program offices.

Course Prerequisites

Many courses above the introductory level call for a minimum background of knowledge, as indicated by prerequisite courses cited in individual course descriptions. Titles and numbers are those of the American University of Sharjah courses. Equivalent courses satisfactorily completed at other institutions may also meet prerequisite requirements by transfer credit. Students need to consult the head of the appropriate academic area for more information. Students are responsible for entering the class with the required competence.

Student Academic Load

A student admitted to and enrolled in a degree program usually registers for 15 to 19 credit hours each semester. The required minimum for the bachelor's degree in arts and sciences and for business and management is 120 credit hours. For computer science and engineering degrees, the

required minimum is 137 credit hours and for the Bachelor of Architecture the required minimum is 166 credit hours. These requirements must be completed in the years required by the respective majors (this includes approximately four years in the Arts and Sciences, Business and Management and Engineering and five years in Architecture).

In any given semester, a student may carry a minimum of 12 credit hours and be classified as full-time for that semester. The additional credit hours through summer enrollment, transfer credits from other universities or by an overload (if approved by the advisor, chair and/or dean) in another semester may be needed in order to maintain normal annual progress toward a degree. A total of 19 credit hours is the maximum load permitted.

Official Class Standing

<i>Credit Hours Completed</i>	<i>Standing</i>
0-30 credit hours	First Year (Freshman)
30-59 credit hours	Second Year (Sophomore)
60-89 credit hours	Third Year (Junior)
90-137 credit hours	Fourth Year (Senior)
137-165 credit hours	Fifth Year

Categories of Students

Full-time Students

To be considered full-time, a student must carry a minimum course load of 12 credit hours per semester with the average being 15. Under special circumstances, a student with a cumulative average of a 3.00 GPA or above may secure the permission of his/her advisor to take an additional three credit course.

Students on probation are allowed a maximum load of 15 credits in their first semester on probation. Those who continue on probation beyond

one semester may carry a maximum load of 12 credits in the next one.

Note: Under special circumstances, the dean of the school or college may allow students to drop below 12 credits during their first semester at the university.

Special and Part-Time Students

The category of part-time students is restricted to the following (approval of the Director or the academic advisor is required):

1. American University of Sharjah staff members who are working for a degree.
2. Those who need fewer than 12 credits to complete work for an undergraduate degree.
3. Those who are granted permission by the student's dean for health or family reasons.

Names on Diplomas and Degrees

The names of AUS students on diplomas and degrees will be spelled exactly as they appear on their passports or identity cards. They appear in both Arabic and English. If a name on a passport or an identity card does not appear in both languages, then the spelling of the name of the



Academic Policy

Grading System

The Grade Point Average (GPA) is computed on a scale of 4.0. The following grading system is applied:

Calculated in the Grade Point Average (GPA):

A	equals a GPA of 4.00	Excellent
A-	equals a GPA of 3.70	
B+	equals a GPA of 3.30	
B	equals a GPA of 3.00	Good
B-	equals a GPA of 2.70	
C+	equals a GPA of 2.30	
C	equals a GPA of 2.00	Fair
C-	equals a GPA of 1.70	
D	equals a GPA of 1.00	Less than Satisfactory
F	equals a GPA of 0	Fail

WF indicates Administrative Withdrawal with the penalty of a GPA of 0.

The grade of *WF* is assigned by the instructor or the dean in lieu of an *F* when the student never attends class or stops attending the class, rendering assessment of academic performance impossible.

Grades not calculated in the Grade Point Average:

I	Incomplete
IP	In Progress
L	Auditor; No credit
P	Pass
W	Withdraw
WP	Administrative Withdrawal without a penalty
N	No Grade

Class Attendance

Attendance and participation in all class, workshop and laboratory sessions are essential to the process of education at the American University of Sharjah. Students benefit from the lectures and discussions with their teachers and fellow

students. For this reason, students are expected to attend class regularly. Lateness or absence hinders progress for the individual and the class and affects the grade. Teachers will provide students with written statements on the syllabus of their policies with respect to absences.

University Guidelines for Lateness and Attendance are as follows:

1. Any absence may affect the student's grade.
2. Instructors need not give substitute assignments or examinations to students who miss class.
3. Three occasions of lateness count as one absence.
4. In the event a student misses more than 10% of the sessions in a class for any reason, the instructor will inform the student's dean who will issue a warning letter to the student with a copy to his/her parents.
5. Once the student has missed an additional 5% of the class sessions after the warning, the instructor, with the approval of the dean, will initiate withdrawal of the student from the course.
6. If the notification reaches the dean before the end of the eighth week of classes, a grade of *W* will be entered on the student's permanent record. If notification reaches the dean's office after the eighth week of classes, the student will be withdrawn with a grade of *WP* or *WF* depending on the quality of work performed in the course. A grade of *WF* will be calculated in the GPA.

Instructors are to keep attendance records and to draw the students' attention to attendance requirements noted in the course syllabus. The

specific application of the attendance guidelines is at the instructor's discretion.

A doctor's certification of a serious illness should be brought to the attention of the university physician, who will inform the Office of Admissions and Registration (OAR). The OAR staff will then contact the student's instructors to inform them of the expected length of class absence.

Incomplete Grades and Make-Up

Examinations

The work for a course must be completed on the day when the semester ends. No incomplete grade or *I* is given as a final grade in any course unless there is a compelling medical or other such emergency certified in written form by a medical or other professional. In case of unexcused incomplete work, a grade of *zero* is given for the missing work, with the course grade computed accordingly. Only in exceptional cases (such as the emergencies noted above), with written approval of the instructor, chair and the dean, is a student allowed to make up incomplete work within a period of two weeks after the beginning of the next regular semester.

It is the responsibility of the student to find out from his/her professor the specific dates by which requirements must be fulfilled. The deadline for the submission of incomplete grades for a course by the instructor is within 72 hours after the date of the make-up examination.

Freshman Forgiveness

A first year (freshman) student who, during the first two semesters of full-time study, receives a grade of *F* or *WF* in a course, may repeat the course at the American University of Sharjah within the calendar year thereafter, or in the next two regular semesters in which the student is enrolled. If the course is not offered at that time, the student may use the option the next time it is offered. No grade is removed from the student's record, but only the grade earned the second time the course is taken is used in calculating the grade

point average for purposes of making decisions concerning probation, dismissal and required grade point average for graduation.

The freshman forgiveness rule also applies to transfer students.

Placement on Academic Probation

A student will be placed on academic probation for any one of the following reasons:

1. Failure at the end of a semester in two or more courses.
2. If at the end of a semester, while carrying 12 or more credits, the student's average falls below *C* (2.00 GPA).
3. If at any time, beginning with the second year, the student's cumulative average falls below *C* (2.00) or the student's average in his/her major field falls below *C* (2.00 GPA) or below the standard set for that school or college.

First year students are placed on probation at the end of their first semester only if they fail in one-half or more of the credit hours carried.

The load of a student who is on probation in the first semester shall not be less than 12 or more than 15 credit hours.

The load of a student who continues to be on probation beyond one semester shall be neither less than 12 nor more than 15 credit hours.

Removal of Probation and Dismissal

A student will remain on academic probation until the dean of the school or college in which the student is enrolled removes it. The probation will be removed at the end of a semester if the student passes in all courses and attains a minimum GPA of 2.00 in his/her major field.

Students on probation are advised to repeat courses in which they have obtained failing or low grades.

Academic probation is an action taken in the first two years of full-time study or the equivalent in

part-time study. Dismissal may be anticipated by any student whose cumulative grade point average in the third or fourth year of full-time study (or equivalent in part-time study) falls below 2.00 or whose average in any semester falls to below 1.00 or below.

A student may be dismissed if he/she fails to remove his/her probation by the end of the third semester on probation, or if a student fails to pass a required course three times.

Actions involving academic probation and dismissal are entered on the student's permanent record and may not be removed.

Repeating Courses

For raising one's average or meeting graduation requirements, a student may repeat courses which he/she has failed in or has received a grade lower than a *C*. A required course should not be repeated more than twice. However, to take the same course for a third time, the student needs the approval of the relevant faculty departmental administrative committee. The highest grade of repeated courses is considered for computing semester and cumulative GPA.

Drop and Add

Students are allowed to drop and/or add courses during the first week following registration. Such changes in courses are not inscribed in student records. Students interested in dropping or adding courses should consult first with their respective advisors and then report authorized changes to the Office of Admissions and Registration.

Withdrawal from Courses

Students are permitted to withdraw from courses; however, maintaining a minimum of 12 credits is required. Withdrawal from courses should occur no later than the end of the eighth week of classes.

Note: A Grade of *W* will be recorded in the transcript for the course from which the student has withdrawn.

Withdrawal from the University

In the event a student withdraws from the university for justifiable reasons, the following refund schedule will be applied:

Before the first day of classes	90% of fees
During the drop and add period	50% of fees

No refund will be made of application fees, residence fees or fees for special services rendered to students.

Readmission after Dismissal

When in accordance with university regulations, a student is dropped, consideration for readmission is given only if, after spending a minimum of one year at another recognized institution of higher education, the student is able to present a satisfactory academic record and a letter of recommendation. For purposes of applicable transfer of credits, the student is expected to have a grade equivalent to *C* (2.00 GPA) in each one of the courses for which transfer of credit is requested.

Leave of Absence

Students desiring a leave of absence for reasons other than studying at another collegiate institution should obtain formal permission from their advisor, the chair of the department and the dean of the school or college. If it seems desirable to guarantee the student an automatic readmission, the dean will issue a permit for a leave of absence. This permit will specify a limitation, one academic year at most, of automatic readmission to the same degree program.

The permit becomes void if the student attends any domestic or foreign collegiate institution during the period of leave. In such instances, the student must obtain a permit to study at another institution before leaving the American University of Sharjah.

Resuming Study

Students who cease to attend the university for an entire semester, whether voluntarily or not, may not resume study until they have been readmitted. Readmitted students are subject to all regulations and must meet all requirements in force when studies are resumed unless other arrangements have been agreed to in writing by the student's dean before the beginning of such an absence.

Students who change their degree objective, school or college or who choose to conform to new regulations or requirements, must be prepared to complete all requirements and abide by all regulations in effect at the time such a change is made.

Study at Another Institution

Study at another collegiate institution is usually undertaken during the summer or as part of an overseas program such as the Washington Semester Program at American University (Washington, DC).

An enrolled student who plans to take courses at another college or university for transfer credit to the American University of Sharjah must be in good academic standing and must receive *prior* approval from the his or her department chair and dean. The student must complete the *Permit to Study Abroad* form and obtain the chair's and dean's signature on that form. If the course to be taken is outside the area of the student's major, the chair of the department that would offer the credit for such a course must also approve the permit. With department approval, transfer credit is applicable toward the requirements of a major. Approval is granted for specific courses only, not programs.

The visited institution must be recognized by the Ministry of Education of the country and/or accredited.

Study Abroad

Students of the American University of Sharjah may study abroad at accredited collegiate institutions or in programs of such institutions. The

American University of Sharjah has a special *twin-like* relationship with the American University (Washington, DC). Course credits (including those of programs such as the Washington Semester Program) taken at American University (Washington, DC) are transferable to American University of Sharjah credit if the grade is a *C* (2.00 GPA) or better.

After consultation with and approval of the student's advisor, department chair and dean, application is made directly to the overseas institution by the student. Transfer credit will be granted on the basis of the transcript from the visited institution.

Permanent Record

A permanent record, reflecting academic achievement, is maintained in the Office of Admissions and Registration for each student who registers at the university. Information needed for the continuing evaluation of the student's progress and for advising the student, including grades earned and credit hours completed, is sent by Admissions and Registration to the student's advisor, to the chair of the department or to the dean of the school or college as it becomes available.

Disclosure of Student Records

The written consent of the student is officially required to disclose his/her academic record to any individual, institution or party. Exceptions are made for parents, sponsors, authorized AUS officials and in compliance with a judicial order.

Transcripts

Students may obtain transcripts of their academic records from the Office of the Registrar. Transcripts will be released on the signed request of the student concerned. The university will only issue complete transcripts, not parts of the student record. The university will not make copies of transcripts on file from other colleges or universities.

Graduation

The university confers degrees and issues diplomas at the end of the spring semester. Candidates for degrees file an *Application for Graduation* form in the Office of the Registrar during the registration period of the last expected term of study. Only after an application for graduation has been filed, can the Office of the Registrar begin processing the necessary information for final certification for graduation. Students who fail to complete all degree requirements by the end of

the term for which they applied to graduate must reapply in order to graduate later.

Conferral of Degrees and Commencement

Only students who successfully completed degree requirements by the end of the term for which they have applied (or reapplied) to graduate are certified for conferral of a degree. In witness of the degree conferred, the permanent record of the graduate is appropriately noted with a statement of graduation and their diplomas are released.

All degree candidates whose academic records indicate that they can satisfy degree requirements by the end of the term for which they have applied are permitted to participate in commencement ceremonies.

University Honors and Awards

Dean's List

Each school or college may issue a dean's list of honor students at the end of each semester. To be placed on the dean's list, a student must:

1. Be full-time (minimum 12 credit hours)
2. Have at least a 3.50 GPA
3. Rank in the top 10 percent of his/her class
4. Have no failing grades in any of his/her

courses

5. Have no incomplete grades
6. Have no disciplinary action against him/her

Graduation Honors

The University grants Latin Honors. To be eligible for graduation honors, students must have completed at least 60 credit hours required for their degree in residence at the American University of Sharjah and have achieved the requisite GPA. These are:

Summa cum laude: 3.90 GPA

Tuition and Expenses

- **Tuition Fees**
- **Late Registration Fees**
- **Student Housing Fees**
- **Tuition Fees for Nondegree Programs**

Tuition Fees For Academic Year 1998-1999

- College of Arts and Sciences or Intensive English Program
Dhs. 35,000
- School of Business and Management
Dhs. 38,000
- School of Engineering or School of Architecture and Design
Dhs. 40,000

Student Activities Fee

Dhs. 100 is charged for the Student Activities Fee.

Other Costs and Fees

Costs of textbooks and supplies are the responsibility of the student.

Late Registration Fees

Late registration is permitted under special circumstances and with the permission of the advisor. An additional fee of *Dhs. 200* is charged.

Student Housing Fees

There are two separate campus residence halls for men and women. Students who secure visas to the United Arab Emirates through the University and whose parents do not reside in Sharjah are required to reside on campus. For others, residence on campus is optional. The housing fees are as follows:

Private (Single occupancy with private bath and kitchenette)	Dhs. 10,000 per year
Semi-Private (Two private rooms sharing a bath and kitchenette)	Dhs. 8,000 per year
Sharing (Two students in one room sharing a bath and kitchenette)	Dhs. 6,000 per year
Single (With a common bath - for men only)	Dhs. 6,000 per year
Double (With a common bath - for men only)	Dhs. 4,000 per year

Tuition Fees for Nondegree Programs

Fees for nondegree students are prorated per credit differently in each school/college. Fees vary by specific activity or program. Consult the Advisor for Special Programs in the Office of Admissions and Registration for more information regarding fees for nondegree programs.

Note: Nondegree students are limited to a maximum of nine credit hours per semester.

In courses with enrollment limits, priority is given to students pursuing degree programs.



*Scenes of Student
Life on Campus*

Campus Life and Student Affairs

- **Department and Dean of Students**
 - **Services and Facilities**
 - **Student Academic Integrity Code**
 - **Student Code of Conduct**
-

The university maintains a Department of Student Affairs which is a unit responsible for the welfare of students at the American University of Sharjah. This department is primarily in charge of cultivating an environment that enriches and supports student development at the university. Its objectives are mainly advanced through non-academic and extracurricular activities.

The Department of Student Affairs assists students in developing and maintaining positive self esteem, individual assertiveness skills, social awareness and self-discovery. Its goal is to enhance the positive and proactive attitude of each student toward his or her society and the world. The Department also provides a friendly environment that supports and welcomes international students on campus. In short, the Department of Student Affairs creates a campus environment sensitive to student concerns and experiences.

The university is a community of individuals working together to create the ultimate conditions for learning. The relationship that governs the interaction of those on campus is primarily educational and is guided by a sense of mutual respect and responsibility. Each individual, as a voluntary associate, is expected to honor his or her responsibilities and commitments. Thus, the legally established principles, rules and regulations of the university constitute the basic and uncompromising standards and guidelines for conduct on and off campus. They are also commitments that all are expected to respect, honor and promote when choosing to join the community. The Department of Student Affairs enforces

the rules and regulations concerning student life at the university and has the moral and legal responsibilities of upholding and promoting the highest of academic and behavioral standards among its students. Students have the freedom of not joining or withdrawing from the university if they consider its regulations inconsistent with their values and expectations.

To ensure such high standards, the university reserves its right, through due process, to take disciplinary action against students. Such action would be taken if a student violates institutional standards of behavior or academic regulations and procedures which are defined as clearly as possible in the by-laws.

Dean of Student Affairs

Aquil Kazim

The Dean of Student Affairs serves as the head of the Department of Student Affairs and collaborates with the campus academic units and officers of the university to promote positive student development. The role of the Dean of Student Affairs and the Department of Student Affairs is to ensure that a variety of events and activities are implemented for students. These student programs are designed to promote student moral, spiritual, social, cultural and physical development through established objectives. These specific objectives are:

1. To provide enrichment experiences for all students by developing student programs,

encouraging student participation and providing students with opportunities to develop skills in leadership and responsibility.

2. To develop and stimulate interaction among students, faculty and staff in areas of common interest.
3. To assist in providing a system of counseling.

4. To ensure that housing, food and healthcare services are commensurate with the needs and satisfaction of the students.

5. To organize social, cultural and entertainment activities for the students and the community.
6. To assist students from abroad by providing a comprehensive orientation program.

Services and Facilities

The university provides the following services and facilities to address all student needs, including those of students with disabilities.

Student Employment

Students at the American University of Sharjah have the opportunity for employment at the University. Students may work a maximum of 10 hours per week and are paid on a biweekly schedule. Interested students may seek information regarding employment from the Department of Student Affairs or from relevant departments.

Disability Support Services

The campus of the American University of Sharjah is designed with ramps and elevators for the disabled. The staff of the Department of Student Affairs works with persons having temporary or permanent disabilities to promote their full participation in academic programs and campus activities. This department also provides consultation and in-service training for faculty, staff and students with the overall goal of ensuring an environment that is welcoming to individuals with disabilities.

Counseling and Psychological Services

The primary mission of Counseling and Psychological Services is to help students deal with academic and personal problems when they arise. This Office is located in the Student Center and offers personal psychological and socio-cultural

counseling and related services. In addition, learning services are provided. The learning services available include individual programs and workshops aimed at improving learning skills essential to academic success at the university. Testing is also provided to assess learning disabilities, time management skills and other related student needs. These services are provided to all university students. Professional confidentiality is strictly maintained in all student counseling.

Sports Facilities

The recreational, athletic and indoor student facilities are located in a campus gymnasium which houses a swimming pool, a fitness center and indoor athletic courts. The indoor courts are available for tennis, basketball, volleyball and other sports. The university also maintains outdoor facilities including six tennis courts, two basketball courts, two volleyball courts and a football field.

Students, faculty and staff are encouraged to make good use of the athletic facilities, either as individuals or as organized teams, under the guidance of the Director of Student Athletics. The university believes that students should be provided with opportunities to develop their talents through a wide variety of sports. To achieve this goal, guidance and oversight are provided by the Committee on Athletics. This Committee, together with the Director of Athletics, helps students to develop physical, team play, sports-



*Poetry and Traditional
Dancing at AUS*



manship and healthy lifestyle skills while also experiencing positive mental, moral and emotional growth.

Student Center

The Student Center is located below the cafeteria and has several meeting rooms, lounges, activity rooms and a multipurpose room. The activity rooms are equipped with ping-pong and billiard tables. A variety of offices for clubs, the Student Union and the Department of Student Affairs staff are also located in the center.

Intramural Sports

Intramural leagues for men and women are organized to encourage interest and participation in physical activity, team spirit and cooperation. (Please see the description of Sports Facilities in this section for related information).

Student Union

AUS students have established a Student Government and its charter was approved by the Administrative Committee of the Board of Trustees in the 1997-1998 academic year. The Student Government is an elected body that articulates student views and student interests in the university. The Student Union is a vehicle for ensuring students can contribute to and have a voice in formulating university priorities and policies. It also provides a structure for greater student involvement on campus.

Student Clubs and Organizations

Students enhance and enrich their collegiate academic experience by becoming involved in student-sponsored clubs and organizations. To encourage this student involvement, the American University of Sharjah has a Student Union with an elected student government which is described above.

The Department of Student Affairs also supports numerous student clubs and organizations on campus by assisting with program planning and implementation. These clubs and organizations complement the university academic curricular

programs and provide opportunities for students to exercise and develop their talents. They span a wide range of interests including sports, music, literature, recreation and social fellowship. Membership in student clubs and organizations is open to any registered student at the American University of Sharjah, regardless of nationality, gender, religion, ethnicity, etc. The clubs are geared toward serving the community and helping local and international students settle in at the university.

Student Health Center

The Student Health Center is located in the basement of the Languages Building on the Academic Plaza and is within easy access to all students. It provides primary medical care, minor emergency care, immunizations and health education services.

The clinical staff consists of two medical doctors and two registered nurses. The chief medical officer is an internist. All aspects of patient treatment and care are initiated and coordinated by the primary care medical doctors. This includes referring patients to specialists when required. The hours of operation of the Student Health Center are: 8:00 am to 5:00 pm Saturday through Wednesday. Emergency care on weekends is also provided.

Health Education Programs

The Health Education Program, supported by the Department of Student Affairs, faculty and staff, promotes student health and wellness activities on campus throughout the academic year. These outreach programs include campus-wide lectures and awareness campaigns on health and related issues.

Student Academic Integrity Code

Academic integrity lies at the heart of intellectual life. At the American University of Sharjah, we are members of a diverse community committed to the advancement of knowledge. Because of this, the university affirms the importance of integrity and respecting the work of each individual. The Academic Integrity Code for the American University of Sharjah describes standards for academic conduct, student rights and responsibilities as members of an academic community, and procedures for handling allegations of academic dishonesty. As an institution of higher learning, the university views academic integrity as an educational as well as a judicial issue.

The student's first responsibility is to conscientiously pursue his or her own personal academic objectives. Accordingly, it is expected that the student will conform to the regulations of the university, to those of the school or college in which he or she has enrolled and to those of the classes in which he or she is registered. It is further expected that all examinations, tests, written papers, and other assignments will be completed according to the standards set forth in this code.

By registering as a student at the American University of Sharjah, all students acknowledge their awareness of the Academic Integrity Code. This is reinforced each semester at the time they acknowledge their awareness of university registration policies and procedures.

Faculty members should remind their classes of the Academic Integrity Code each semester and may require that students sign a statement that they have adhered to the code when completing a specific examination or paper.

Students are responsible for becoming familiar with their rights and responsibilities as defined by the Academic Integrity Code and are respon-

sible for knowing the requirements for their particular courses (regarding such issues as collaborative work, use of study aids or take-home examinations). They are also responsible for learning the conventions of documentation and acknowledgment of sources required in academic discourse.

Definition of Academic Violations

Members of the academic community are expected to conduct themselves with integrity as a matter of course. Certain violations of ethical conduct relate specifically to academic integrity. Academic violations include (but are not limited to) the following:

A. Plagiarism

To plagiarize is to use someone else's work or ideas without attribution. Plagiarism may involve using the wording of someone else without using quotation marks, a distinctive name, a phrase, a sentence or an entire passage or essay. It may also involve misrepresenting the sources that were used. The issue of plagiarism applies to any type of work including: exams, papers or other written work and computer programs, art, photography or video.

B. Inappropriate Collaboration

Close collaboration on academic work requires acknowledgment. Inappropriate collaboration involves working with someone else in developing, organizing or revising a project (such as a paper, an oral presentation, a research project or a take-home examination) without acknowledging the help of that person. Specific policies regarding collaborative work, peer review, use of tutors and editing may vary with individual professors.

C. Dishonesty in Examinations

An examination is to be solely the individual work of each student unless the instructor has directed

otherwise. No communication is allowed between or among students, nor are students allowed to consult books, papers, study aids or notes, without explicit permission. Cheating includes, but is not limited to, copying someone else's paper, giving unauthorized assistance, obtaining unauthorized advance knowledge of questions to an examination or using mechanical or marking devices or procedures for the purpose of achieving false scores on machine-graded examinations. Specific policies regarding examinations may vary with individual professors.

D. Dishonesty in Papers

Students are prohibited from submitting any material prepared by or purchased from another person or company. All papers and materials submitted for a course must be the original work of the student, unless the sources are otherwise cited (see A and B above).

E. Work Done for one Course and Submitted to Another

Students may not present the same work in more than one course. Under exceptional circumstances, faculty members may permit a significant piece of research to satisfy requirements in two classes. However, both professors must agree in advance to this arrangement. Students are reminded that when incorporating their own past research in current projects, they need to reference such previous work.

F. Deliberate Falsification of Data

Students may not deliberately falsify data or distort supporting documentation for course work or other academic activity.

G. Interference with the Work of Other Students

Students may not intentionally interfere with the work of others, such as by sabotaging laboratory experiments or research, giving misleading information or disrupting class work.

H. Copyright Violations

Copyright laws must be observed. These laws govern practices such as making use of printed materials, duplicating computer software, photo duplicating copyrighted materials, and repro-

ducing audio-visual work. The Code of Conduct prohibits theft and the unauthorized use of documents and requires adherence to the laws of Sharjah and the federal laws of the UAE.

Adjudication of Academic Offenses

A. Jurisdiction

1. Academic cases resulting from alleged violations of the University Academic Integrity Code are within the jurisdiction of either a faculty member or dean.
2. All charges are brought through the University faculty. Staff members or students wishing to bring charges normally should do so through the faculty member in whose course or academic activity the alleged code violation has occurred. In the case of students bringing charges against other students, the student bringing the charge must identify himself or herself to the faculty member.

B. The Adjudication Process

The adjudication process may follow one of two tracks. The first process grants authority to the faculty member to exercise discretion in those cases involving a student's error in judgment rather than willful dishonesty. The second process grants jurisdiction to the dean of the school or college in which the alleged violation has occurred.

1. Faculty Authority

If a faculty member is convinced that an alleged offense has resulted from an error in judgment on the part of the student rather than from purposeful dishonesty, the faculty member may decide to use the occasion for educating the student about acceptable standards for academic work within the American University of Sharjah community. In such cases, the faculty member may, for example, require the student to rewrite or correct the original assignment or to submit a substitute assignment.

When faculty jurisdiction is exercised in the case of an unintentional violation of the Code, the faculty member shall send written notification of the event to the dean (or to the dean's appointed designee) of the school or college in which the

offense has occurred. The dean will notify the student's dean of the offense (if the student is enrolled in another school or college). Through this process, the university can monitor multiple occurrences of such errors of judgment by particular students.

2. Administrative Jurisdiction

In all other circumstances, the following procedures will be observed:

- a. Faculty members reporting an allegation of dishonesty must do so within ten (10) working days from the date of discovery of the alleged dishonesty and the case must be supported by the appropriate documentation. This information must be submitted to the dean (or to the dean's appointed designee).
- b. The dean (or the dean's appointed designee) will promptly notify the student of the charge and will arrange to discuss the charge with the student at a preliminary meeting. The dean (or the dean's appointed designee) will also notify the chair of the department or unit in which the offense occurred and the student's dean (if the student is a member of another school or college) that an allegation has been made.
- c. At the preliminary meeting, the student will be presented with the charge made and the evidence submitted by the faculty member. The student will then be advised of the procedures including his or her rights and will be given the opportunity to respond. The student may respond immediately or may be asked to respond in writing within ten (10) days. The signed document will become additional evidence in the case. If the student fails to attend this preliminary meeting, the dean may proceed with the process as appropriate.
- d. Faculty members may, at their discretion, discuss the alleged case of dishonesty with the student before the case has been adjudicated. However, faculty members are not to submit grades for the work in question or for the course until the case has been adjudicated. If the

semester grades must be submitted before the adjudication process is complete, a temporary grade of *N* will be assigned.

- e. The dean (or the dean's appointed designee) will impartially gather additional evidence as needed from the student, the complainant and from other appropriate parties prior to the adjudication process.
- f. After reviewing the charges and the evidence, the dean (or the dean's appointed designee) may dismiss the case or remand the case to the faculty member bringing the charge. For cases not dismissed or remanded, the dean may assign a penalty. The dean may request a meeting with the student at any time.

3. Other Adjudication Issues

- a. While the assignment of penalties is the province of deans at the university, the faculty member making the charge or the student may recommend a grading penalty or other sanction.
- b. If the student fails to attend the scheduled meeting, when he or she has been notified of the time and place in advance, the dean may hear the case in the absence of the student or move for a continuance.
- c. Legal counsel is not permitted at any point during the adjudication process.
- d. The standard of proof for any instance of academic dishonesty will be clear and convincing evidence.

C. Penalties

1. Students are advised that violations of the Academic Integrity Code will be treated seriously, with special attention to repeat offenders. In assigning a penalty, the dean will take into account both the seriousness of the offense and any particular circumstances involved. After a second determination of guilt is established through formal review, a student may be suspended or dismissed.
2. Penalties for an academic offense may include

one or more of the following:

- a. Resubmission of the work in question.
 - b. Submission of additional work for the course in which the offense occurred.
 - c. A lowered grade or loss of credit for the work found to be in violation of the Integrity Code.
 - d. A failing grade of *F* or *WF* for the course in which the offense occurred.
 - e. A failing grade of *F* or *WF* or denial of credit for the course in which the offense occurred. A notation of the Academic Integrity Code violation will be entered on the student's permanent record.
 - f. Suspension for one or more academic terms, including the term in which the offense occurred. A notation of the Academic Integrity Code violation will be entered on the student's permanent record.
 - g. Dismissal (for a specified term or permanently) from the university. A notation of the Academic Integrity Code violation will be entered on the student's permanent record.
3. Penalties (a) - (c) are levied by the dean hearing the case only with the concurrence of the faculty member bringing the charge. Penalties (d) - (g) are levied by the dean hearing the case only with the concurrence of the student's dean. If consensus cannot be reached, the chancellor or his or her representative will adjudicate.
 4. If the penalty levied is (f) or (g), the appropriate academic action will be taken by the dean of the school or college to which the student belongs. Disciplinary actions (e) - (g) will become a permanent part of the student's academic record, with appropriate notation indicating that there has been a violation of the Academic Integrity Code.
 5. The student may not withdraw from a course in which an infraction has been found and a

penalty applied. No refund or cancellation of tuition or fees will be permitted in such cases.

D. Notifications and Appeals

1. The dean (or the dean's appointed designee) will notify the student in writing of the finding and, as appropriate, the assigned penalty. The faculty member bringing the charge will also be notified in writing of these results, as will the chair of the department in which the case occurred and the student's dean (if the student is a member of another major teaching unit).
2. In cases concerning notation to the permanent record [penalties (e) - (g) in 2.c above], students will be notified in writing of their right of appeal. Appeals must be made in writing within 30 days of the date of notice. Appeals are limited to grounds of excessive sanction, improper procedure, and unavailability of relevant evidence at the time of the original administrative or code review panel meeting. Appeals will be reviewed by the chancellor who may consult the written record of the case, the appeal request, and any person involved in the adjudication process. Following the review, the chancellor may deny the appeal, lower the sanction or remand the matter to the appropriate dean in the event of improper procedure or new evidence.

E. Suspension and Dismissal

The decision as to whether suspension or dismissal is appropriate in a given instance will depend on the circumstances of each case and usually on the total academic record of the student involved.

1. Suspension is effective for not less than the session in which sanction is taken or for not more than one calendar year, and the length of a suspension is to be specified precisely at the time the action is taken. A student who is suspended is ordinarily entitled to resume studies in the same school or college at the conclusion of the period of suspension

provided he or she has satisfied all requirements which were imposed by the dean implementing the original action.

2. Dismissal is a penalty invoked in cases of serious infraction of rules and regulations. It is invoked when circumstances indicate that a student's association with the university should be terminated in the interests of maintaining the standards of behavior and conduct normally expected in a university community. A student who has been dismissed but who has not been denied the privilege of returning to the university at a later time may apply for re-admission after the expiration of one calendar year. The application will be processed after a total re-evaluation of the record and in accordance with the admission and readmission practices in effect at the time of application. A readmitted student is governed by the academic requirements in effect at the time of readmission.

3. The calendar year which must elapse before an application for readmission may be considered is interpreted as beginning on the final day of the semester during which the disciplinary action was taken.

F. Records of Disciplinary Actions

1. All records pertaining to student infringement of the Code will be maintained for a period of five (5) years after the student's last registration at the American University of Sharjah. In the event that the penalties become part of the student's permanent record, the record will be maintained indefinitely. These records are subject to university regulations concerning the confidentiality of student records.
2. Upon written request, students have the right to inspect their records and violations of the code.

Student Code of Conduct

Members of the American University of Sharjah community live, work and study together in an institutional framework in pursuit of truth and the dissemination of knowledge. Freedom of inquiry and intellectual endeavor can flourish only in a community in which the participants are united in their mutual search for intellectual growth.

If the purposes of the university and its community are to be realized and advanced, the rights, responsibilities, and reasonable standards of conduct essential to a university community must be set forth.

Misconduct under this code for which the students are subject to university discipline is defined as follows:

- a. Physical abuse of any person, including but not limited to, sexual assault and abuse on university premises or at university-sponsored events or functions.
- b. Conduct that threatens or endangers the health or safety of any person on university premises or at university-sponsored events or functions.
- c. Theft or unauthorized taking of university property or other property on university premises.
- d. Possession of stolen or unauthorized property on university premises or at university-sponsored events or functions.
- e. Willful, wanton, or reckless damage to university premises or property or other property on university premises.
- f. In nonacademic university matters, dishonesty or knowingly furnishing false information.
- g. Fraud, forgery alteration or unauthorized use of documents, university records, or instruments of identity with the intent to defraud or deceive.
- h. Possession of fraudulent, forged or altered instruments of identification on university premises or at university-sponsored events or functions.
- i. Intentional obstruction or disruption of teaching, research, administration, disciplinary proceedings, or other university activities, including public service functions and other authorized activities on university premises.
- j. Tampering, unauthorized or fraudulent use of campus telephones or access codes, university computers, network systems, or computer files as defined by university policy.
- k. Entry or an attempt to enter without lawful authority any dwelling, building, or facility on university premises, against the will of the lawful occupant or of the person lawfully authorized to remain, and refusing to quit the same on demand of the lawful occupant or of the person lawfully in charge thereof.
- l. Failure to comply with published university policy or regulations including rules governing the residential halls, residential hall contract or regulations relating to use of university facilities.
- m. Adjudicated violations of the Emirate of Sharjah and the federal UAE law (including acts declared unlawful in relation to narcotic drugs, dangerous drugs, alcoholic beverages, and gambling) on university premises or at university-sponsored events and functions.
- n. Keeping, using, possessing, selling, or distributing of any firearms, fireworks, explosives or dangerous weapons on university premises or in university residents halls or at university sponsored functions; or any other materials or substances which are prohibited by law with the sole exception of law enforcement officials duly authorized by law to

- possess firearms for the performance of their duties.
- o. Alcohol and drug violations as defined by university policy and the laws of Sharjah and the UAE.
 - p. Gambling or other illegal or unauthorized games or contests of chance, on university premises or in university residence halls or at university-sponsored functions; or any other materials or substances which are prohibited by law with the sole exception of law enforcement officials duly authorized by law to possess firearms for the performance of their duties.
 - q. Unauthorized soliciting or canvassing, by any individual, group, or organization on university premises or in university residence halls.
 - r. Unauthorized use of the corporate name of the university, which is the property of the university, by any person, persons or organizations.
 - s. Failure to be fully responsible for the behavior of guests during university functions or activities, and on university premises or in university residence halls. A guest is defined as any person that is not a university staff, student or faculty member.
 - t. Harassment or intimidation of students, faculty, staff or any employee or guests of the university.
 - u. Hazing of students, faculty, staff or any employee or guest of the university.
 - v. To tamper with telephone equipment or to falsely use telephone credit cards or otherwise fraudulently use campus telephones.
 - w. To abuse computer equipment, (e.g., computer stalking and harassment, stealing, deleting information, and internet theft or knowingly introducing a computer virus) or to gain unauthorized access to computer resources.
 - x. Failing to comply with direction of university official acting in performance of his/her duties.
 - y. Violations of published rules governing the university residence halls.
 - z. Failing to follow the university computing center policies and procedures on the use of the university computing and communication facilities, such as e-mail protocols, internet usage, computer labs and other communication equipment.

Rights and Responsibilities

1. No member of the university community shall be deprived of academic freedoms, personal rights, and liberties without due and fair processes of applicable university regulations.
2. No disciplinary sanctions may be imposed upon any member of the university community under authority of the university without fair and due process provided.
3. Each student has a duty to understand the rules and regulations set forth by the university. Ignorance of a rule or regulation shall not be an acceptable defense by the Conduct Council Hearing Board.

Regulations for Student Conduct in Residence Halls

Regulations for student conduct in the American University of Sharjah residence halls are based on the American University of Sharjah Code of Conduct and are incorporated into the *Student Handbook*.



College of Arts and Sciences

- **Dean and Faculty**
- **The Intensive English Program**
- **Arabic**
- **Computer Science, Mathematics and Statistics**
- **English**
- **Other Disciplines**

Dean

Samih K. Farsoun

The mission of the College of Arts and Sciences is to provide students with the intellectual, cultural and scientific foundation for academic and professional education and training. Its programs, including the general education programs, are designed to inspire and invigorate the intellectual and creative potential of students and to encourage them to conceptualize, reflect and act. Through the university graduation requirements, including the general education program that is provided by the college, students learn to examine the many varied aspects of Arab/ Islamic, Western and non-Western cultures. They also master written and oral expression in Arabic and English, learn to appreciate quantitative reasoning, scientific inquiry and method and to develop the critical ability to analyze and synthesize data and information. Finally, they build an understanding of moral and ethical dimensions that create a foundation for individual and collective lifelong decision-making.

Graduates of the College of Arts and Sciences at the American University of Sharjah will not only be prepared to achieve their personal and professional aspirations in the short-term; they will also be well qualified to pursue their studies and professional training towards a master's or doctoral degree in their chosen fields.

Faculty

The College of Arts and Sciences has distinguished teacher-scholar faculty members who are experts in their fields. They hail from all over the world and comprise a group of diverse, multi-cultural academic practitioners. They provide the training and preparation our students need to meet the challenges of living and working in the global community.

Professor

Fatima Badry (English and Linguistics)
Hichem Ben El-Mechaiekh (Mathematics)
Samih Farsoun (Sociology)
Mowaffaq Hajja (Mathematics)
Fawwaz Jumean (Chemistry)
Ibrahim Sadek (Mathematics)
S. Ballou Skinner (Physics)
Peter Walker (Mathematics)

Associate Professor

Yussef Abu-Muhanna (Mathematics)
Hussam Almohamad (Computer Science)
Barry Blundell (Physics)
James Peter Fallon (English)
Adrian Gully (Arabic)
LeRoy Pazdernik (Chemistry)
Ali Sayfy (Mathematics)
John Willoughby (Economics)

Assistant Professor

Taher Abualrub (Mathematics)
Marwan Abukhaled (Mathematics)
Ahmad al-Issa (English)
Samir Aouadi (Physics)
Isam Ayoubi (Mathematics)
Richard Burchett (Psychology)
Judith Ceasar (English)
Jamal El-Attar (Arabic)
Mary Ann Fay (History)
Asad Hasan (Physics)
Allen Hasson (English)
Nada Mourtada-Sabah (Political Science)
Ghazi Q. Nassir (English)
Marielle Risse (English)
John Shannon (English; Intensive English)
Michael Vinson (Physics)

Instructor

Mark Boyter (IEP)
Polly Buechel (IEP)
Mahmoud Chreih (Philosophy)
Garry Church (IEP)
Robert Conley (IEP)
Mary Lou Donegan (IEP)
Leslie Giesen (IEP)
Jacquelyn Glebov (IEP)
Melody Griffith (IEP)
Patrick Henry (IEP)

John Hicks (IEP)
Stephanie Hogan (IEP)
Barbara Logan (IEP)
Amanda Magrath (IEP)
Isra Haj Sirri (Physics)
Pelly Shaw (IEP)
Brian Skelton (IEP)
Tracy Springer (IEP)
Jennifer Stanton (IEP)
Douglas Stewart (IEP)
Iris Switzer (IEP)
Dawn Taylor (IEP)
Audrey Thomson (IEP; Business and Management)
Noelle Wallace (IEP)
Michelle Weathers (IEP)
Cara Weston (IEP)
Deborah Wilson (IEP)
Mahmoud Yafawi (IEP)

Laboratory Assistant

Eman Al-Ayoubi (Chemistry)
Rajaa Dakik (Chemistry)
Renuka Surabhi (Physics)
Ghadeer Zeidat (Chemistry)

The Intensive English Program

Director

John Shannon

English is the medium of instruction at the American University of Sharjah and, therefore, competence in that language is a prerequisite for student success. The mission of the Intensive English Program (IEP) is to prepare learners to enter the university and excel as students. The main goals of the program are to increase student language proficiency to a level suitable for study in courses taught in English and to enhance their

academic skills in order for them to function successfully in first year course work.

Faculty

Instructor Mark Boyter, Polly Buechel, Garry Church, Robert Conley, Mary Lou Donegan, Leslie Giesen, Jacquelyn Glebov, Melody Griffith, Patrick Henry, John Hicks, Stephanie Hogan, Barbara Logan, Amanda Magrath, Pelly Shaw, Brian Skelton, Tracy Springer, Jennifer Stanton, Douglas

Stewart, Iris Switzer, Dawn Taylor, Audrey Thomson, Noelle Wallace, Michelle Weathers, Cara Weston, Deborah Wilson, Mahmoud Yafawi.

Admission and Placement

Students who score below 500 on the Test of English as a Foreign Language (TOEFL) and who otherwise qualify for admission to AUS are eligible for admission into the IEP. Placement into one of the five proficiency levels of the program is based on placement and standardized proficiency test scores.

Duration

The length of time required to complete the program varies with the linguistic background and performance of the student. Students who enter with scores below 400 on the TOEFL may require more than two semesters to complete the English language program.

Attendance/Discontinuation

Classes meet daily, Saturday through Wednesday. Because of the intensive nature of the program, regular attendance in all courses is expected, and as a matter of policy, students are required to attend at least 90% of all IEP courses. If a student fails to maintain regular attendance in a particular course, he or she will be given a warning (at approximately the eighth absence in a five-hour per week course). Upon the fourth absence after the warning, the student will be withdrawn from the course. Also, an absence, whether excused or unexcused, is still an absence. Missing

12 class meetings is grounds for withdrawal from the course.

Tardiness

Classes begin on time and students are expected to be in class on time. Students who arrive late disrupt whatever activity is being performed. Three occasions of tardiness count as one absence.

Organization of the Program

The IEP consists of five levels and is graded in terms of language proficiency. The aim of instruction is to improve the English language skills of each student in the areas of reading, writing, listening and speaking, and in the use of grammar and vocabulary. The instruction is also tailored to meet the individual academic learning needs of the students. The IEP program levels are detailed in the IEP Program Organization table below.

Pedagogical Format

The focus of instruction at the lower levels is on general English. As language proficiency increases, IEP courses become more academic in nature. By the advanced level, course work begins to simulate full academic, credit-bearing courses. In addition, throughout all of the levels, courses are given in reading and writing. These two skill areas must be taught at every level. The core skill components of the program are summarized in the text which follows.

IEP Program Organization					
Level Courses	Instruction	Self-Access	Total Time	Placement	University
1	20 hours	5 hours	25 hours	Standard Test	0.0
2	20 hours	5 hours	25 hours	TOFEL 400	0.0
3	20 hours	5 hours	25 hours	TOFEL 425	0.0
4	20 hours	5 hours	25 hours	TOFEL 450	0.0
5	15 hours	0 hours	15 hours	TOFEL 475	1.0 (by placement)

Reading

The fundamental goals of the reading skills component are twofold: to improve student reading comprehension and to increase student reading speed. These goals will be met through the extended practice of a variety of reading skills within a diverse range of text forms and genres. Students will also gain an understanding of, and an appreciation for, the importance of reading both inside and outside the academic setting.

Writing

The writing component is designed to lead the student through the different steps of the writing process, from generating and organizing ideas to writing, editing and revising written work. Students will develop a range of skills necessary to produce academic texts, from basic sentences to university papers. The emphasis of instruction will be placed on developing fluency, grammatical accuracy and lexical accuracy by analyzing and practicing in the various rhetorical modes needed for academic writing.

Listening

The primary goal of the listening component is to develop and improve the ability of each student to effectively comprehend English in academic and social settings. This goal will be met through practice in interactive listening activities, which focus on understanding spoken English. The emphasis in lower level courses will be on understanding conversations, determining main ideas and details, and comprehending short lectures. The emphasis for higher level courses will be on improving comprehension of longer and more complex academic lectures, developing clear and accurate methods of taking notes, and organizing information in a useful format.

Speaking

The focus of the speaking component is to prepare students to communicate successfully in the social and academic environments of the university. Improving both fluency and accuracy are the goals of all courses in this area. Instruction

will be given in how to express an opinion articulately, agree or disagree effectively and persuade and argue a point convincingly. The emphasis will be on developing the ability of each student to make speeches and oral presentations, to gather information, to participate in classroom and panel discussions, and to use computer technology for research and presentations.

Grammar

The aim of this component is to integrate grammar into four language skills: reading, writing, listening and speaking. The goal is to develop grammatical accuracy within written and oral contexts and to increase comprehension within listening and reading contexts. The emphasis is placed not only on knowing the forms but also on understanding the functions of grammatical structures in order to produce accurate language in appropriate contexts.

Vocabulary

Vocabulary is not specifically associated with a particular skill area; instead it is an integral part of every language skill. Therefore, its development must be integrated into all courses in the Intensive English Program. However, in an effort to best serve the needs of the students, vocabulary instruction will primarily be focused on high frequency survival English at the lower proficiency levels of the program, and gradually move along a continuum toward low frequency academic and technical language at the higher levels. By the time the students are ready to exit the IEP, they will have become familiar with much of the academic vocabulary necessary for success in their university studies.

Instructional Hours

On average, students receive 20 hours of classroom instruction a week. In addition, students in the first four levels are required to participate in a self-access program for five hours each week. This program consists of completing independent learning modules in the computer lab, reading lab and audio-visual lab.

Methods

All instructors are specially trained and experienced in teaching English across the curriculum. The methods, materials and equipment used are all state-of-the art and are targeted to meet student needs. As much individual attention as possible is given to students.

Evaluation

Progress tests are administered regularly. Practice tests, quizzes, midterms and final examinations are given to assess student progress in

the English courses. Promotion to freshman status or to a higher level in the program is determined by examination, instructor assessment or recommendation.

Subject Matter Program

Students who are placed in Level 5 of the IEP may take one course in Mathematics, Physics, Chemistry or Business Mathematics as determined by placement test results in these subjects.

Arabic

Chair

Adrian Gully

The Arabic and Literature major provides the student with a broad knowledge of Arabic language and literature. The student will learn theories of how the language was developed and gain an appreciation of Arabic/Islamic culture. In addition, students will study critiques written in more recent times which shed new light on major classical and contemporary issues. The major covers a time span of around thirteen hundred years and examines the three main periods of Arab/Islamic culture: the medieval or classical; the neo-classical; and the modern eras. The main objective of this degree is to further student awareness of the historical value of Arabic language and literature and how they relate to the development of Arab intellectual thought and to our present society.

Faculty

Associate Professor Adrian Gully

Assistant Professor Jamal El-Attar

B. A. in Arabic Language and Literature

Admission to the Program

Formal admission to the major by the department requires a cumulative grade point average (GPA) of 2.00 and a GPA of 2.00 or higher in two Arabic courses.

University Graduation Requirements

A total of 120 credit hours, including:

- Forty-six to forty-eight credit hours of university requirements
- Twelve credit hours of college requirements
- Thirty-three credit hours of Arabic Language and Literature
- Twelve credit hours of related field courses
- Seventeen credit hours of free electives

College Requirements

Twelve credit hours (or four courses) from among the following:

- CSC 203 Islamic Cultural Studies I
- CSC 204 Islamic Cultural Studies II
- HIS 101 Survey of Islamic History I
- HIS 102 Survey of Islamic History II
- HIS 203 Early History of the Arabs
- HIS 204 Modern Arab History
- PHI 202 Introduction to Islamic Philosophy
- PSY 101 General Psychology
- PSY 102 Social Psychology

- SOC 201 Globalization
- SOC 203 Arab Culture and Society
- SOC 204 Socio-Economics of Arab States
- SOC 205 UAE Society
- POL 201 Introduction to Political Studies
- POL 202 International Relations

Requirements for the Major

- ARA 101 Readings in Arabic Heritage I
- ARA 102 Readings in Arabic Heritage II
- ARA 103 Composition for Native Speakers of Arabic

Any 12 credit hours (or four courses) from among the following ***Arabic Language*** courses:

- ARA 209 Arabic Morphology and Syntax
- ARA 210 Arabic Philology
- ARA 211 Linguistic Issues in the Neoclassical Period
- ARA 212 Introduction to Arabic Socio-linguistics
- ARA 308 Introduction to Stylistics and Metrics
- ARA 309 Arabic Lexicography
- ARA 310 The Development of the Arabic Language
- ARA 311 Seminar on Arabic Language
- ARA 407 Advanced Studies in Arabic Grammar
- ARA 408 The Arabic Language and Modern Linguistics
- ARA 409 Luminaries in the History of the Arabic Language
- ARA 410 Tutorial on the Arabic Language
- ARA 411 Seminar in Arabic Language

OR

Any six credit hours (or two courses) from the above list **plus**

- ARA 412 Senior Thesis on Arabic Language (six credit hours)

And, any 12 credit hours (or four courses) from the following ***Arabic Literature*** courses:

- ARA 202 Arab-Islamic History and the History of Arabic Literature
- ARA 203 Pre-Islamic Poetry
- ARA 204 Early Islamic and Umayyad Poetry
- ARA 205 Poetry in the Abbasid Age
- ARA 206 Modern Arabic Prose
- ARA 207 Arabic Drama
- ARA 301 Classical Arabic Prose until the end of the Third Century A.H.
- ARA 302 Classical Arabic Prose from the Fourth to Seventh Century A.H.
- ARA 303 Andalusian Literature
- ARA 304 Modern Arabic Poetry

- ARA 305 Literature of the Arabian Gulf
- ARA 306 Seminar on Arabic Literature
- ARA 401 Literary Criticism from the Arab Perspective
- ARA 402 Qur'anic Studies
- ARA 403 Sufi Literature
- ARA 404 Tutorial on Arabic Literature
- ARA 405 Research Seminar on Arabic Literature

OR

Any six credit hours (or two courses) from the above list, **plus** the following:

- ARA 406 Senior Thesis on Arabic Literature*
(6 credit hours)

* The senior thesis option can only be taken either on Arabic Language or Arabic Literature.

Related Requirements

Twelve credit hours (or four courses) in related fields from among the following. Please note that **at least** one of the courses must be taken from each of the related areas.

English Language:

(at least one of the following courses)

- ENG 123 Introduction to Language Study
- ENG 222 Phonetics
- ENG 224 Phonology
- ENG 226 Morphology
- ENG 228 Semantics
- ENG 230 Pragmatics
- ENG 328 Contrastive Linguistics
- ENG 334 Sociolinguistics

English Literature:

(at least one of the following courses)

- ENG 108 World Literature Today
- ENG 207 The Beginnings of the Novel
- ENG 216 Introduction to Literary Theory and Criticism
- ENG 312 East and West
- ENG 314 Literature and Society
- ENG 319 Women in Literature

Translation:

(at least one of the following courses)

- TRA 101 Introduction to Translation
- TRA 201 Theoretical and Practical Issues in Translation
- TRA 203 Translation Practicum

- TRA 301 Advanced Translation

Minor in Arabic Language and Literature

A total of 18 credit hours including:

Course Requirements

- ARA 101 Readings in Arabic Heritage 1
- ARA 102 Readings in Arabic Heritage 2
- ARA 103 Composition for Native Speakers of Arabic

Any six credits (two courses) from among the following courses:

- ARA 204 Early Islamic and Umayyad Poetry
- ARA 206 Modern Arabic Prose
- ARA 209 Arabic Morphology and Syntax
- ARA 210 Arabic Philology

- ARA 211 Linguistic Issues in the Neoclassical Period
- ARA 309 Arabic Lexicography
- ARA 407 Advanced Studies in Arabic Grammar

And, any one of the following courses:

- ARA 302 Classical Arabic Prose from the Fourth to Seventh Century A. H.
- ARA 408 The Arabic Language and Modern Linguistics
- ARA 409 Introduction to Arabic Sociolinguistics
- ARA 410 Seminar on Arabic Language

Computer Science, Mathematics and Statistics

Chair

Peter Walker

The aim and mission of the computer science degree program is to produce individuals who can be highly effective and productive in the field of information technology. This field involves the study of the theoretical and practical principles of design and the use of information and computer systems. As computers have become a part of everyday life, the demand for professionals in this area has increased considerably.

To help meet these demands, the B.S. in Computer Science program focuses on teaching the theory, design and application of computer science. The program prepares students to work as operating system designers, system programmers, system analysts, application programmers and as experts in artificial intelligence. Students learn the basic principles of information and computer science and acquire knowledge to design and implement systems and application software projects. The program has both academic and professional orientations. Therefore, it enables graduates to meet challenges in real-life

applications, research and in advanced studies in computer science.

Faculty

Professor: Hichem Ben El Mechaiekh, Mowaffaq Hajja, Ibrahim Sadek, Peter Walker

Associate Professor: Yusef Abu-Muhanna, Husam Almohamad, Ali Sayfy

Assistant Professor: Taher Abualrub, Marwan Abukhaled, Isam Ayoubi

Careers in Computer Science

Below are some brief descriptions of career options that individuals in computer science may pursue:

- **Artificial Intelligence Specialists** work as applications programmers to apply expert system technology or neural networks to particular problems; perform pattern recognition, speech recognition and traffic control.
- **Database Specialists** establish or maintain databases of information such as employee records, library catalogs or satellite data;

work to develop accounting and management information system procedures and to develop code to efficiently retrieve and effectively display the results.

- **Numerical Analysis Specialists** work in scientific computing and applications programming careers to code numerical algorithms; tune the parameters in the algorithms to optimize performance and integrate graphics for a display of results.
- **Software Engineers** work with a team of applications programmers to write requirements, documents and specifications; write and review code specifications; test code; enhance and modify existing code and develop prototype user interfaces.
- **System Analysis and Design Specialists** analyze computer systems, understand the requirements of such systems and find the relationship between the analysis and design phases.
- **Theory of Computation Specialists** program data encryption algorithm, predict average and worst case behavior of computer codes and computer hardware systems and use logic programming in artificial intelligence.

B.S. in Computer Science

The main objectives of the program are:

- To provide the professionals needed to meet the country's development plans.
- To prepare students for graduate work and research in their field of specialization.
- To provide the expertise and link through which advanced technologies and their applications could be transferred to the country.
- To provide the country, through research, with skills, ideas and innovations in certain areas of advanced technologies.

The B.S. in Computer Science program is designed to provide the following:

- **Breadth and Depth:** The program has a core curriculum that provides breadth in the field. Additional specialized courses and electives provide depth in individual program tracks.
- **Balance:** In this theoretical core curriculum, software and hardware, are joined in theory and in practice through integrated lecture and laboratory sequences.
- **Practicality:** The curriculum is flexible and provides opportunities for the students to emphasize specific areas of interest through their choice of appropriate electives.

Admission to Program

Formal admission to the major in computer science by the department requires a cumulative grade point average (GPA) of 2.00 or better.

University Graduation Requirements

A total of 136 credit hours, including:

- Forty-six to forty-eight credit hours of university requirements (URE)
- Ninety credit hours of major requirements (MRE)
- To satisfy the oral communication competency requirement for the B.S. in Computer Science the student must successfully complete CMP 495.

Requirements for the Major (90 credit hours)

The program of study for a computer science major must include all of the following requirements with grade *C* or better in each course:

Core Requirements (47 credit hours)

- MTH 104 Calculus II
- MTH 203 Calculus III
- MTH 205 Differential Equations
- MTH 221 Linear Algebra
- MTH 341 Numerical Computing
- CMP 120 Introduction to Computer Science I
- CMP 121 Introduction to Computer Science II

- CMP 213 Discrete Structures/MTH 213 Discrete Mathematics
- CMP 232 Data Structures
- CMP 242 Organization of Computer Systems
- CMP 310 Introduction to Operating Systems
- CMP 320 Database Systems
- CMP 334 Organization of Programming Languages
- CMP 335 Formal Languages and Computability I
- CMP 340 Analysis of Algorithms

Elective Requirements (37 credit hours)

The student must choose these 37 credit hours of which 28 credit hours must be from at least 3 of the following areas, approved by the student's advisor:

Computer Systems:

- CMP 311 Computer Networks
- CMP 315 Computer Components and Circuits
- CMP 410 Compiler Construction
- CMP 412 Computer Systems Architecture
- CMP 413 Performance Evaluation of Computer Systems

Information Processing:

- CMP 321 Computer Graphics
- CMP 324 File Processing
- CMP 421 Image Processing
- CMP 424 Artificial Intelligence
- CMP 425 Information Theory

Software Engineering / Programming Languages:

- CMP 337 Parallel Computing
- CMP 434 Programming Languages
- CMP 435 Software Engineering
- CMP 436 Object-oriented Analysis Design
- CMP 437 Introduction to Symbolic Programming
- CMP 438 Programming Robots

Theory of Computation:

- CMP 440 Formal Languages and Computability II
- CMP 441 Hypermedia Computing

Other:

- CMP 365 Switching Theory
- CMP 385 Professional and Ethical Issues in Computer Science
- CMP 481 Introduction to Simulation and Modeling

- CMP 482 Introduction to Neural Network
- CMP 483 Introduction to Fuzzy Systems
- CMP 490 Topics in Computer Science
- CMP 491 Independent Study
- CMP 495 Seminar in Computer Science

The student **must** also take a minimum of three courses (9 credit hours) from at least 2 areas on the following list (these courses must be approved by the student's advisor):

Discrete Mathematics:

- MTH 425 Introduction to Graph Theory
- MTH 483 Discrete Optimization

Numerical Analysis:

- MTH 441 Numerical Linear Algebra
- MTH 442 Numerical Solutions to DE

Optimization:

- MTH 481 Calculus of Variations and Control Theory
- MTH 482 Linear Programming

Technical Elective Requirements (6 credit hours)

A minimum of 6 additional credit hours of 300-400 level courses in one discipline outside of computer science (such as computer engineering, electrical engineering, etc.)





*A wide variety of campus
resources are available
to AUS students*

Proposed Sequence of Study

Bachelor of Science in Computer Science

(B.S. in Computer Science)

FIRST YEAR (35 credit hours)

Term	Course #	Course	Credit Hours	Fulfills
Fall	MTH 103	Calculus I	4	URE
	PHY 101	General Physics I	4	URE
	COM XXX	Communication I	3	URE
	CMP 120	Introduction to Computer Science I	3	CRE
	CHM 101	General Chemistry I	4	URE
		Total	18	
Spring	MTH 104	Calculus II	4	CRE
	PHY 102	General Physics II	4	URE
	ARA XXX	Arabic Literature or Language	3	URE
	COM XXX	Communication II	3	URE
	CMP 121	Introduction to Computer Science II	3	CRE
		Total	17	

SECOND YEAR (34 credit hours)

Term	Course #	Course	Credit Hours	Fulfills
Fall	MTH 203	Calculus III	4	CRE
	CMP 213	Discrete Mathematics	3	CRE
	CMP 232	Data Structures	3	CRE
	HUM XXX	Elective	3	CRE
	COM XXX	Communication III	3	URE
		Total	16	
Spring	SSC XXX	Elective	3	URE
	ENG XXX	Elective	3	URE
	CMP 242	Organization of Computer Systems	3	CRE
	MTH 205	Differential Equations	3	CRE
	MTH 221	Linear Algebra	3	CRE
	CMP XXX	Computer Elective	3	ERE
		Total	18	

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.

THIRD YEAR (33 credit hours)

Term	Course #	Course	Credit Hours	Fulfills
Fall	SSC XXX	Elective	3	URE
	STA 201	Introduction to Statistics	3	URE
	CMP 310	Intr. Operating System	3	CRE
	CMP 320	Database Systems	3	CRE
	CMP XXX	Computer Elective	3	ERE
		Total	15	
Spring	HUM XXX	Elective	3	URE
	CMP 334	Organization of Programming Language	3	CRE
	CMP 335	Formal Languages & Computability I	3	CRE
	CMP XXX	Computer Elective	3	ERE
	CMP XXX	Computer Elective	3	ERE
	MTH XXX	Math Elective	3	ERE
		Total	18	

FOURTH YEAR (33 credit hours)

Term	Course	Course	Credit Hours	Fulfills
Fall	CMP 340	Analysis of Algorithms	3	CRE
	MTH XXX	Math Elective	3	ERE
	CMP XXX	Computer Elective	3	ERE
	CMP XXX	Computer Elective	3	ERE
	CMP XXX	Computer Elective	3	ERE
	XXX XXX	Technical Elective	3	TERE
		Total	18	
Spring	MTH XXX	Math Elective	3	ERE
	CMP XXX	Computer Elective	3	ERE
	CMP XXX	Computer Elective	3	ERE
	XXX XXX	Technical Elective	3	TERE
	CMP 495	Seminar in Computer Science	3	ERE
		Total	15	

English

Chair

Fatima Badry

The mission of the Department of English at the American University of Sharjah is to cultivate student mastery and creative use of English, to develop an understanding of its structures and functions, and to foster an appreciation for its literary tradition. Our goal is to become the premier program in the area, in the Gulf, and in the Middle East in preparing students to become active, participatory members of the English-speaking global society.

Faculty

Professor Fatima Badry

Associate Professor James Peter Fallon

Assistant Professor Ahmed Al-Issa, Judith Caesar, Allen Hasson, Ghazi Q. Nassir, Marielle Risse, John Shannon

The English Communication Program

The English Communication Program consists of a series of four graded academic English courses (COM 101, 102, 203 or 204), three specialized English courses (COM 205, 206 and 207), and two oral communication courses (COM 208 and 209). The course that students start with is determined by an English Placement Examination that all students must take once they have been admitted to the university. All students, regardless of their scores on the TOEFL, SAT verbal or any other acceptable standardized test, must take the placement test to enter the sequence of English communication courses. Successful completion of a course occurs if, and only if, a grade of C- or higher is attained. Students whose grades fall below that level are required to repeat

the course. Finally, students are required to complete four courses in the Department of English as well as one of the oral communication courses (COM 208 or 209).

B. A. in English Language

Language is more than communication. It is a structure-bound entity that allows humans to communicate, to store (and later retrieve) information in memory and to develop their own sense of self and self-consciousness. In a sense, language opens a window into an individual's mind while also exposing the cultural values of its users. A major in English Language provides students with a solid foundation in the structure of English. It also allows them to explore the relationship of language to the individual and to society. Graduates of the program are prepared for further study in linguistics, English education, electronic and print journalism and English as a foreign language, depending on their own interests and credentials.

Admission to the Program

Formal admission to the major by the department requires a cumulative grade point average (GPA) of 2.00 and a GPA of 2.00 or higher in two English language courses.

University Graduation Requirements

A total of 120 credit hours, including:

- Forty-six credit hours of university requirements (URE)
- Twelve credit hours of college requirements (CRE)
- Forty-five credit hours of major requirements (MRE)
- Seventeen credit hours of free electives

College Requirements

Twelve credit hours (or four courses) from among the following:

- PHI 201 Introduction to Philosophy
- PHI 202 Introduction to Islamic Philosophy
- POL 201 Introduction to Political Studies
- POL 202 International Relations
- PSY 101 General Psychology
- PSY 102 Social Psychology
- SOC 101 Introduction to Sociology
- SOC 202 Communication and Society

Requirements for the Major

A total of 45 credit hours, including:

- Thirty-three credit hours of English Language
- Twelve credit hours of related courses in English Literature and Translation

Course Requirements

All of the following courses must be taken:

- ENG 123 Introduction to Language
- ENG 126 History of the English Language
- ENG 222 Phonetics
- ENG 226 Morphology
- ENG 232 English Grammar
- ENG 330 Psycholinguistics
- ENG 334 Sociolinguistics
- ENG 420 Seminar in English Language

and nine credit hours (three courses) from the remaining English Language courses.

Related Requirements

- ENG 202 Studies in Old and Middle English Literature
- ENG 203 Poetry and Prose: 1500-1660

OR ENG 205 Poetry and Prose: 1660-1800

OR ENG 204 Shakespeare

and six credit hours (two courses) from the remaining literature and translation courses.

Minor in English as a Foreign Language

A total of 21 credit hours:

- ENG 123 Introduction to Language
- ENG 220 Language in Education
- ENG 320 EFL Teaching Models and Methods
- ENG 322 Second Language Reading Process
- ENG 324 EFL Writing Practicum

and six credit hours (two courses) from the remaining English Language courses.

B. A. in English Literature

A major in English Literature provides the student with a historical and critical context for evaluating literary works. The texts studied are primarily written in English, but also include translations of major European authors, as well as representative authors and styles from Asia. Literature majors begin their studies with a survey of English literature and then move on to classes which concentrate on a particular motif, genre, critical approach, country, author or time period. Coordination with other disciplines in the Arts and Sciences (especially Arabic language and literature, history and art history) allows students to study the literature, political history and architecture of a particular place or epoch in-depth during one semester.

Admission to the Program

Formal admission to the major by the department requires a cumulative grade point average (GPA) of 2.00 and a GPA of 2.00 or higher in two English Literature courses.

University Graduation Requirements

A total of 120 credit hours, including:

- Forty-six credit hours of university requirements (URE)
- Twelve credit hours of college requirements (CRE)
- Forty-five credit hours of major requirements (MRE)
- Seventeen credit hours of free electives

College Requirements

Twelve credit hours (or four courses) from among the following:

- ARA 101 Readings in Arabic Heritage
- ARA 201 Arabic Literature in Translation (non-native speakers of Arabic only)
- ARA 206 Modern Arabic Prose
- CSC 201 Western Cultural Studies I
- CSC 202 Western Cultural Studies II
- PHI 201 Introduction to Philosophy
- PHI 202 Introduction to Islamic Philosophy

- PSY 101 General Psychology
- PSY 102 Social Psychology
- SOC 202 Communication and Society

Requirements for the Major

A total of 45 credit hours, including:

- Thirty-three credit hours of English Literature
- Twelve credit hours of related courses in English Language and translation

Course Requirements

- ENG 202 Studies in Old and Middle English Literature
- ENG 203 Poetry and Prose: 1500-1660
- OR** ENG 205 Poetry and Prose: 1660-1880
- ENG 204 Shakespeare
- ENG 207 The Beginnings of the Novel
- OR** ENG 211 The Nineteenth-Century English Novel
- ENG 209 The Romantic Age
- ENG 212 The Victorian Age
- ENG 214 Studies in Twentieth-Century Literature
- ENG 216 Introduction to Literary Theory and Criticism
- ENG 312 East and West **OR** ENG 314 Literature and Society

Six (6) credits (two courses) from the remaining English Literature courses.

Related Requirements

- ENG 126 History of the English Language
- ENG 232 English Grammar

Six (6) credits (two courses) from the remaining English Language and translation courses.

Minor in English Literature

A total of 21 credit hours:

Course Requirements

- ENG 110 Survey of English Literature I
- OR** ENG 111 Survey of English Literature II
- ENG 203 Poetry and Prose: 1500-1660
- OR** ENG 205 Poetry and Prose: 1600-1800
- ENG 204 Shakespeare
- ENG 207 The Beginnings of the Novel
- OR** ENG 211 The Nineteenth-Century English Novel
- ENG 209 The Romantic Age
- OR** ENG 212 The Victorian Age
- OR** ENG 214 Studies in Twentieth-Century Literature
- ENG 216 Introduction to Literary Theory and Criticism

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- ENG 312 East and West
- OR** ENG 314 Literature and Society

B.A. in Translation

This major provides students with a thorough understanding of the traditional and linguistic theories of translation. It also prepares them to apply these theories to the practice of literary and technical translation. Most of the course work involves the use of Arabic and English, but the skills taught can easily be adapted for use with other languages. In addition, the term *translation* denotes an ability to take the meaning of a text written in one language and represent that meaning in another language. It presupposes that the translator is literate in both languages. Therefore, bilingual skills are a goal of the program. In order for students to reach this goal, additional course work is required in the following areas: Arabic Language (e.g. Arabic Morphology, Arabic Lexicography), English Language (e.g. semantics, pragmatics) and English Communication (e.g. academic writing, genre analysis).

Admission to the Program

Formal admission to the major by the department requires a cumulative grade point average (GPA) of 2.00 and a GPA of 2.00 or higher in two translation courses.

University Graduation Requirements

A total of 120 credit hours, including:

- Forty-six credit hours of university requirements (URE)
- Twelve credit hours of college requirements (CRE)
- Forty-five credit hours of major requirements (MRE)
- Seventeen credit hours of free electives

College Requirements

Twelve credit hours (or four courses) from among the following:

- CSC 201 Western Cultural Studies I
- CSC 202 Western Cultural Studies II
- PHI 201 Introduction to Philosophy
- PHI 202 Introduction to Islamic Philosophy
- POL 201 Introduction to Political Studies

- POL 202 International Relations
- PSY 101 General Psychology
- PSY 102 Social Psychology
- SOC 202 Communication and Society

Requirements for the Major

A total of 45 credit hours, including:

- Twenty-one credit hours of translation
- Twelve credit hours of related courses in Arabic Language
- Twelve credit hours of related courses in English Language

Course Requirements

- TRA 101 Introduction to Translation
- TRA 102 Practical Issues in Translation
- TRA 201 Theoretical and Practical Issues in Translation
- TRA 203 Translation Practicum
- TRA 301 Advanced Translation
- TRA 305 Cross-Cultural Issues in Translation
- ENG 328 Contrastive Linguistics

Related Requirements

Any twelve credit hours (or four courses) from among the following:

- ARA 208 Selected Texts for Translation I
- ARA 209 Arabic Morphology and Syntax
- ARA 210 Arabic Philology
- ARA 212 Introduction to Arabic Sociolinguistics
- ARA 307 Selected Texts for Translation II
- ARA 308 Introduction to Stylistics and Metrics
- ARA 309 Arabic Lexicography
- ARA 407 Advanced Studies in Arabic Grammar

Any twelve credit hours (or four courses) from among the following:

- ENG 222 Phonetics
- ENG 224 Phonology
- ENG 226 Morphology
- ENG 228 Semantics
- ENG 230 Pragmatics
- ENG 232 English Grammar
- ENG 234 Discourse Analysis
- ENG 422 Advanced Studies in English Grammar



Other Disciplines

Humanities and Social Science Program

Chair

Adrian Gully

Faculty

Associate Professor

Adrian Gully (Arabic)
John Willoughby (Economics)

Assistant Professor

Richard Burchett (Psychology)
Mary Ann Fay (History)
Nada Mourtada-Sabah (Political Science)

Instructor

Mahmoud Chreih (Philosophy)

The Humanities and Social Sciences Program provides the student with courses in several disciplines which enrich his/her general education and professional training. Twelve credit hours in the humanities and the social sciences are part of the university graduation requirements. Please refer to the *Course Descriptions* section of this catalog to locate the courses offered in the humanities and social sciences by discipline.

Science Program

Chair

S. Ballou Skinner

Faculty

Professor

Fawwaz Jumean (Chemistry)
S. Ballou Skinner (Physics)

Associate Professor

Barry Blundell (Physics)
Leroy Pazdernik (Chemistry)

Assistant Professor

Samir Aouadi (Physics)
Asad Hasan (Physics)
Michael Vinson (Physics)

Instructor

Israa Haj Sirri (Physics)

Lab Assistants

Eman Al-Ayoubi (Chemistry)
Rajaa Dakik (Chemistry)
Renukha Surabhi (Physics)
Ghadeer Zeidat (Chemistry)

The Science Program provides the student with foundation courses in chemistry and physics. These are courses required not only of engineering students, but also of all students in the university as part of the university graduation requirements.

Please refer to the *Course Descriptions* section of this catalog to locate the courses offered in the Sciences by discipline.



Design Foundations Studio

School of Architecture and Design

- **Dean and Faculty**
 - **Architecture Program**
 - **Interior Design Program**
 - **Multimedia Program**
 - **Visual Communication Program**
 - **Design Program**
-

Dean

Martin Giesen

The School of Architecture and Design grounds its curriculum in the conviction that good design results from a combination of three major contributing elements: a deep understanding of **culture**, guided by an ethical engagement in **society**, buttressed by an abiding respect for the **creative skills** needed to build sustainable material culture.

Against this background, the school is committed to the primary objective of providing its students with relevant, contemporary professional instruction in the fields of architecture, interior design, visual communications and multimedia.

The School is dedicated to inquiry and to the development of hands-on technical skills and competence in digital and other advanced media; to the pursuit of aesthetic investigations; to fostering in its students a regional and cultural awareness and the responsibility for creating humane environments. The School seeks to contribute to the development of professional standards and innovation in Architecture and Design.

The School of Architecture and Design meets its objectives through:

- an environment which encourages achievement and personal growth, guided by a

faculty of professionals who balance continuing scholarship and creative work with their desire for true excellence in teaching;

- a comprehensive advisement and student counseling system that tracks student development and progress;
- a general education curriculum that offers a solid foundation;
- a clear, consistent philosophy that is evident throughout the sequence of studio courses;
- a variety of courses that are continually updated to reflect rapidly changing design practices and the growing role of visual communication;
- a respect for the limits imposed by feasibility, culture, traditions and the needs of society.

Faculty

The faculty members serving in the School of Architecture and Design have been selected on the basis of their familiarity with a university education based on the American model. All members of the teaching staff are practicing professionals who combine mastery in teaching with continuing growth in their respective disciplines and thus are well equipped to serve as role models for students in their quest for an empowering and professional education.

Professor

Martin Giesen (Dean)

Associate Professor

Jay W. Randle (Architecture)

Mehdi Sabet (Architecture, Interior Design)

Gregor Weiss (Foundations, Architecture)

Dirk Van Wyk (Foundations, Graphic Design)

Assistant Professor

Tarek Al-Ghoussein (Photography)

Bob Dahm (Computer Design, Multimedia)

Kimberley Lund (Foundations, Printmaking)

Ann Melanie (Foundations, 3-D studies)

Eric Nay (Architecture, Foundations)

Phil Sheil (Foundations)

Instructor

Karl Byas (Digital Media)

Ron Hawker (History of Art and Architecture)

The School of Architecture and Design prepares students for careers in the following fields:

- environmental design, architecture, landscape architecture, interior design, town planning;
- graphic design, advertising, packaging design, illustration, animation, computer simulations, video, news-media;
- art and culture management, exhibition design and publicity, general design consulting.

Note: Students are cautioned that the specific selection of courses required for a chosen major at the time of initial registration is subject to change. The School of Architecture and Design will make every effort to monitor student progress through the advisement process. Students are encouraged to make course selections based on the stated degree requirements, subject to the listed prerequisites. Supply expenses for studio courses are additional to tuition cost. Under certain circumstances, the university may need to limit enrollment in the school or in some majors because of space limitations.

Accreditation

Accreditation is achieved and maintained through periodic review. Each program must maintain an archive of student work representative of actual performance in every component of the curriculum. To that end, the School of Architecture and Design reserves the right to retain, indefinitely, selected examples of student work.

Architecture Program

Chair

Jay W. Randle

Architecture arises from the same wellspring of civilization as other universal manifestations of material culture: arts, histories, letters, religion, and commerce. Still, the artifacts we designate as architecture possess a scale, a permanence, and a pervasive influence unique among human endeavors. These qualities endow the discipline with a cultural prominence few other professions enjoy.

In its contemporary university setting, the study of architecture is naturally concerned with complex, interdisciplinary issues. Some matters are primarily individual and practical: the basic human need for shelter, and the desire to give tangible form to the patterns of daily life. Architecture, in this sense, may concern aspirations and meanings, but it seeks to attain them for us, here and now.

Architecture has also a transcendent motive, arising from an imperative to articulate, physically and spatially, the social, ceremonial, and environmental choices a given culture makes within a given setting. Architecture expresses our living values. It gives abiding form, order and proportion to our activities.

Architecture is a message to the world about our certainties and doubts, our values and beliefs, our preoccupations and our neglects. It both expresses and reveals.

The practice of architecture today, as in the past, requires coordinated contributions from a multiplicity of fields. The craft of the architect runs a gamut of expertise and awareness: technical, environmental, aesthetic, cultural, historical, and commercial.

Consequently, the study of architecture inquires

into principles and applications of technology, art, humanities, engineering, physical and social sciences, business and management. Architectural design, finally, is the synthetic practice that links and gives significant form to these interdisciplinary contributions.

Faculty

Associate Professor Jay W. Randle, Mehdi Sabet, Gregor Weiss

Assistant Professor Eric Nay

Instructor Karl Byas

Bachelor of Architecture (B. Arch.)

The Bachelor of Architecture (B. Arch.) degree is intended for the student seeking a professional career in architecture. The program entails five years of university studies plus professional training. 168 credit hours comprise the degree program, including 129 credit hours of required coursework in architecture and closely associated fields. These courses present the irreducible core of the discipline of Architecture.

Each student is required to extend the core curriculum with 12 credit hours of elective coursework in the major field. The intent is to balance the concern for in-depth professional competence with another for the individual's interest and aptitude.

The specialized professional curriculum is supported by 46-48 credit hours of university requirements. Designed to ensure a broad educational foundation, this base is held in common among all graduates of the American University of Sharjah.

University studies present a unique opportunity to explore other fields of interest. Based solely

on individual interests, each Architecture student must select 9 additional credit hours of electives from general university offerings. Some credit hours overlap.

The curriculum is designed to meet the requirements for licensure which prevail in the United Arab Emirates, and to prepare the graduate for professional practice throughout the region.

Some students may aspire either to advanced study in the field, or to practice in a broader global setting. Accordingly, the curriculum conforms to the criteria established by the National Accreditation Board (NAAB) of the United States for a first professional degree in Architecture.

Admission to the Professional Degree

Program

Formal admission to the Bachelor of Architecture Program requires fulfillment of the general university admission requirements.

Retention Reviews in Architecture

As an extension of the regular advisement process, the performance of each architecture student is reviewed following the completion of the fourth and the sixth semesters in the program. A student must pass each review to continue in the major.

Second Year Review

The first mandatory review occurs at the end of the second (sophomore) year, when the student has completed four semesters of the program in Architecture.

To pass the review successfully, the student must:

- have attained a grade point average (GPA) of 2.5 out of 4.0 in the second year studio sequence.
- have completed successfully all required courses in Architecture through the second year of the program.
- be making normal progress toward the degree

requirements.

- be a student in good standing in the university.

Every effort will be made to assist an unsuccessful candidate to transfer into a field that holds better promise for them.

Fourth Year Review

At the end of the fourth year of Architecture studies, each student enrolled in the professional five-year program is reviewed once more for retention.

For this review, the student must:

- have attained a minimum grade point average (GPA) of 2.20 out of 4.00 in all university courses.
- have attained a minimum average of 2.50 out of 4.00 in architectural design studio courses (GPAAS).

A student not eligible to continue, but who completes the requirements of the four-year, non-professional degree will be allowed a change-of-major option, and be awarded the Bachelor of Science in Design.

Design Studio Retention Criteria

Independently of the above reviews, or overall or studio averages:

- a student receiving a grade of *D* in two consecutive design studios in any given academic year will be required to repeat both studios. The student must earn a grade of *C* or better in each repeated studio to continue in the program.
- a student receiving a grade of *D* in any two design studios, though not in the same academic year, will be required to repeat the most recent studio. The student must earn a grade of *C* or better in the repeated studio to continue in the program.

University Graduation Requirement

A total of 169 credit hours, including:

- fifty (50) credit opportunities for forty-six (46) to forty-eight (48) credit hours of university requirements
- one hundred twenty-nine (129) credit hours of Architecture and architecture-related courses in the core curriculum
- twelve (12) credit hours of approved

Architecture electives

- nine (9) credit hours of open electives
- two summer sessions of approved professional training

Proposed program and sequence of study

Bachelor of Architecture (B. Arch)

FIRST YEAR (31 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM 101	Academic Writing	3	URE
	DES 111	Descriptive Drawing I	3	MR
	DES 121	History of Material Culture I	3	MR/URE
	DES 131	Design Foundations I	3	MR/URE
		Advised Elective	3	URE
		Total	15	
Spring	COM 102	Writing & Reading Across the Curriculum	3	URE
	DES 112	Descriptive Drawing II	3	MR
	DES 122	History of Material Culture II	3	MR/URE
	DES 132	Design Foundations II	3	MR/URE
	MTH 111	Mathematics for Architects	3	MR/URE
		Total	15	

SECOND YEAR (35 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARC 201	Architectural Design I	5	MR
	ARC 211	Digital Media in Architecture	3	MR/URE
	ARC 220	Modern Foundations of Art & Architecture	3	MR
	PHY 104	Physics for Architects	4	MR/URE
		Advised Elective	3	URE
		Total	18	
Spring	ARC 202	Architectural Design II	5	MR
	ARC 212	Analysis and Methods in Architecture	3	MR
	ARC 231	Survey of Materials & Practices in Construction	3	MR
	ARC 240	Structural Principles: Statics & Strength of Materials	3	MR
		Advised Elective	3	URE
		Total	17	

THIRD YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARC 301	Architectural Design III	6	MR
	ARC 321	Seminar: Ideas in Architecture	3	MR
	ARC 330	Material and Practices of Concrete Construction	3	MR
	ARC 341	Structural Analysis: Conceiving Forces in Buildings	3	MR
	ARC 351	Environmental Energies & Building Form	3	MR
		Total	18	
Spring	ARC 302	Architectural Design IV	6	MR
	ARC 322	Seminar: Global Issues in Architecture	3	MR/URE
	ARC 342	Structural Design in Concrete	3	MR
	ARC 352	Environmental Control Systems	3	MR
	ARC 370	Professional Training I	0	MR
		Advised Elective	3	URE
		Total	18	

FOURTH YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARC 401	Architectural Design V	6	MR
	ARC 431	Prefabrication & Systems Building	3	MR
	ARC 440	Structural Design in Steel & Wood	3	MR
		Architecture Elective	3	ME
		Advised Elective	3	URE
		Total	18	
Spring	ARC 402	Architectural Design VI	6	MR
	ARC 432	Construction Management	3	MR
	ARC 460	Professional Practice I: Economics & Management	3	MR/URE
	ARC 470	Professional Training II	0	MR
		Architecture Elective	3	ME
		Elective	3	EL
		Total	18	

FIFTH YEAR (31 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARC 500	Final Project Research & Programming	4	MR
	ARC 510	Topical Practicum in Architectural Design	6	MR
		Architecture Elective	3	ME
		Elective	3	EL
		Total	16	
Spring	ARC 502	Final Project Design	8	MR
	ARC 560	Professional Practice II: Building Law	3	MR
		Architecture Elective	3	ME
		Elective	3	EL
		Total	17	

Abbreviations: EL = Elective
MR = Major Requirement
URE = University Requirement



Architecture Studio

Interior Design

Chair

Jay Randle

Human beings spend most of their time indoors in spaces whose form is determined by an array of concerns, including function, location, climate, aesthetics and representation. Consequently, the preparation for the profession of interior designer incorporates many issues common to architecture. Among the main concerns are those of material and aesthetic nature, sustained human productivity, physical and emotional health, safety and the general welfare of humanity. To meet these interdisciplinary requirements, AUS offers the Bachelor of Design in Interior Architecture degree.

Faculty

Associate Professor Jay Randle, Mehdi Sabet, Gregor Weiss

Assistant Professor Eric Nay

Instructor Karl Byas

Bachelor of Design in Interior Architecture (B. ID)

The Bachelor of Design in Interior Architecture requires **four (4) years** of university studies. The initial year of Interior Design consists of a basic orientation in the applied arts, training in computer applications and courses in the history and relevance of design in art and architecture. After the foundation year, interior design studio courses concentrate on the elements of interior design, to include space planning, color theory, psychology and lighting techniques. Studio courses include model building, technical drawing, furnishings, wall treatments and fixtures design, and a variety of other design problems approached on an individual or group basis.

Later courses educate the student in building and safety code regulation, the reading and production of architectural drawings, and effective presentation techniques.

The B. ID is a professional program. The 122 credit hours required for the degree comprise 79 credit hours in architecture, technology, design and related subjects, 46-48 credit hours of supporting university and general education requirements and 9 credit hours of electives. Some courses overlap the different sets of requirements. The B. ID is configured to prepare those who seek careers as professional interior designers. The curriculum follows recommendations of the Foundation of Interior Design Education Research (FIDER) of the United States and is conceived to meet or exceed requirements for interior designers in the United Arab Emirates.

University Graduation Requirements

A total of 122 credit hours, including:

- Forty-six to forty-eight credit hours of university requirements
- Seventy-nine credit hours in the major
- Nine credit hours of electives
- One session of approved practicum/professional training

Admission to the program

Formal admission to the B. ID program requires the fulfillment of the general university admission requirements.

Retention Review in Interior Design

Second Year Review

As an extension of the regular advisement process, the performance of all interior design students is reviewed after the fourth semester for retention in the program. To successfully pass this review, a grade point average of 2.50 out of 4.00 must be attained in the second year studio sequence. In the case of a negative outcome, the

student will be barred from continuing in the major. At this time, every effort will be made to facilitate transfer into a field that holds better promise for the individual.

Proposed program and sequence of study

Bachelor of Design in Interior Architecture (B. ID)

FIRST YEAR (31 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM 101	Academic Writing	3	URE (English Language req.)
	DES 111	Descriptive Drawing I	3	MR
	DES 121	History of Material Culture I	3	MR/URE (Humanities req.)
	DES 131	Design Foundations I	3	MR
		Advised Elective	4	URE (Computer req.)
		<i>Total</i>	16	
Spring	COM 102	Writing & Reading Across the Curr.	3	URE (English Language req.)
	DES 112	Descriptive Drawing II	3	MR
	DES 122	History of Material Culture II	3	MR/URE (Humanities req.)
	DES 132	Design Foundations II	3	MR
		Advised Elective	3	URE (Math, Logic, Statistics req.)
		<i>Total</i>	15	

SECOND YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM 205	English for Media	3	URE (English Language req.)
	IDE 201	Interior Design Studio I	4	MR
	PHO 200	Photography Basics	3	MR
		Advised Elective	3	URE (Science req.)
		Elective	3	EL
		Total	16	
Spring	ARC 223	Materials and Methods of Int. Design	3	MR
	ARC 211	Digital Media in Architecture	3	MR
	IDE 202	Interior Design Studio II	4	MR
	PSY XXX	Psychology	3	URE (Social Sciences req.)
		Advised Elective	3	URE (Math, Logic, Statistics req.)
		Total	16	

THIRD YEAR (29 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	IDE 301	Interior Design Studio III	4	MR
	IDE 320	History of Interior Design	3	MR
	IDE 321	Color & Materials	3	MR
		Advised Elective	3	URE (Science req.)
		Elective	3	EL
		Total	16	
Spring	ARC 370	Professional Training/Practicum	0	MR
	ARC 352	Environmental Control Systems	3	MR
	IDE 302	Interior Design Studio IV	4	MR
	IDE 322	Lighting & Acoustics	3	MR
		Advised Elective	3	URE (English Language req.)
		Total	13	

FOURTH YEAR (27 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARC 560	Prof. Practice II: Bldg. Law	3	MR
	IDE 401	Interior Design Studio V	4	MR
	IDE 403	Final Project Research	3	MR
		Advised Elective	3	URE (Arabic req.)
		Advised Elective	3	URE (Oral Communication req.)
		Total	16	
Spring	ARC 460	Prof. Practice I: Econ. and Mgmt.	3	MR/URE (Social Science req.)
	IDE 400	Final Project Studio	5	MR
		Elective	3	EL
		Total	11	

Abbreviations: EL = Elective
 MR = Major Requirement
 URE = University Requirement

Multimedia

Director

Gregor Weiss

Multimedia describes interdisciplinary explorations which broach the distinctions between contemporary technology, communication, the arts, text, photography, film, video, advertising and design. This major engages students with equally broad-ranging interests in graphic and 3-d design, digital technology and time-based media. To meet the challenges of this rapidly changing field, AUS offers the Bachelor of Design in Multimedia degree.

Faculty

Associate Professor Gregor Weiss

Assistant Professor Tarek Al-Ghoussein, Bob Dahm, Ann Melanie

Instructor Karl Byas

Bachelor of Design in Multimedia (B. Multimedia)

The B. Multimedia requires 120 credit hours of coursework, 79 of which are in multimedia related studies, including sound, video, text, computer graphics, advertising and theory courses. The specialization is supported by forty-six (46) to forty-eight (48) credit hours of university and general education requirements and 12 credit hours of electives. Some credit hours overlap among the sets of requirements. The B. Multimedia is designed for those who seek careers in the modern media industries. The curriculum follows standards of professional North American practice and is conceived to meet requirements of multimedia experts in the United Arab Emirates.

Admission to the Program

Formal admission to the B. Multimedia requires the fulfillment of the general university admission requirements.

Retention Review in Multimedia

As an extension of the regular advisement process, the performance of all students in Multimedia will be reviewed after the fourth semester for retention in the program. To successfully pass this review, a grade point average (GPA) of 2.50 out of 4.00 must be attained in the second year studio sequence. In case of a negative outcome of the review, the student will be barred from continuing in the Multimedia major. At this time, every effort will be made to facilitate transfer into a field that holds better promise for the individual.



Proposed program and sequence of study

Bachelor of Design in Multimedia (B. Multimedia)

FIRST YEAR (31 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CMP 101	Computer Introduction I	4	URE (Computer req.)
	COM 101	Academic Writing	3	URE (English Language req.)
	DES 111	Descriptive Drawing I	3	MR
	DES 121	History of Material Culture I	3	MR/URE (Humanities req.)
	DES 131	Design Foundations I	3	MR
		Total	16	
Spring	COM 102	Writing & Reading Across the Curr.	3	URE (English Language req.)
	DES 112	Descriptive Drawing II	3	MR
	DES 122	History of Material Culture II	3	MR/URE (Humanities req.)
	DES 132	Design Foundations II	3	MR
		Advised Elective	3	URE
		Total	15	

SECOND YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM 205	English for Media	3	MR/URE (English Language req.)
	GRA 240	Computer Graphics I	3	MR
	MUM 201	Multimedia Studio I	4	MR
	PHO 200	Photography Basics	3	MR
		Advised Elective	3	URE
		Total	16	
Spring	COM 210	Writing for the Media	3	MR/URE (English Language req.)
	GRA 241	Computer Graphics II	3	MR
	MUM 202	Multimedia Studio II	4	MR
	MUM 210	Sound & Video Basics	3	MR
	PSY XXX	Psychology	3	URE (Social Science req.)
		Total	16	

THIRD YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	MUM 301	Multimedia Studio III	4	MR
	PHO 310	Photo-Journalism	3	MR
		Advised Elective	3	URE
		Advised Elective	3	URE
		Elective	3	EL
		Total	16	
Spring	DES 323	Advertising	3	MR
	MUM 302	Multimedia Studio IV	4	MR
		Advised Elective	3	URE
		Advised Elective	3	URE
		Elective	3	EL
	MUM 370	Professional Training	0	MR
Total			16	

FOURTH YEAR (26 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	MUM 400	Final Project Research	3	MR
	MUM 401	Multimedia Studio V	4	MR
	MUM 410	Interactive Media	3	MR
	MUM 411	The Media Industry	3	MR
		Elective	3	EL
		Total	16	
Spring	MUM 402	Final Project Studio	4	MR
	SOC 211	Media and Society	3	MR/URE (Social Science req.)
		Elective	3	EL
Total			10	

Abbreviations: EL = Elective
MR = Major Requirement
URE = University Requirement



Drawing Studio

Visual Communications

Director

Gregor Weiss

The creation, manipulation, and production of visual images are at the core of this major. Human beings are confronted with visual messages that aim to communicate information, engender persuasion and shape behavior. The power of visual communications contributes in large measure to the fast changing technologies that impact this area of design. Apart from the broad technical, computer and artistic training, visual communication experts require an understanding of human nature, ethical boundaries and societal needs. To meet those and related objectives, AUS offers the Bachelor of Design in Visual Communications (B. Viscom) degree.

Faculty

Associate Professor Gregor Weiss, Dirk Van-Wyk

Assistant Professor Tarek Al-Ghoussein, Bob Dahm, Kimberley Lund, Ann Melanie, Phil Sheil

Instructor Karl Byas, Ron Hawker

Bachelor of Design in Visual Communications (B. Viscom)

The Bachelor of Design in Visual Communications requires **four (4) years** of university studies. The initial year of Viscom consists of a basic education in the applied arts, training in computer applications and courses in the history and relevance of design in art and architecture. Elements of psychology in advertising, product design and marketing, and hands-on practice in individual projects are explored. The Studio sequence is the core that integrates practical, cultural and contextual aspects of graphic de-

sign.

The B. Viscom is a professional program. The 122 credit hours required for the degree comprise 76 credit hours in visual communications, digital applications and visual design related subjects. This specialization is supported by 46 to 48 credit hours of university requirements and 9 credit hours in elective courses. The B. Viscom is configured to prepare those who seek careers as designers in advertising, publishing and related visual communications media. The curriculum follows standards of professional North American organizations such as the National Association of Schools of Art and Design and is conceived to meet or exceed requirements for visual communications experts in the United Arab Emirates.

University Graduation Requirements

A total of 122 credit hours, including:

- Forty-six to forty-eight credit hours of university requirements
- Seventy-six credit hours in the major
- Nine credit hours of electives
- One session of approved practicum/professional training

Admission to the Program

Formal admission to the B. Viscom program requires the fulfillment of general university admission requirements.

Retention Review in Visual Communications

As an extension of the regular advisement process, the performance of all students in Viscom will be reviewed after the fourth semester for retention in the program. To successfully pass this review, a grade point average (GPA) of 2.50 out

of 4.00 must be attained in the second year studio sequence. If the review has a negative outcome, the student will be barred from continuing in the

Viscom major. At this time, every effort will be made to facilitate transfer into a field that holds better promise for the individual.

Proposed program and sequence of study

Bachelor of Design in Visual Communications (B. Viscom)

FIRST YEAR (31 credit hours)

Term	Course #	Course Title	CreSit Hours	Fulfills
Fall	CMP 101	Computer Literacy & Info. Access	4	URE (Computer req.)
	COM 101	Academic Writing	3	URE (English Language req.)
	DES 111	Descriptive Drawing I	3	MR
	DES 121	History of Material Culture I	3	MR/URE (Humanities req.)
	DES 131	Design Foundations I	3	MR
		Total	16	
Spring	COM 102	Writing & Reading Across the Curr.	3	URE (English Language req.)
	DES 112	Descriptive Drawing II	3	MR
	DES 122	History of Material Culture II	3	MR/URE (Humanities req.)
	DES 132	Design Foundations II	3	MR
		Advised Elective	3	URE (Math, Logic, Statistics req.)
		Total	15	

SECOND YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM 205	English for Media	3	MR/URE (English Language req.)
	GRA 201	Graphic Design Studio I	4	MR
	GRA 211	Illustration Concepts	3	MR
	GRA 240	Computer Graphics I	3	MR
		Mathematics	3	URE (Math, Logic, Statistics req.)
		Total	16	
Spring	DES 200	Multiples (Printmaking)	3	MR
	GRA 202	Graphic Design Studio II	4	MR
	GRA 241	Computer Graphics II	3	MR
	PHO 200	Photography Basics	3	MR
	PSY 101	General Psychology	3	URE (Social Science req.)
		Total	16	

THIRD YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	DES 321	Typography	3	MR
	GRA 301	Graphic Design Studio III	4	MR
	PHO 300	Photography for Communication	3	MR
		Advised Elective	3	URE (Science req.)
		Elective	3	EL
		Total	16	
Spring	DES 322	Packaging Design	3	MR
	DES 323	Advertising	3	MR
	GRA 302	Graphic Design Studio IV	4	MR
		Advised Elective	3	URE (Arabic req.)
		Elective	3	EL
	GRA 370	Professional Training	0	MR
		Total	16	

FOURTH YEAR (27 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	GRA 400	Final Project Research	3	MR
	GRA 401	Graphic Design Studio V	4	MR
		Advised Elective	3	URE (English Language req.)
		Elective	3	EL
		Total	13	
Spring	GRA 402	Final Project Studio	5	MR
	SOC 211	Media and Society	3	MR/URE (Social Science req.)
		Advised Elective	3	URE (Science req.)
		Advised Elective	3	URE (Oral Communication req.)
		Total	14	

Abbreviations: EL = Elective

MR = Major Requirement

URE = University Requirement

Design

Faculty

Associate Professor Gregor Weiss, Dirk van Wyk

Assistant Professor Tarek Al-Ghoussein, Bob Dahm, Kimberley Lund, Ann Melanie, Eric Nay, Phil Sheil

Instructor Karl Byas, Ron Hawker

The Bachelor of Science in Design is a general design degree. It provides a broad insight into the practice, theory and history of design. This degree allows students to take studio courses in a number of different design specializations. The required curriculum comprises university requirements, the common first year School of Architecture and Design foundation courses and a balanced combination of studio, design technology, culture and media-oriented courses.

B.S. in Design

A total of 120 credit hours, including:

- Forty-six to forty-eight credit hours of university requirements
- Completion of the common Architecture and Design foundation courses
- A minimum of 8 credit hours in upper level Architecture and Design studio courses
- A minimum of 42 credit hours of courses taken in architecture and/or design, including:
 - a minimum of 15 credit hours at the 200 level
 - a minimum of 12 credit hours at the 300 level
 - a minimum of 9 credit hours at the 400 level



A Display of Student Work

School of Business and Management

- **Director and Faculty**
 - **Admission and Requirements**
 - **Business Core**
 - **Management and Marketing**
-

Director

Wadih Atiyah

The American University of Sharjah School of Business and Management provides an educational experience of high quality and professionalism for its students. The effective business professional of today must have competence in many disciplines, an understanding of a wide variety of relationships and the ability to analyze evolving business requirements. Regardless of the specialty area, the business professional must be an effective leader who knows how to organize and motivate groups to serve the goals of the organization. Effectively adapting business practices to emerging conditions, such as the accelerating growth of technology, communications and the internationalization of the business world, demands a thorough grasp of current business process, theory and application. Through its pedagogy, the School of Business and Management:

- Prepares individuals to identify, analyze, and understand the interrelationships among business organizations, and international and domestic institutions in the Emirates and throughout the rest of the world.
- Develops individuals who can lead organizations toward economic success and social responsibility in the global marketplace of the twenty-first century.
- Prepares individuals to integrate information resources and technology to enable them to anticipate and manage change.
- Advances student knowledge of issues and practices affecting business organizations, international and domestic institutions, and governments.
- Develops an awareness of societal and environmental needs and concerns as they relate to ethical, professional and socially responsible business practices.
- Furthermore, the School of Business and Management, provides its students with a solid core business education that emphasizes the following teaching methodologies:
 - Relevant cutting-edge business education, utilizing the latest American business methods, techniques and technologies.
 - Integrated multidisciplinary approaches to teaching and learning, utilizing the latest business theories coupled with *real world* business data analysis and presentation.
 - Multimedia computer based instruction integrated throughout the business curriculum to assist the students in learning the latest techniques in business and management.
 - Research conducted using on-line electronic libraries with thousands of up-to-date business journals and databases.

Faculty

The faculty of the School of Business and Management combine a scholarly record of research in the business field with years of practical corporate work experience. The faculty blend their academic and professional experience to create a class environment that is challenging, stimulating and applicable to the business world in the gulf region and internationally. Faculty for the foundation courses are in the College of Arts and Sciences.

Professor

Zeinab A. Karake-Shalhoub (Management Information Systems)

Associate Professor

Louis F. Mottola (Management)

Assistant Professor

Osamah Khazali (Finance)

Morteza Sadri (Marketing and International Business)

Instructor

Audrey Thomson (Management)

Bachelor of Science in Business Administration (B.S.B.A.)

The Business Administration program provides students with a business core that offers a broad knowledge of business functions while emphasizing the global business environment. In addition to the business core, the student must also complete two areas of specialization (*Accounting; Banking and Finance; Marketing; Management; and Information Systems*).

The objectives of the B.S.B.A. program are to:

- Develop an understanding of the UAE, American and international economic systems and the important relationship between business and society.
- Develop a global perspective on business operations.
- Provide a background in concepts, processes, and institutions used in the production and marketing of goods and services and also in the financing of business organizations.
- Provide a foundation in concepts and applications of accounting, quantitative methods and information technology.
- Stimulate the students' intellectual curiosity, develop their ability to think creatively and reason logically, and encourage their consideration of demographic diversity and ethical principles.

Admission and Requirements

Students qualifying for admission to AUS as freshman may, upon the recommendation of the Admission Committee, enroll in the School of Business and Management. Due to the quantitative emphasis of the business administration curriculum, it is required that students admitted into the B.S.B.A. program take the Mathematics Placement Examination.

Transfer students may be given credit for courses completed in the institution from which they are transferring. A grade of *B* or better must be achieved in business and related courses in order for them to be considered as transfer credits to the School of Business and Management. General university requirements may be transferred with a grade of *C* or better.

All B.S.B.A. transfer students are required to take Business Policy and Strategy and at least 30 upper-level credits towards their concentration requirements. Transfer credits for upper-division business courses are subject to validation by the appropriate department chair. Transfer credit may be conditional upon the successful completion of a more advanced course at the American University of Sharjah.

University Graduation Requirements

A total of 120 credit hours as follows:

- Forty-six to forty-eight credit hours of general university requirements (Nineteen credit of these hours include university requirements designated for business students)
- Seven credit hours of statistics
- Thirty credit hours of core business courses
- Thirty credit hours of business concentration requirements
- Seven credit hours of free electives

Designated University Requirements

All School of Business and Management students must take the following courses as a part of their university requirements: A grade of *C* or better is required for all restricted university requirements.

CMP 101 Computer Literacy and Information Access, satisfies the university computer literacy and Information Access Requirement

COM 206 Business Communication, satisfies a university English requirement

COM 204 Oral Communication, satisfies the university oral communication requirement

ECO 101 Principles of Macroeconomics, satisfies a university general education social science requirement

ECO 102 Principles of Microeconomics, satisfies a university general education social science requirement

MTH 101 Math for Business I, satisfies the university math requirement

Business Core

All School of Business and Management students must complete the following thirty credits (10 courses) of business core courses with a grade of *C* or better, regardless of their area of concentration:

- ACC 201 Principles of Financial Accounting
- ACC 202 Principles of Managerial Accounting
- BLW 301 Business Law
- FIN 201 Corporate Finance
- FIN 301 Financial Statement Analysis
- INB 201 Fundamentals of International Business
- MGT 101 Fundamentals of Management
- MGT 406 Business Policy and Strategy
- MIS 201 Fundamentals of Management Information Systems
- MKT 201 Principles to Marketing

Areas of Concentration

The School of Business and Management provides its students with the opportunity to concentrate in five areas of business specialization: *Accounting; Banking and Finance; Marketing; Management; and Information Systems*. During the second semester of the second year, the student in consultation with their faculty advisor, must chose two of the five areas of concentration. A grade of *C* or better is required for all courses in the fields of concentration.

Accounting

The Accounting concentration is designed to prepare graduates for management careers in the fields of accounting, financial management and consulting. Students who pursue this concentration will develop specific business competencies dealing with the financial management of private and public corporations. Furthermore, this concentration is designed to enable students who wish to continue with graduate study to qualify

for professional certification such as the CPA certificate (Certified Public Accountant) in the United States. Courses required for the Accounting concentration are:

- ACC 301 Intermediate Financial Accounting I
- ACC 302 Intermediate Financial Accounting II
- ACC 303 Cost Accounting
- ACC 304 Auditing
- ACC 401 Advanced Financial Accounting or ISA

Finance and Banking

This concentration offers students an integrative approach to the fields of banking and finance. Students will develop the analytical tools and theoretical framework necessary to analyze and understand the financial and banking sectors. Furthermore, this concentration provides the essential tools for understanding investments, capital markets, financial management and financial institutions. Students will also develop competencies in the banking sector in regard to management of financial instruments, markets and risk management. Courses required for the Finance and Banking concentration are:

- FIN 302 Financial Markets and Institutions
- FIN 303 Investment Analysis
- FIN 305 Commercial Banking
- FIN 400 Portfolio Management
- FIN 401 Advanced Financial Management

Proposed Program for Students Concentrating in Accounting and Finance

FIRST YEAR (31 credit hours)

Term	Course #	Course Title	Credit Hours	Prereq-
uisite				
Fall	CMP 101	Computer Literacy & Information Access	4	
	COM 101	Academic Writing	3	
	ECO 102	Principles of Microeconomics	3	
	MGT 101	Fundamentals of Management	3	
	MTH 101	Mathematics for Business I	3	
		Total	16	
Spring	ACC 201	Principles of Financial Accounting	3	
	COM 102	Writing & Reading Across the Curriculum	3	
	ECO 101	Principles of Macroeconomics	3	
	MTH 102	Mathematics for Business II	3	
		Advised Elective	3	
		Total	15	

SECOND YEAR (30 credit hours)

Term	Course #	Course Title	Credit Hours	Prereq-
uisite				
Fall	ACC 202	Principles of Managerial Accounting	3	
	COM 204	Advanced Academic English	3	
	INB 201	Fundamentals of International Business	3	ECO102, MGT101
	MIS 201	Fundamentals of MIS	3	CMP101
	STA 201	Introduction to Statistics	4	
		Total	16	
Spring	COM 206	Business Communication	3	ACC202, MTH201, STA201
	FIN 201	Corporate Finance	3	
	MKT 201	Principles of Marketing	3	ACC201, ECO201, ECO202
	STA XXX	Statistics	3	STA201
		Advised Elective	3	
		Total	15	

THIRD YEAR (30 credit hours)

Term	Course #	Course Title	Credit Hours	Prerequisite
Fall	ACC 301	Intermediate Financial Accounting I	3	ACC202, FIN201
	COM 208	Public Speaking	3	
	FIN 301	Financial Statement Analysis	3	ACC202, MTH201, STA201
	FIN 302	Financial Markets and Institutions	3	FIN201
		Advised Elective	3	
		Total	15	
Spring	ACC 302	Intermediate Financial Accounting II	3	ACC301
	FIN 303	Investment Analysis	3	FIN201, FIN301
	LAW 301	Business Law	3	
		Advised Elective	3	
		Advised Elective	3	
		Total	15	

FOURTH YEAR (30 credit hours)

Term	Course #	Course Title	Credit Hours	Prerequisite
Fall	ACC 303	Cost Accounting	3	ACC202, FIN201
	ACC 304	Auditing	3	ACC303
	FIN 400	Portfolio Management	3	FIN201
		Advised Elective	3	
		Advised Elective	3	
		Total	15	
Spring	ACC 401	Advanced Financial Accounting	3	ACC302, ACC303
	FIN 305	Commercial Banking	3	FIN302
	FIN 401	Advanced Financial Management	3	FIN302
	MGT 406	Business Policy and Strategy - Capstone	3	
		Advised Electives	3	
		Total	15	

Management and Marketing

The Management concentration offers professional training in the complex art of human management as it relates to corporate and organizational behavior in the business world. The field of management requires knowledge of individual and group behavior, the processes of perception, and how people select and interpret information. The management concentration provides the tools and skills necessary to manage simultaneous complex tasks, and objectives through rigorous project management training and project simulations. Students will gain understanding of the importance of management to society and organizations, and how management can be a force for positive change in a rapidly transforming business environment. Courses required for the Management concentration are:

- MGT 301 Organizational Behavior
- MGT 302 Managing Human Resources
- MGT 303 Management and Leadership Development
- MGT 306 Entrepreneurship
- MGT 403 Project Management

Marketing

Students in this concentration study the practical application of marketing concepts such as procedures for developing promotions, pricing of products, distribution channels and sales management strategies. Furthermore, heavy emphasis is placed on market research utilizing statistical analytical techniques, consumer behavior and a variety of market programming methodologies. Particular emphasis is placed on interpersonal communication techniques and on the practical application of marketing concepts as they relate to sales management. Courses required for the Marketing concentration are:

- MKT 301 Consumer Behavior
- MKT 302 Marketing Research
- MKT 304 Sales Management
- MKT 401 Marketing Strategy
- MIS 404 E-Commerce

Proposed Program for Students Concentrating in Management and Marketing

FIRST YEAR (30 credit hours)

Term	Course #	Course Title	Credit Hours	Prereq-
uisite				
Fall	CMP 101	Computer Literacy & Information Access	4	
	COM 101	Academic Writing	3	
	ECO 102	Principles of Microeconomics	3	
	MGT 101	Fundamentals of Management	3	
	MTH 101	Mathematics for Business I	3	
		Total	15	
Spring	ACC 201	Principles of Financial Accounting	3	
	COM 102	Writing & Reading Across the Curriculum	3	
	ECO 101	Principles of Macroeconomics	3	
	MTH 102	Mathematics for Business II	3	
		Advised Elective	3	
		Total	15	

SECOND YEAR (30 credit hours)

Term	Course #	Course Title	Credit Hours	Prereq-
uisite				
Fall	ACC 202	Principles of Managerial Accounting	3	
	COM 204	Advanced Academic English	3	
	INB 201	Fundamentals of International Business	3	ECO102, MGT101
	MIS 201	Fundamentals of MIS	3	CMP101
	STA 201	Introduction to Statistics*	3	
		Total	15	
Spring	COM 206	Business Communication	3	
	FIN 201	Corporate Finance	3	ACC202, MTH201, STA201
	MKT 201	Principles of Marketing	3	ACC201, ECO201, ECO202
	STA XXX	Statistics	3	STA201
		Advised Elective	3	
		Total	15	

*May fulfill University Requirement if Math I is not taken.

THIRD YEAR (30 credit hours)

Term uisite	Course #	Course Title	Credit Hours	Prereq-
Fall	COM 208	Public Speaking	3	
	FIN 301	Financial Statement Analysis	3	ACC202, MTH201, STA201
	MGT 301	Organizational Behavior	3	
	MKT 301	Consumer Behavior	3	MKT201, STA202
		Advised Elective	3	
		Total	15	
Spring	LAW 301	Business Law	3	
	MGT 302	Managing Human Resources	3	MGT302, MIS301
	MGT 403	Project Management	3	FIN301, MIS201
	MKT 302	Marketing Research	3	MKT201, STA202
		Advised Elective	3	
		Total	15	

FOURTH YEAR (30 credit hours)

Term uisite	Course #	Course Title	Credit Hours	Prereq-
Fall	MGT 303	Management & Leadership Development	3	
	MKT 303	E-Commerce	3	CMP101, MIS 201, MKT301, MKT302
	MKT 304	Sales Management	3	MKT201
		Advised Elective	3	
		Advised Elective	3	
		Total	15	
Spring	MGT 306	Entrepreneurship	3	FIN301
	MGT 406	Business Policy & Strategy - Capstone	3	Last semester of Fourth year
	MKT 401	Marketing Strategy	3	MKT301, MKT302, MKT303
		Advised Elective	3	
		Advised Elective	3	
		Total	15	

Management Information Systems:

Managers and non-managers alike depend upon information for decision-making. To be useful, that information must be understandable, timely, thorough, focused and distributed to the appropriate individual. Accomplishing all this is the challenge of Management Information Systems. In this concentration, students will acquire professional skills in the areas of computer systems, networks, communications, data analysis and

other skills needed by this expanding field of technology. Courses required for the Management Information Systems concentration are:

- MIS 301 Programming Concepts I
- MIS 302 Introduction to Systems Analysis
- MIS 303 Database Management
- MIS 401 Applied Systems Design
- MIS 404 E-Commerce

Proposed Program for Students Concentrating in Information

Systems and Accounting

FIRST YEAR (31 credit hours)

Term isite	Course #	Course Title	Credit Hours	Prereq-
Fall	CMP 101	Computer Literacy & Information Access	4	
	COM 101	Academic Writing	3	
	ECO 102	Principles of Microeconomics	3	
	MGT 101	Fundamentals of Management	3	
	MTH 101	Mathematics for Business I	3	
		Total	16	
Spring	ACC 201	Principles of Financial Accounting	3	
	COM 102	Writing & Reading Across the Curriculum	3	
	ECO 101	Principles of Macroeconomics	3	
	MTH 102	Mathematics for Business II	3	
		Advised Elective	3	
		Total	15	

SECOND YEAR (30 credit hours)

Term uisite	Course #	Course Title	Credit Hours	Prereq-
Fall	ACC 202	Principles of Managerial Accounting	3	
	COM 204	Advanced Academic English	3	
	INB 201	Fundamentals of International Business	3	ECO102, MGT101
	MIS 201	Fundamentals of MIS	3	CMP101
	STA 201	Introduction to Statistics*	4	
		Total	16	
Spring	COM 206	Business Communication	3	
	FIN 201	Corporate Finance	3	ACC202, MTH201, STA201
	MKT 201	Principles of Marketing	3	ACC201, ECO201, ECO202
	STAXXX	Statistics	3	STA201
		Advised Elective	3	
		Total	15	

*May fulfill University Requirement if Math I is not taken.

THIRD YEAR (30 credit hours)

Term uisite	Course #	Course Title	Credit Hours	Prereq-
Fall	ACC 301	Intermediate Financial Accounting I	3	ACC202, FIN201
	COM 208	Public Speaking	3	
	FIN 301	Financial Statement Analysis	3	ACC202, MTH201, STA201
	MIS 301	Programming Concepts I	3	MIS201
		Advised Elective	3	
		Total	15	
Spring	ACC 302	Intermediate Financial Accounting II	3	ACC301
	LAW 301	Business Law	3	
	MIS 302	Introduction to Systems Analysis	3	MIS301, MIS302
		Advised Elective	3	
		Advised Elective	3	
		Total	15	

FOURTH YEAR (30 credit hours)				
Term	Course #	Course Title	Credit Hours	Prereq-
Fall	ACC 303	Cost Accounting	3	ACC202, FIN201
	ACC 304	Auditing	3	ACC303
	MIS 303	Database Management	3	MIS301, MIS302
		Advised Elective	3	
		Advised Elective	3	
	Total		15	
Spring	ACC 401	Advanced Financial Accounting	3	ACC302, ACC303
	MGT 406	Business Policy & Strategy – Capstone	3	Last semester of fourth year
	MIS 401	Applied Systems Design	3	MIS303

Abbreviations: EL = Elective
 MR = Major Requirement
 URE = University Requirement

School of Engineering

- **Dean and Faculty**
 - **Chemical Engineering**
 - **Civil Engineering**
 - **Computer Engineering**
 - **Electrical and Electronic Engineering**
 - **Mechanical Engineering**
-

Dean

Mogens Henriksen

The School of Engineering prepares students with the engineering education needed for a professional career in the highly competitive and technological world of the twenty-first century. The engineering degree can be used as the foundation for different career objectives, including:

- a career as a professional engineer in industry, government, business or consulting.
- graduate study to prepare for a career in research, development or teaching.
- a general liberal engineering education that keeps many avenues open such as law, business, medicine and public affairs.

Graduates of the School of Engineering at the American University of Sharjah will be prepared to achieve their personal and professional aspirations. They will also be well qualified to pursue their studies and professional education toward a master's or doctoral degree in their chosen fields.

The School of Engineering offers programs in chemical engineering, civil engineering, computer engineering, electrical and electronic engineering and mechanical engineering.

Engineering is an excellent career choice. Those who enter engineering today can look forward to rewarding careers open to men and women which offer personal fulfillment, service to humanity and economic prosperity.

Faculty

The School of Engineering faculty members are distinguished experts in their fields. These scholars and teachers are academic and professional practitioners. They provide an educational environment in which students can mature professionally and personally while preparing to live and work successfully in a technologically rich global community.

Professor

Mogens Henriksen (Dean)
Mohamed Salah Hameed (Chemical)

Associate Professor

Ezziddin Abu-Sardaneh (Civil)
Azm Al-Homoud (Civil)
Hassan Al-Nashash (Electrical)
Yousuf Al-Assaf (Electro-Mechanical)

Assistant Professor

Hany El Kadi (Mechanical)

B. S. in Engineering

The School of Engineering offers a B.S. degree in each of the following:

- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Electrical and Electronic Engineering
- Mechanical Engineering

To obtain a B.S. in Engineering, a student must complete 136-138 credit hours depending on their major. Students may work at their own pace, though the program is designed for completion in four years. The B.S. requirements are divided into four categories: university graduation requirements, college requirements, program specialization courses and supporting elective courses. The university requirements include foundation courses in mathematics, science, the humanities, the social sciences and in Arabic and English language and literature. By the end of the third year, all compulsory requirements should typically be fulfilled. For the B.S. degree, the student also needs to choose a subspecialty within a chosen degree program (or major). In addition, students are required to complete a major design project during the final year. Practical training in an engineering environment is compulsory for one summer. This practicum or internship strengthens the student's preparation for engineering practice.

The credit hour system is used in all degrees offered by the School of Engineering. One credit hour is commonly equivalent to either a one-hour lecture or three hours of laboratory work per week. The academic year is divided into two semesters and a short summer semester. The language of instruction in the School of Engineering is English.

Accreditation

Since the AUS School of Engineering is new and has not yet graduated its first class, it is not yet eligible for accreditation. Prospective students and other stakeholders should note that the

programs are designed to satisfy all the applicable, as well as the general criteria of the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (Criteria 2000). The programs will be submitted for review as the first graduates complete their programs.

Admission to the Program

Formal admission to a major by all the departments in the School of Engineering requires a cumulative grade point average (GPA) of 2.00.

University Graduation Requirements

In order to qualify for graduation, all engineering students must complete a minimum of 136-138 credit hours with a cumulative GPA of 2.00 or better, including:

- Forty-eight credit hours of university requirements
- Eighty-eight to ninety credit hours of major requirements
- Summer Practicum (one summer after either the second or third year working in a professional environment)

Engineering students must achieve a GPA of 2.00 or better in every course in the major.

Chemical Engineering

Chemical engineers have many different responsibilities including development, design supervision, production or sales. They may manage the development of new technologies and products or strive to develop safe processes that yield desired results economically. Chemical engineers also direct the design, construction and operation of new plants ranging from pilot plants to full scale complex chemical facilities.

Chemical engineers today are making unparalleled contributions in chemical processing, petroleum refining, pollution control and abatement, materials processing, bio-chemical and bio-medical engineering, computer automation, process control and modeling, food processing, systems engineering, manufacturing and in other areas. To teach students aspiring to enter this field, the American University of Sharjah has designed a chemical engineering program that meets the challenges of the twenty-first century.

The Department of Chemical Engineering offers a sufficiently general four year program leading to a Bachelor of Science in Chemical Engineering (B.S.Chem.E.) degree. This degree prepares graduates to work in all areas of chemical industry. Specifically, it is designed to help students develop a basic knowledge in science, in engineering and in the fundamentals and practical knowledge of thermodynamics, fluid mechanics, heat transfer, mass transfer, reaction engineering, unit operations, process control, process simulation, plant design, cost estimation and engineering economics. The first year provides the necessary background in physics, chemistry, engineering and mathematics. The second year of study is devoted to the foundation of the student's major field of engineering. The third and fourth years are devoted toward enabling the student to achieve mastery and competence in the profession of chemical engineering.

The B.S.Chem.E. requires four years of university studies. The 138 credit hours required for the degree include 90 credit hours in chemical engineering and related subjects and 48 hours of supporting university requirements. The program is intended to prepare its graduates for world-wide practice. Therefore, the program is designed to satisfy the general university requirements, fulfill the program criteria adopted by the Accreditation Board for Engineering and Technology (ABET) of the United States and also meet the needs of the engineering profession in the United Arab Emirates and the region.

B.S. in Chemical Engineering

University Graduation Requirements

A total of 138 credit hours, including:

- Forty-eight credit hours of university requirements
- Ninety credit hours of major requirements
- Summer Practicum (after the third year)

University Requirements (48 credit hrs.)

- ARA XXX Arabic Language and Literature
- CHM 101 General Chemistry I
- COM 208 Public Speaking
- COM XXX English Language (four courses)
- H&SS XXX Humanities and Social Sciences (4 courses)
- MTH 103 Calculus I
- MTH 104 Calculus II
- MTH 205 Differential Equations
- STA 360 Engineering Statistics

Requirements for the Major (90 credit hrs.)

- CHE 201 Introduction to Chemical Engineering I
- CHE 202 Introduction to Chemical Engineering II
- CHE 204 Chemical Engineering Thermodynamics I
- CHE 207 Fluid Flow
- CHE 301 Heat Transfer

- CHE 305 Chemical Engineering Thermodynamics II
- CHE 321 Chemical Reaction Engineering
- CHE 322 Unit Operation I
- CHE 323 Unit Operation II
- CHE 332 Cost Estimation and Economics
- CHE 411 Unit Operation III
- CHE 421 Process Control
- CHE 430 Computer Methods in Chemical Engineering
- CHE 431 Process Design I
- CHE 432 Process Design II
- CHE 433 Instrumental Analysis
- CHE 498 Design Project
- CHE 499 Design Project
- CHM 102 General Chemistry II
- CHM 231 Physical Chemistry
- CHM 221 Organic Chemistry
- CMP 102 Fortran Programming
- ELE 211 Electrical Circuits
- MTH 357 Advanced Mathematical Methods
- NGN 100 Introduction to Engineering
- NGN 102 Engineering Drawing I
- NGN 231 Mechanics of Materials
- PHY 101 General Physics I
- PHY 102 General Physics II

Proposed program and sequence of study

B.S. in Chemical Engineering (B.S. Chem. E.)

FIRST YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHM 101	General Chemistry I	4	MR/URE
	CMP 102	Fortran Programming	3	MR
	COM 101	Academic Writing	3	URE
	H&SS XXX	H & SS Elective	3	URE
	MTH 103	Calculus I	4	MR/URE
	NGN 100	Introduction to Engineering	1	MR
		Total	18	
Spring	CHM 102	General Chemistry II	4	MR
	COM 102	Writing & Reading Across the Curriculum	3	URE
	MTH 104	Calculus II	4	MR/URE
	NGN 102	Engineering Drawing I	3	MR
	PHY 101	General Physics I	4	MR/URE
		Total	18	

SECOND YEAR (35 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHE 201	Introduction to Chemical Engineering I	3	MR
	CHE 204	Chemical Engineering Thermodynamics I	3	MR
	MTH 205	Differential Equations	3	MR
	NGN 231	Materials Science	3	MR
	PHY 102	General Physics II	4	MR
		Total	16	
Spring	CHE 202	Introduction to Chemical Engineering II	3	MR
	CHE 207	Fluid Flow	3	MR
	CHE 305	Chemical Engineering Thermodynamics II	3	MR
	CHM 221	Organic Chemistry	4	MR
	COM XXX	Communication III	3	URE
	MTH XXX	Math Elective	3	MR
		Total	19	

THIRD YEAR (35 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHE 301	Heat Transfer	3	MR
	CHE 322	Unit Operations I	3	MR
	CHE 322L	Laboratory – Unit Operations I	1	MR
	CHM 231	Physical Chemistry	4	MR
	COM 208	Public Speaking	3	MR
	COM XXX	Communication IV	3	MR
		Total	17	
Spring	CHE 306	Chemical Processes	2	MR
	CHE 321	Chemical Reactions Engineering	3	MR
	CHE 323	Unit Operations II	3	MR
	CHE 323L	Laboratory – Unit Operations II	1	MR
	CHE 332	Cost Estimation & Economics	3	MR
	ELE 211	Electrical Circuits	3	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	18	

FOURTH YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHE 411	Unit Operations III	3	MR
	CHE 411L	Laboratory – Unit Operations III	1	MR
	CHE 421	Process Control I	3	MR
	CHE 431	Process Design I	2	MR
	CHE 498	Design Project	2	MR
	H&SS XXX	H & SS Elective	3	URE
	STA 360	Engineering Statistics	3	MR
		Total	17	
Spring	ARA XXX	Arabic Language & Culture	3	URE
	CHE 430	Computer Methods in Chemical Engineering	2	MR
	CHE 432	Process Design II	2	MR
	CHE 433	Instrumental Analysis	3	MR
	CHE 499	Design Project	2	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	15	

Abbreviations: EL = Elective
MR = Major Requirement
URE = University Requirement

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.



Civil Engineering

The B.S. in Civil Engineering requires four years of university studies. The 138 credit hours required for the degree include 48 credit hours of university foundation and general education requirements, eighty-one credit hours of major requirements and nine credit hours in the major. The B.S. Civil is designed to satisfy all applicable criteria, promulgated by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Equally important, the program meets the needs of the engineering community in the United Arab Emirates and the region.

The Department of Civil Engineering administers a four-year program leading to the Bachelor of Science degree in Civil Engineering (B.S. Civil). The objective of the program is to provide the students with a broad background in both the theory and practice of the profession. The program is supported by modern laboratories for teaching and research.

Courses in the civil engineering program include those in basic science, engineering sciences, engineering analysis, essentials of structural analysis, mechanics, structural design, sanitary and water resources engineering, soil mechanics and foundation engineering, highway engineering and materials, hydraulics and hydrology, surveying and mapping, and transportation and traffic. Computer skills are taught early in the program of study and are used frequently in subsequent courses.

Bachelor of Science in Civil Engineering (B.S. Civil)

University Graduation Requirements

A total of 138 credit hours, including:

- Forty-eight credit hours of university requirements

- Eighty-one credit hours of major requirements
- Nine credit hours of electives in the major
- Summer Practicum (after the third year)

University Requirements (48 credit hours)

- ARA XXX Arabic Language and Culture
- CHM 101 General Chemistry I
- COM 208 Public Speaking
- ENG XXX English Language (four courses)
- H&SS XXX Humanities and Social Sciences (four courses)
- MTH 103 Calculus I
- MTH 104 Calculus II
- PHY 101 General Physics I
- STA 360 Engineering Statistics

Major Requirements (81 credit hours)

- CHM 102 General Chemistry II
- CMP 102 Fortran Programming I
- CVE 200 Engineering Workshop I
- CVE 241 Surveying
- CVE 301 Structural Analysis I
- CVE 321/MTH 341 Numerical Methods in Civil Engineering
- CVE 331 Geotechnical Analysis I
- CVE 333 Foundation Engineering
- CVE 341 Water Resources I
- CVE 351 Environmental Engineering
- CVE 352 Construction Engineering
- CVE 361 Highway Engineering
- CVE 411 Structural Analysis II
- CVE 421 Engineering Economy
- CVE 451 Contracts & Specifications
- CVE 498 Design Project
- CVE 499 Design Project
- MTH 205 Differential Equations
- MTH 341 Numerical Computing
- NGN 100 Introduction to Engineering
- NGN 102 Engineering Drawing I
- NGN 103 Engineering Drawing II
- NGN 221 Engineering Mechanics I (Statics)

- NGN 222 Engineering Mechanics II (Dynamics)
- NGN 231 Mechanics of Materials
- NGN 241 Fluid Mechanics I
- PHY 102 General Physics

Electives (9 credit hours)

Students must take 3 elective courses (9 credit hours) in civil engineering.

Proposed program and sequence of study

B.S. in Civil Engineering (B.S. Civil)

FIRST YEAR (37 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHM 101	General Chemistry I	4	MR/URE
	CMP 102	Fortran Programming	3	MR
	COM 101	Academic Writing	3	URE
	MTH 103	Calculus I	4	MR/URE
	NGN 100	Introduction to Engineering	1	MR
	PHY 101	General Physics I	4	MR/URE
		Total	19	
Spring	CHM 102	General Chemistry II	4	MR
	COM 102	Writing & Reading Across the Curriculum	3	URE
	MTH 104	Calculus II	4	MR/URE
	NGN 102	Engineering Drawing I	3	MR
	PHY 102	General Physics II	4	MR
		Total	18	

SECOND YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM XXX	Communication III	3	URE
	CVE 241	Surveying I	3	MR
	MTH 205	Differential Equations	3	MR
	NGN 103	Engineering Drawing II	3	MR
	NGN 221	Engineering Mechanics I – Statics	3	MR
	NGN 231	Materials Science	3	MR
		Total	18	
Spring	COM XXX	Communication IV	3	URE
	CVE 200	Engineering Workshop	3	MR
	H&SS XXX	H & SS Elective	3	URE
	MTH XXX	Mathematics Elective	3	MR
	NGN 222	Engineering Mechanics II – Dynamics	3	MR
	NGN 223	Engineering Mechanics III	3	MR
		Total	18	

THIRD YEAR (33 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CVE 321	Numerical Analysis	3	MR
	CVE 331	Geotechnical Analysis I	3	MR
	CVE 341	Water Resources I	3	MR
	CVE 351	Environmental Engineering I	4	MR
	NGN 241	Fluid Mechanics	3	MR
		Total	16	
Spring	ARA XXX	Arabic Language	3	URE
	CVE 301	Structural Analysis I	3	MR
	CVE 333	Foundation Engineering I	3	MR
	CVE 352	Construction Engineering	2	MR
	CVE 361	Highway Engineering	3	MR
	H&SS XXX	H & SS Elective	3	MR
		Total	17	

FOURTH YEAR (33 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM 208	Public Speaking	3	URE
	CVE XXX	CVE Elective	3	MR
	CVE 411	Structural Analysis II	3	MR
	CVE 498	Design Project	2	MR
	H&SS XXX	H & SS Elective	3	URE
	STA 360	Engineering Statistics	3	MR
		Total	17	
Spring	CVE XXX	CVE Elective	3	MR
	CVE XXX	CVE Elective	3	MR
	CVE 421	Engineering Economy	2	MR
	CVE 451	Contracts & Specifications	2	MR
	CVE 499	Design Project	2	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	15	

Abbreviations: EL = Elective
MR = Major Requirement
URE = University Requirement

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.

Computer Engineering

Computer engineering today is among the fastest growing of all career fields. It is expected that computer engineering will play an important role in the future growth of the UAE, as many of the twenty-first century products and services will be based on intelligent systems developed by computer and software engineers. Most modern products make use of embedded, on-board intelligent subsystems. Examples of these include televisions, automobiles, aircraft, washing machines and agricultural equipment. The hardware and software systems in these *smart* products were developed by computer engineers. Therefore, to address such needs, the American University of Sharjah offers a four-year program leading to the Bachelor of Science degree in Computer Engineering (B.S. Computer Engineering).

The AUS computer engineering faculty have designed this program to help students develop the necessary skills and competence needed to design and integrate computer components and software systems. Elective courses allow students to develop further specialization in the following areas: computer design, data communication and networks, digital design automation and computer based controls.

The B.S. in Computer Engineering is a professionally-oriented program requiring four years of university studies. The 137 credit hours required for the degree include 48 credit hours of university and general education requirements, 77 credit hours in computer engineering design and related subjects and 12 elective credit hours of computer engineering. The computer engineering program is designed to satisfy all applicable criteria adopted by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) of the United States while, of equal importance, also

meeting the needs of the engineering community in the United Arab Emirates and the region.

University Requirements (48 credit hours)

- ARA XXX Arabic Language and Culture
- CHM 101 General Chemistry I
- COM 208 Public Speaking
- COM XXX English Language (four courses)
- H&SS XXX Humanities and Social Sciences (four courses)
- MTH 103 Calculus I
- MTH 104 Calculus II
- PHY 101 General Physics I
- STA 360 Engineering Statistics

Major Requirements (77 credit hours)

- CMP 102 Fortran Programming
- COE 221 Digital Systems
- COE 331 Computer Architecture and Organization
- COE 351 Microcomputer System Design
- COE 371 Computer Networks
- COE 381 Operating Systems
- COE 411 Microprocessors and Computer Systems
- COE 498 Design Project
- COE 499 Design Project
- ELE 405 Computational Methods for ELE and COE
- ELE 211 Electric Circuits I
- ELE 212 Electric Circuits II
- ELE 241 Electronics I
- ELE 311 Electromagnetic Theory
- ELE 321 Signals and Systems
- ELE 332 Instrumentation and Measurements
- ELE 341 Electronics II
- ELE 353 Control Systems I
- ELE 361 Communications I
- MTH 205 Differential Equations
- MTH 341 Numerical Computing
- NGN 100 Introduction to Engineering
- NGN 102 Engineering Drawing
- PHY 102 General Physics II I

Elective Courses (12 credit hours)

Students must take 4 (12 credit hours) elective courses in the COE program.

Proposed program and sequence of study

Bachelor of Science in Computer Engineering
(B.S. Computer Engineering)

FIRST YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHM 101	General Chemistry I	4	MR/URE
	CMP 102	Fortran Programming	3	MR
	COM 101	Academic Writing	3	URE
	MTH 103	Calculus I	4	MR/URE
	NGN 100	Introduction to Engineering	1	MR
	PHY 101	General Physics I	4	MR/URE
		Total	19	
Spring	COM 102	Writing and Reading Across the Curriculum	3	URE
	H&SS XXX	H & SS Elective	3	URE
	MTH 104	Calculus II	4	MR/URE
	NGN 102	Engineering Drawing I	3	MR
	PHY 102	General Physics II	4	MR
		Total	17	

SECOND YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COE 221	Digital Systems	3	MR
	COE 221L	Laboratory - Digital Systems	1	MR
	COM XXX	Communication III	3	URE
	ELE 211	Electrical Circuits I	3	MR
	ELE 332	Instrumentation & Measurement	3	MR
	MTH 205	Differential Equations	3	MR
		Total	16	
Spring	COM XXX	Communication IV	3	URE
	ELE 212	Electrical Circuits II	3	MR
	ELE 212L	Laboratory - Electrical Circuits II	1	MR
	ELE 241	Electronics I	3	MR
	ELE 241L	Laboratory - Electronics I	1	MR
	H&SS XXX	H & SS Elective	3	MR
	MTH XXX	Mathematics Elective	3	MR
		Total	19	

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.

THIRD YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COE 331	Computer Architecture & Organization	3	MR
	COE 371	Computer Networks	3	MR
	ELE 311	Electromagnetic Theory	3	MR
	ELE 321	Signals & Systems	3	MR
	ELE 341	Electronics II	3	MR
	ELE 341L	Laboratory – Electronics II	1	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	19	
Spring	COE 351	Microcomputer System Design	3	MR
	COE 381	Operating Systems	3	MR
	COE 381L	Laboratory – Operating Systems	1	MR
	ELE 353	Control Systems I	3	MR
	ELE 361	Communications I	3	MR
	ELE 361L	Laboratory – Communications I	1	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	17	

FOURTH YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARA XXX	Arabic Language	3	URE
	COE XXX	COE Elective	3	MR
	COE 411	Microprocessors	3	MR
	COE 411L	Laboratory – Microprocessors	1	MR
	COE 498	Design Project	2	MR
	ELE 405	Computer Methods	3	MR
	STA 360	Engineering Statistics	3	MR
		Total	18	
Spring	COE XXX	COE Elective	3	MR
	COE XXX	COE Elective	3	MR
	COE XXX	COE Elective	3	MR
	COE 499	Design Project	2	MR
	COM 208	Public Speaking	3	MR
		Total	14	

Abbreviations: EL = Elective
MR = Major Requirement
URE = University Requirement

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.

Electrical and Electronic Engineering

The Department of Electrical and Electronic Engineering offers a four-year program leading to the Bachelor of Science in Electrical and Electronic Engineering (B.S. Ele.). Suitably qualified and motivated students can complete this program in four years. With the complete background this program offers, an electrical and electronic engineering graduate will be able to contribute to industries in the region and be competitive in the world-wide marketplace.

The electrical and electronic engineering degree program is built on foundation subjects in science, mathematics and general education. Core courses in electrical/electronic engineering cover essential subjects, giving a foundation that allows the student to gain depth in a specialty within electrical and electronic engineering areas through the choice of electives. Laboratory classes provide hands-on experience that is practical while also providing a solid learning environment in which students can connect theory and application. The B.S. in Electrical Engineering is designed to prepare those who seek careers as electrical and electronic engineers. Thus, the engineering program is designed to satisfy all applicable criteria adopted by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) of the United States while, of equal importance, also meeting the needs of the engineering community in the United Arab Emirates and the region.

The B.S. in Electrical and Electronic Engineering is a professional program requiring four years of university studies. The 137 hours required for the degree include 48 hours of university foundation and general education requirements, 77 credit hours in electrical engineering and related subjects and 12 elective credit hours in related

electrical and electronic engineering courses. Beginning with the third year, the student may elect specialization in either electrical or electronic engineering.

University Graduation Requirement

A total of 137 credit hours, including:

- Forty-eight credit hours of university requirements
- Seventy-seven credit hours of major requirements
- Twelve credit hours of electives in the major
- Summer Practicum (after the third year)

University Requirements (48 credit hours)

- ARA XXX Arabic Language and Culture
- CHM 101 General Chemistry I
- COM 208 Public Speaking
- COM XXX English Language (four courses)
- H&SS XXX Humanities and Social Sciences (four courses)
- MTH 103 Calculus I
- MTH 104 Calculus II
- PHY 101 General Physics I
- STA 360 Engineering Statistics

Major Requirements (77 credit hours)

- CMP 102 Fortran Programming
- COE 221 Digital Systems
- COE 331 Computer Architecture and Organization
- COE 411 Microprocessors and Computer Systems
- ELE 201 Statics and Dynamics
- ELE 211 Electric Circuits I
- ELE 212 Electric Circuits II
- ELE 241 Electronics I
- ELE 311 Electromagnetic Theory
- ELE 321 Signals and Systems
- ELE 332 Instrumentation and Measurements
- ELE 341 Electronics II

- ELE 351 Electric Machines I
- ELE 353 Control Systems I
- ELE 361 Communications I
- ELE 371 Power System I
- ELE 405 Computational Methods for ELE & COE
- ELE 445 Digital Signal Processing
- ELE 498 Design Project
- ELE 499 Design Project
- MTH 205 Differential Equations
- MTH XXX Mathematics Elective

- NGN 100 Introduction to Engineering
- NGN 102 Engineering Drawing I
- PHY 102 General Physics II

Elective Courses (12 credit hours)

Students must take 4 elective courses (12 credit hours) in one of the following major areas in electrical and electronic engineering: control and instrumentation, communications and medical electronics.

Proposed program and sequence of study

B.S. in Electrical and Electronic Engineering (B.S. Ele.)

FIRST YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHM 101	General Chemistry I	4	MR/URE
	CMP 102	Fortran Programming	3	MR
	COM XXX	Communication I	3	URE
	MTH 103	Calculus I	4	MR/URE
	NGN 100	Introduction to Engineering	1	MR
	PHY 101	General Physics I	4	MR/URE
		Total	19	
Spring	COM XXX	Communication II	3	URE
	H&SS XXX	H & SS Elective	3	URE
	MTH 104	Calculus II	4	MR/URE
	NGN 102	Engineering Drawing I	3	MR
	PHY 102	General Physics II	4	MR
		Total	17	

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.

SECOND YEAR (33 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COE 221	Digital Systems	3	MR
	COE 221L	Laboratory – Digital Systems	1	MR
	COM XXX	Communication III	3	MR
	ELE 201	Statics & Dynamics	3	MR
	ELE 211	Electrical Circuits I	3	MR
	MTH 205	Differential Equations	3	MR
		Total	16	
Spring	COM XXX	Communication IV	3	URE
	ELE 212	Electrical Circuits II	3	MR
	ELE 212L	Laboratory – Electrical Circuits II	1	MR
	ELE 241	Electronics I	3	MR
	ELE 241L	Laboratory – Electronics I	1	MR
	H&SS XXX	H & SS Elective	3	MR
	MTH XXX	MTH Elective	3	MR
		Total	17	

THIRD YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ELE 311	Electromagnetic Theory	3	MR
	ELE 321	Signals & Systems	3	MR
	ELE 332	Instrumentation & Measurement	3	MR
	ELE 341	Electronics II	3	MR
	ELE 341L	Laboratory – Electronics II	1	MR
	ELE 353	Control Systems I	3	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	19	
Spring	ELE 351	Electric Machines	3	MR
	ELE 351L	Laboratory – Electric Machines	1	MR
	ELE 361	Communications I	3	MR
	ELE 361L	Laboratory – Communications I	1	MR
	ELE 371	Power Systems	3	MR
	ELE 445	Digital Signal Processing	3	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	17	

FOURTH YEAR (32 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARA XXX	Arabic Language	3	URE
	COE 411	Microprocessors & Computer Systems	3	MR
	COE 411L	Laboratory – Microprocessors	1	MR
	ELE XXX	ELE Elective	3	MR
	ELE 405	Computer Methods	3	MR
	ELE 498	Design Project	2	MR
	STA 360	Engineering Statistics	3	MR
		Total	18	
Spring	COM 208	Public Speaking	3	URE
	ELE XXX	ELE Elective	3	MR
	ELE XXX	ELE Elective	3	MR
	ELE XXX	ELE Elective	3	MR
	ELE 499	Design Project	2	MR
		Total	14	

Abbreviations: EL = Elective
 MR = Major Requirement
 URE = University Requirement

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.

Mechanical Engineering

Modern society relies extensively on the good efforts and innovations that mechanical engineers provide. Mechanical engineers plan, design, construct, manufacture, operate, control, test and maintain all kinds of machines and mechanical appliances. Whether it is an automobile, an air conditioner, a jet engine, a power station, a space craft, a desalination plant, a robot or a steel mill, it has probably been conceived, designed and tested by mechanical engineers.

The Department of Mechanical Engineering offers a 4-year program leading to the Bachelor of Science Degree in Mechanical Engineering (B.S. Mechanical).

Coursework in the mechanical engineering program includes topics in applied mechanics,

thermal sciences, engineering materials, manufacturing processes, mechatronics and energy.

The B.S. Mechanical Engineering is a professional program requiring four years of university studies. The 138 credit hours required for the degree include 48 hours of university foundation and general education requirements, 78 credit hours in mechanical engineering and related subjects and 12 elective credit hours. The B.S. in Mechanical Engineering is designed to prepare those who seek careers as mechanical engineers. Thus, the mechanical engineering program is designed to satisfy all applicable criteria adopted by the Accreditation Board for Engineering and Technology (ABET) of the United States while, of equal importance, also meeting the needs of the engineering community in the United Arab Emirates and the region.

B.S. in Mechanical Engineering

University Graduation Requirements

A total of 138 credit hours, including:

- Forty-eight credit hours of university requirements
- Seventy-eight credit hours of major requirements
- Twelve credit hours electives in the major
- Summer practicum (after the third year)

University Requirements (48 credit hours)

- ARA XXX Arabic Language and Culture
- CHM 101 General Chemistry I
- COM 208 Public Speaking
- ENG XXX English Language (four courses)
- H&SS XXX Humanities and Social Sciences (four courses)
- MTH 103 Calculus I
- MTH 104 Calculus II
- PHY 101 General Physics I
- STA 360 Engineering Statistics

Major Requirements (78 credit hours)

- CMP 102 Fortran Programming
- ELE 211 Electrical Circuits
- ELE 351 Electrical Machines
- ELE 353 Control Systems I
- MCE 231 Manufacturing Techniques
- MCE 311 Engineering Measurement
- MCE 332 Machining and Forming Processes
- MCE 235 Computational Techniques
- MCE 251 Thermodynamics I
- MCE 261 System Dynamics Modeling and Control
- MCE 316 Mechanisms
- MCE 321 Mechanical Design I
- MCE 322 Mechanical Design II
- MCE 344 Heat Transfer I
- MCE 423 Mechanical Vibrations
- MCE 445 Energy Systems
- MCE 498 Design Project
- MCE 499 Design Project
- MTH 205 Differential Equations
- MTH 357 Advanced Mathematical Methods
- NGN 100 Introduction to Engineering
- NGN 102 Engineering Drawing I

- NGN 103 Engineering Drawing II
- NGN 221 Engineering Mechanics I: Statics
- NGN 222 Engineering Mechanics II: Dynamics
- NGN 223 Engineering Mechanics III
- NGN 231 Materials Science
- NGN 241 Fluid Mechanics
- PHY 102 General Physics II

Elective Courses (12 credit hours)

Students must complete 4 elective courses (12 credit hours) in the Department of Mechanical Engineering from one of the following recognized areas in mechanical engineering: design and maintenance, materials science and manufacturing, gas and energy, system engineering, engineering management, mechatronics or automation.

Proposed program and sequence of study

Bachelor of Science in Mechanical Engineering (B.S. Mechanical)

FIRST YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	CHM 101	General Chemistry I	4	MR/URE
	CMP 102	Fortran Programming	3	MR
	COM 101	Academic Writing	3	URE
	MTH 103	Calculus I	4	MR/URE
	NGN 100	Introduction to Engineering	1	MR
	PHY 101	General Physics I	4	MR/URE
		Total	19	
Spring	COM 102	Writing & Reading Across the Curriculum	3	URE
	H&SS XXX	H & SS Elective	3	MR
	MTH 104	Calculus II	4	MR/URE
	NGN 102	Engineering Drawing I	3	MR
	PHY 102	General Physics II	4	MR
		Total	17	

SECOND YEAR (36 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ELE 211	Electrical Circuits I	3	MR
	MCE 231	Manufacturing Techniques	3	MR
	MTH 205	Differential Equations	3	MR
	NGN 103	Engineering Drawing II	3	MR
	NGN 221	Engineering Mechanics I – Statics	3	URE
	NGN 231	Materials Science	3	MR
		Total	18	
Spring	MCE 235	Computational Techniques	3	MR
	MCE 251	Thermodynamics	3	MR
	MTH XXX	MTH Elective	3	MR
	NGN 222	Engineering Mechanics II – Dynamics	3	MR
	NGN 223	Engineering Mechanics III	3	MR
	NGN 241	Fluid Mechanics	3	URE
		Total	18	

THIRD YEAR (35 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	COM XXX	Communication III	3	URE
	ELE 351	Electric Machines	3	MR
	ELE 351L	Laboratory – Electric Machines	1	MR
	ELE 353	Control I	3	MR
	H&SS XXX	H & SS Elective	3	URE
	MCE 311	Engineering Measurements	1	MR
	MCE 321	Mechanical Design I	3	MR
		Total	17	
Spring	COM XXX	Communication IV	3	URE
	MCE 316	Mechanisms	3	MR
	MCE 322	Mechanical Design II	3	MR
	MCE 344	Heat Transfer I	3	MR
	MCE 423	Mechanical Vibrations	3	MR
	H&SS XXX	H & SS Elective	3	URE
		Total	18	

FOURTH YEAR (31 credit hours)

Term	Course #	Course Title	Credit Hours	Fulfills
Fall	ARA XXX	Arabic Language	3	URE
	MCE XXX	MCE Elective	3	MR
	MCE XXX	MCE Elective	3	MR
	MCE 445	Energy Systems	3	MR
	MCE 498	Design Project	2	MR
	STA 360	Engineering Statistics	3	MR
		Total	17	
Spring	COM 208	Public Speaking	3	URE
	H&SS XXX	H & SS Elective	3	MR
	MCE XXX	MCE Elective	3	MR
	MCE XXX	MCE Elective	3	MR
	MCE 499	Design Project	2	MR
		Total	14	

Abbreviations: EL = Elective

MR = Major Requirement

URE = University Requirement

Note: XXX XXX represents an elective course that can be taken in any discipline. If an elective course has a prefix (ex. ARA XXX), the course must be taken from the particular discipline specified.



Continuing Higher Education Adult Center (CHEAC)

- **Director and Staff**
 - **Admission Requirements and Procedures**
 - **CHEAC Programs**
 - **Strategies for Success: Customized Needs Assessments and Training Programs**
-

Director

George K. Najjar, Vice President for Regional External Programs, *American University of Beirut*

Coordinator

Suha Saghban Abouzeid

The Continuing Higher Education Adult Center (CHEAC) provides access to the educational resources of AUS and offers quality educational programs to meet the ongoing professional and personal needs of the Northern Emirates' adult community. On-campus and off-campus offerings include certificate programs, language courses, workshops, seminars, symposiums, conferences and customized training programs to meet the needs of individuals and organizations. All CHEAC's certificate programs, workshops, and other activities are taught by leading experts who bring their hands-on experience into the classroom. All courses will be offered in English unless otherwise stated.

Currently, AUS is the only educational institution in the Emirates that provides a full complement of adult academic programs in an academic campus setting. In addition, AUS enjoys the significant and mutual cooperation of such institutions as American University in Washington, DC (AU), the American University

of Beirut (AUB) and Texas A&M University.

Goals of CHEAC

The Center meets its goals in the following ways:

- The role of AUS as charged by His Highness is for the university to be a distinguished local and regional center not only for regular academic programs but also for training and development, continuing education and degree programs offered on a part-time basis. Therefore, CHEAC offers programs to further individual growth, to strengthen all segments of the Northern Emirates professional community or to accelerate the process of national employment in various sectors.
- Executives and professionals in Sharjah and the neighboring Emirates develop standards of excellence, prepare themselves for new challenges and broaden their perspectives.
- Opportunities are provided to practitioners in some of the basic professions such as management, accounting, marketing, information technology and other areas of interest to expand their knowledge in their own or related disciplines and help them in their pursuit for self education.

Additional objectives of CHEAC are:

- To teach participants practical applications of theories and concepts.
- To make participants more competitive by developing certain skills.
- To offer up-to-date, cutting-edge curricula recommended by industry professionals and designed by AUS Faculty and CHEAC.
- To enhance each participant's knowledge and professional confidence by providing him/her with topics to explore in-depth.
- To provide evening classes to accommodate work schedules of the participants.

Admission Requirements and Procedures

Requirements

All Certificate Program Courses run for three hours a week, twelve weeks per semester. Certificate Program participants are encouraged to complete a full program in three semesters. However, CHEAC is under no obligation to offer these courses at all times.

Course schedules including dates and times of each offering will be available approximately one month prior to the start of a semester.

Each Certificate Program course fee is UAE Dirhams 3,600.

Procedures

To apply for the program, candidates must:

- Fill out an application form to be submitted by the semester deadline. Incomplete or late applications will only be considered on a case-by-case basis.
- Submit a secondary school certificate; alternatively, comparable work experience will be considered.
- Pass a CHEAC English Proficiency Test and meet other placement criteria.
- Obtain a letter of recommendation from your secondary school principal or work supervisor.

- Sit for an interview with the CHEAC Admissions Review Committee. A schedule of interview dates and times will be posted prior to every semester.
- Applications for admission into any of the certificate programs can be secured from the Office of the Continuing Higher Education Adult Center (CHEAC) located in the Main Building at AUS.

Note:

- Courses may be taken individually or as part of the pursuit of a full certificate program. Participants not working for a certificate will receive documentation indicating their participation for each course they take.
- These certificate programs are open to employees from various institutions on the basis of sponsorship by their organizations, or to individuals seeking to enhance their skills. Other certificate programs will be offered based on interest and need.

CHEAC Programs

Executive MBA

AUS and CHEAC are pleased to announce the establishment of the only Executive Masters of Business Administration program to be offered by a full-fledged American style academic institution in the United Arab Emirates. The first cohort group taking foundation courses will begin in the 1999-2000 Academic Year. The EMBA program will start in Fall 2000.

Designed specifically with the professional in mind, the Executive MBA program will focus on a post-graduate Business and Management curriculum offered on a fast-track basis with flexible delivery modalities and practical applications related to work and career.

Admission will be based on both previous academic credentials as well as work experience. In addition to extensive coursework, it is anticipated that participants will complete an Executive MBA graduation project that is application-oriented and driven by problem-solving.

Full information regarding the Executive MBA and admissions requirements, and course curriculum will be available late Spring 1999.

Business and Management Certificate

Programs

Among the certificate programs that will be offered starting in Fall 1998 are:

Accounting and Finance

Courses include:

- Financial Accounting
- Management Accounting
- Cost Accounting
- Business Finance
- Investments
- Insurance

Human Resources Development

Courses include:

- Human Resources Management
- Job Analysis and Design
- Training and Development
- Career Planning
- Compensation Management
- Employee Relations and Assessment

Information Technology

Courses include:

- Introduction to Computers
- Productivity Tools (Microsoft Office Application)
- Visual Basic I
- Visual Basic II
- Introduction to DATABASE
- Networking

Marketing Management

Courses include:

- Introduction to Marketing
- International Marketing
- Marketing Research
- Sales Management
- Advertising
- Distribution

Office Management

Courses include:

- Introduction to Business
- Business Communication Skills and Business Etiquette
- Word Processing and Computer Literacy
- Office Procedures and Routines
- Office Management
- Office Systems Supervision

Courses may be taken individually, or certificates may be earned in each of the above programs. Request the *CHEAC Catalog* for

details on all programs.

English Language Program

English is the global language. Effective use of the English Language provides one with entrees into all realms of community and business life.

Individuals who seek to improve their English language skills can take advantage of our English Language Program courses. These courses are offered in the evenings for participant convenience. They are designed for all levels and place a special emphasis on helping participants develop communicative competence. CHEAC will provide an English Language Program for adults wishing to improve their English for either general purposes or for professional purposes.

For those individuals seeking to improve their everyday English language skills, an assessment will be made prior to the start of their coursework to determine the most appropriate level for them to begin. For those adults who will be applying to the CHEAC Certificate Programs, an assessment of English proficiency and proven competency must be attained before the start of their Certificate Program coursework.

Assessments will include review of each applicant's English language abilities through the demonstration of an appropriate TOEFL score or through a CHEAC English Proficiency Placement Test and other placement criteria.

For further information regarding the English Language Program and/or the English Language requirements for admission to a CHEAC Certificate Program, please contact the CHEAC office.

Professional Workshops

CHEAC workshop offerings will explore issues of topical concern in-depth and will help participants advance in their careers or in pursuing an area of personal interest. These workshops represent an expression of AUS as a modern university reaching out to its various

constituencies. Workshops are developed in cooperation with and through the technical support of the American University of Beirut. Workshops will focus on a variety of management, marketing, finance and information technology services, as well as on other relevant topics to meet ongoing professional and personal needs.

A separate flyer will be issued for each workshop specifying the contents, presenters, time schedule, fees, venue, and other relevant information. To add your name to our mailing list to receive flyers, please contact the CHEAC office.

Lecture Series

As part of its ongoing activities, CHEAC will offer a series of public lectures by prominent leaders on a wide variety of topics. An announcement will be issued for each lecture as it is developed. The 1998-1999 lecture series includes:

Sharjah

Exploring the Cultural Capital of the Arab World

Wednesday, October 14, 1998

Let's Go to the Movies

Wednesday, November 25, 1998

Society and Culture of the UAE

Wednesday, December 9, 1998

These lectures are free but advanced registration is suggested since seating may be limited.

All organizations today, whether in government,

Strategies for Success: Customized Needs Assessments & Training Programs

business or industry, require flexible, highly skilled workforces and administrative structures to meet the challenges of today's competitive environment. Key issues facing all organizations in the twenty-first century include: integrating new technologies, entering global markets and meeting increased consumer demands.

CHEAC can assist your organization in two ways. First, by tapping into our many program offerings, your organization will find valuable opportunities for your middle and senior level executives. In these programs, they will learn by

participating in dialogues and discussions with executives from other organizations. Second, by working in partnership with your key internal and external needs, we can set training objectives, and develop courses and materials to meet your goals. Training times and locations are scheduled for your convenience and all services are designed to meet your budget needs.



Index of Course Descriptions by Discipline

Accounting	Intensive English
Arabic Language	Interior Design
Arabic Literature	International Business
Architecture	Legal Issues - Business
Business Legal Issues	Management
Chemical Engineering	Management Information Systems
Chemistry	Marketing
Civil Engineering	Mathematics
Communication	Mechanical Engineering
Communication Skills	Multimedia
Computer Engineering	Philosophy
Computer Science	Photography
Cultural Studies	Physics
Design	Politics
Economics	Psychology
Electrical and Electronic Engineering	Political Science
Engineering	Sociology
English Communication Skills	Statistics
English Language	Translation
English Literature	
Environmental Studies	
Finance and Banking	
Graphic Design	
History	
Information Systems	

Course Descriptions

Accounting

ACC 201 Principles of Financial Accounting (3); every semester. An introduction to the principles and concepts underlying financial statements. Course includes an introduction to the accounting profession, control, concepts, business entities and all elements of basic financial statements. *Prerequisite:* first year (freshman) standing.

ACC 202 Principles of Managerial Accounting (3); every semester. An introduction to the principles and concepts underlying managerial accounting. Course includes an introduction to management accounting information and cost accounting. *Prerequisite:* first year (freshman) standing.

ACC 301 Intermediate Financial Accounting I (3); every semester. Begins a two-course sequence providing an in-depth study of principles, and elements associated with financial statements. This includes financial statement analysis, income measurement, valuation of assets and equities, and generally accepted accounting principles. *Prerequisite:* ACC 202 and FIN 201.

ACC 302 Intermediate Financial Accounting II (3); annually. Continuation of Intermediate Financial Accounting I; focus on accounting for long-term liabilities, stockholder's equity, cash flow analysis and international financial statements. *Prerequisite:* ACC 301.

ACC 303 Cost Accounting (3); annually. Uses of accounting data for planning control and

decision-making. Topics include budgets and cost concepts, techniques and behavior. *Prerequisite:* ACC 202 and FIN 201.

ACC 304 Auditing (3); annually. A study of auditing theory, generally accepted auditing standards, audit procedures, audit reports, and the responsibilities and ethics of the auditing profession. Topics include risk, evidence and audit tests, internal controls, sampling, audit testing, subsequent events, professional liability, reporting statutory provisions, compilation and review services, and reporting under government auditing standards. *Prerequisite:* ACC 303.

ACC 401 Advanced Financial Accounting (3); annually. Theory and practices of accounting for partnerships, business combinations and consolidated financial statements. Advanced topics in financial accounting. *Prerequisite:* ACC 302 and ACC 303.

Arabic Language

ARA 100 Arabic Language for Non-Native Speakers I (5); every semester. This course introduces the student to the script of modern written Arabic and develops their confidence and knowledge in the four skill areas. The materials are designed using a modern approach to foreign language teaching.

ARA 103 Composition for Native Speakers of Arabic (3); every semester. This is a practical language-based class that aims to develop the writing skills of the native speaker of Arabic. The

course will develop themes such as letter writing and also give attention to the development of personal style. An additional element to the course will be a historical look at styles of composition in Arabic.

ARA 200 Arabic Language for Non-Native Speakers II (5); every semester. This is an extension of course ARA 100 designed to further develop the non-native speaker's knowledge and proficiency of Arabic.

ARA 208 Selected Texts for Translation I (3); every semester. For this course, the student will be required to prepare and translate a range of texts on such themes as science and the environment, business and economics, law, and current affairs. There will also be opportunities for each student to present a short talk on specific translation problems of a set of texts.

ARA 209 Arabic Morphology and Syntax (3); annually. The aim of this course is to survey Arabic morphology (*sarf*) and grammar (*nahw*). It includes two major activities which go hand in hand: studying and analyzing a basic (preferably ancient) text on morphology and grammar and applying this theoretical knowledge to chosen literary texts through the functional study of words and sentences.

ARA 210 Arabic Philology (3); annually. This course examines the contribution of the Arabs to the study of philology. It deals with major issues such as the definition of language, the phonology of Arabic, the tribal dialects, synonymy and antonymy, and linguistic borrowing. This classical survey is blended with the introduction of the basic principles and technical terms of modern linguistics.

ARA 211 Linguistic Issues in the Neoclassical Period (3); annually. In addition to looking in some depth at the prevalent linguistic issues of the period ca. 1850-1918, this course will also assess the role of some of the key figures involved in the intense academic debate via the literary journals of the time. It will also focus on the extent to which some of the literature of this era reflected the intellectual activities of scholars of

the classical period.

ARA 212 Introduction to Arabic Sociolinguistics (3); annually. This course examines linguistic variation as it is reflected in the various Arabic dialects across the Arab World as well as within regions, and in many cases, within the same country. It emphasizes topics such as diglossia, bilingualism, linguistic purism, code-switching, language in education and language ethnicity.

ARA 307 Selected Texts for Translation II (3); annually. This course examines similar texts to those of ARA 208 but of a more complex nature.

ARA 308 Introduction to Stylistics and Metrics (3); annually. This course falls into two major parts: stylistics (*balaghah*) and metrics (*'arud*). In stylistics, a brief theoretical survey of the major components of the field is followed by extensive textual analysis, rather than the traditional study of isolated examples. In metrics, the basic principles of the *taf'ilat* and their variations are introduced and applied to selected examples.

ARA 309 Arabic Lexicography (3); annually. In this course, an assessment will be made of the contributions to lexicography by Islamic scholars in the medieval period. It starts with the linguistic activity of the second century A.H. which resulted in several thematic books prior to the first dictionary. It then examines the theo-retical foundations set by Al-Khalil bin Ahmad in *Kitab al-'Ayn* and surveys the major lexicons up to *Taj al-'Arus*. Beyond this, it will look at the underlying objectives of such a rich lexicographical tradition within the cultural framework of Islam.

ARA 310 The Development of the Arabic Language (3); annually. The main emphasis of this course will be on the modern language. It will assess the main principles of language change in Arabic during the past century or more, and will look at the role of the language academies in accommodating these changes. Particular attention will be given to the language of the media, in addition to general theories of language change.

ARA 311 Seminar on Arabic Language (3); annually. The topic and the instructor of the seminar may vary from year to year depending on staff interests. A range of different aspects of the Arabic language may be chosen. Selected topics will then be read in-depth outside of the classroom and discussed critically in class. *Prerequisite:* normally an average of 75 or above in the major.

ARA 407 Advanced Studies on Arabic Grammar (3); annually. This course examines in-depth the syntax and idiom of Modern Standard Arabic. Emphasis will be placed on the study of rules of sentence formation in Arabic as well as the patterns of coordination, complementation, predication and modification.

ARA 408 The Arabic Language and Modern Linguistics (3); annually. This course will focus on the application of modern linguistic theory to the study of medieval and modern Arabic. By introducing the student to modern linguistic terminology and theory, it will assess the importance of modern linguistics in furthering our understanding of traditional Arab grammatical theory.

ARA 409 Luminaries in the History of the Arabic Language (3); annually. This rather unusual course will examine the contribution made by key individuals to the development of the Arabic language throughout the past 1200 years. It will assess their influence on its development, and also their own position within the intellectual strata of Islamic society, including the social role of the grammarian in medieval society.

ARA 410 Tutorial on the Arabic Language (3-6); annually. This course is offered on demand. The instructor and the student agree on the topic and the requirements of the course. *Prerequisite:* normally an average of 75 or above in the major.

ARA 411 Research Seminar on the Arabic Language (3); annually. In this course, students will be trained in research methodology through a series of theoretical and practical sessions,

culminating in each student submitting an independent paper on research principles under supervision from the instructor. Detailed attention will be given to research methods, including the use of biographical dictionaries and encyclopedic works, followed by the preparation of the research paper. Students may *not* enroll for this course and ARA 405. *Prerequisite:* normally an average of 75 or above in the major.

ARA 412 Special Subject on the Arabic Language (3); annually. On a subject agreed by the supervisor the student will carry out independent research and submit a dissertation of approximately 10,000 words on that subject. Unlike ARA 411, this course will give the student an option to write on a subject of his or her choice using primary and secondary sources. *Prerequisite:* normally an average of 75 or above in the major.

Arabic Literature

ARA 101 and 102 Readings in Arabic Heritage (3 credit hours each); every semester. These two courses survey selections from writings in Arabic prose literature and poetry which reflect the intellectual, literary, and cultural development of the Arabs from pre-Islamic times up to the present day. The courses will include the use of some audio-visual materials.

ARA 201 Arabic Literature in Translation (for non-native speakers only) (3); annually. This course is a detailed study of genre and theme in Arabic literature, with special emphasis on the modern period; it focuses on literature as a vital reflection of Arab culture and society.

ARA 202 Arab-Islamic History and the History of Arabic Literature (3); annually. This is a very intensive and wide-ranging survey course designed to illustrate to students from different backgrounds the essential facts of Arab history. It focuses on the landmarks of Arabic Literature from pre-Islamic to modern times, and provides glimpses of the literary fruits borne within that milieu. The course will also deal with

the fundamental facts of Arab history.

ARA 203 Pre-Islamic Poetry (3); annually. This course examines relevant aspects of pre-Islamic Arabian life and history, and deals with the main issues and trends related to pre-Islamic poetry using major primary sources. A direct textual approach is adopted based on a close critical analysis of selected poems.

ARA 204 Early Islamic and Umayyad Poetry (3); annually. This course surveys Arabic poetry from the advent of Islam to the end of the Umayyad era. Ideological, cultural, economic, social and political factors affecting poetry in both phases of this period are studied. The course highlights the revival of poetry under the Umayyads, the restoration of pre-Islamic poetic traditions, and the major poetic trends and features that testify to the contemporaneous nature of this poetry. The foundation of this course is a critical analysis of selected poems.

ARA 205 Poetry in the Abbasid Age (3); annually. The course covers the whole period from the fall of the Umayyads to the fall of Baghdad, and the entire territory from Transoxania to Al-Andalus. The contemporaneous nature of Abbasid poetry, in its artistic techniques and in its response to the changing social and cultural life, represents a genuine break with the Arab poetic code which pervaded pre-Islamic and Umayyad poetry. Major trends and issues of this new poetry are surveyed, with a special emphasis on at least four major poets: Abu Nuwwas, Abu Tammam, Al-Mutanabbi and Al-Ma'arri.

ARA 206 Modern Arabic Prose (3); annually. In this course, the renaissance of Arabic prose, from the nineteenth century to the present is surveyed. The general burden of the course is the study of the modern Arabic novel, short story, play and autobiography. Special attention is paid to the factors leading to the rise of these fundamentally Western literary forms in the Arab world as a result of the 'Nahda', and to elements of fiction and drama in 'parallel' forms in Classical Arabic literature. The focus of the course is the study of

the established works of Naguib Mahfouz and Tawfiq Al-Hakim.

ARA 207 Arabic Drama (3); annually. This course will look at the emergence of Arabic drama in the nineteenth century until the present day. It will also assess prototype drama forms of the medieval period. Through a study of selected plays by prominent authors, a picture will emerge of the influence of Arabic drama on Arabic literature. Attention will be given to the effect created by the use of colloquial dialogues in play scripts. A selection of video recordings will also accompany this course.

ARA 301 Classical Arabic Prose until the end of the Third Century A.H. (3); annually. Through critical textual analysis, this course tracks the evolution and development of classical Arabic prose from pre-Islamic times until the late second century A.H. after the death of al-Jahiz. Major trends, styles and forms are examined from a complex perspective, combining the evolutionary chronological approach with the artistic and analytical. It assesses the significance of the oratory tradition in early Islam, and also looks at the early development of the epistolary genre which was to become the main focus of Arabic prose literature. It also looks at the influence of the Qur'an and Hadith on the development of Arabic prose.

ARA 302 Classical Arabic Prose from the Fourth to Seventh Century A.H. (3); annually. This course focuses on 'artistic prose' particularly the epistolary genre that formed the basis of most Arabic prose writing during this period, especially during the fourth century A.H. It will look at the style of specific writers such as al-Sahib Ibn al-Abbad, al-Sabi' and al-Khwarizmi, and also at aspects of literary criticism as found in the works of scholars such as Ibn al-Athir. The social role of the secretary 'katib' will also be examined, as will the style of the 'maqamat' literature through the writings of the famous al-Hamadhani and al-Hariri.

ARA 303 Andalusian Literature (3); annually. This course takes a unique look at the literary

output of scholars from al-Andalus in three main areas: poetry, prose and grammar. It assesses the rich collection of Andalusian literature by focusing on the muwashshah and zajal poetry, artistic prose (insha'), and the grammatical contribution of scholars such as Ibn Mada' al-Qurtabi and Abu Hayyan al-Gharnati.

ARA 304 Modern Arabic Poetry (3); annually. In this course, the renaissance of Arabic poetry from the nineteenth century to the present is surveyed, principally through the stimulating first exposure to the West and the rise of Neo-Classicism by Al-Barudi, Shawqi and others. It also investigates the steady and progressive exposure to the territory and soul of the West, which produced successive and contemporaneous waves of imitation, assimilation, 'apostasy' and rejection.

ARA 305 Literature of the Arabian Gulf (3); annually. Through selected texts, this course examines the contribution of literary figures in the Arabian Gulf, especially those of the United Arab Emirates, to Arabic literature in general.

ARA 306 Seminar on Arabic Literature (3); annually. The topic and the instructor of the seminar may vary from year to year depending on staff interests. A range of different aspects of Arabic literature may be chosen. Selected topics will then be read in-depth outside the classroom and discussed critically in class. *Prerequisite:* normally an average of 75 or above in the major.

ARA 401 Literary Criticism from the Arab Perspective (3); annually. This course is a survey of the history of Arab literary theories and of Arab literary criticism in classical times. The authoritative work by Ihsan Abbas (Tarikh Al-Naqd Al-Adabi 'ind al-Arab) provides the ideal framework for the course.

ARA 402 Qur'anic Studies (3); annually. This course is an introduction to the major Qur'an related issues such as the collection of the Qur'anic suras, Qur'anic imagery, and the various trends in Qur'anic studies and interpretations, and exegesis. It will also examine the important contribution made by the rationalist

Mu'tazila to Muslim exegesis.

ARA 403 Sufi Literature (3); annually. The purpose of this course is to familiarize students with the Sufi literature and Sufi traditions and doctrines.

ARA 404 Tutorial on Arabic Literature (3-6 credit hours); annually. This course is offered on demand. The instructor and the student agree on the topic and requirements of the course. *Prerequisite:* normally an average of 75 or above in the major.

ARA 405 Research Seminar on Arabic Literature (3); annually. Students may *not* enroll for this course and ARA 411. This course is similar to ARA 411 but places a special emphasis on literary works. *Prerequisite:* normally an average of 75 or above in the major.

ARA 406 Special Subject on Arabic Literature (3); annually. This course is similar to ARA 412 but places a special emphasis on literature. *Prerequisite:* normally an average of 75 or above in the major.

Architecture

Courses listed below in the Program of Architecture are described in several degrees of depth: full descriptions are presented only for courses to be taught during the current academic year (1998-1999). The remainder of the core curriculum is presented in abbreviated descriptions which indicate the basic scope and content of the intended courses. Elective courses are identified by title only. Anticipated offerings are also listed.

Full descriptions will be provided in subsequent catalogs as the curriculum matures.

ARC 201 Architectural Design Studio I (5); annually. Studio-based investigation of the fundamentals of making architectural form, with emphasis on design inquiry, exploration, and

process. Concentrates on classic instances of form sources in architectural design: function, experience, structure, construction, and environment. Digital media are integral to the studio, and students receive instruction in software appropriate for design purposes. *Prerequisite:* DES 112, DES 122 and DES 132. *Co-requisite:* ARC 211.

ARC 202 Architectural Design Studio II (5); annually. Continues the content and purpose of ARC 201, with increased emphasis on design development, and physical and technical resolution. Digital media are integral to the studio, and students receive continued instruction and practice in software appropriate for design. *Prerequisite:* ARC 201.

ARC 211 Digital Media in Architecture (3); annually. Intended to introduce digital media as an integral part of design processes and communication. ARC 211 shares purpose and strategy with the first Architectural design studio (ARC 210), and should be taken concurrently. Covers care and operation of hardware, an introduction to the function and features of the Macintosh operating system, appropriate use of keyboard, mouse, and other input devices, creation of digital documents, spreadsheets and use of relational databases and equipment such as printers and scanners. Introduces students to the integrated use of software appropriate for word processing and spreadsheets (Office 98), database (FileMaker Pro), precise drawing (Power-CADD), modeling (formZ), imaging (Photoshop), and page and document layout (PageMaker, QuarkXpress). *Co-requisite:* ARC 201.

ARC 212 Analysis and Methods in Architecture (3); annually. Introduction to models of process and conception in architectural design, addressing fundamental concepts of method, spatial organization, material, structure, and context as aspects of a comprehensive design intention. Course format includes lecture, seminar, field visits, and readings. Assignments involve written and graphic communication. *Prerequisite:* ARC 211. *Co-requisite:* ARC 202.

ARC 215 Descriptive Geometry (3).

ARC 220 Modern Foundations of Art and Architecture (3); annually. Principles and practices fundamental to an understanding of the art and architecture of the modern era. Presentation integrates history and theory with practical design application, and proceeds topically, rather than chronologically. Content closely coordinated with ARC 201. *Prerequisite:* DES 122, *Co-requisite:* ARC 201.

ARC 223 Materials and Methods for Interior Design (3).

ARC 230 Surveying (3).

ARC 231 Survey of Materials and Practices in Construction (3); annually. Broad survey of building materials and their properties, assembly sequences, and methods of construction in the context of their influence on the form, cost, and quality of the built environment. Includes some historical material to demonstrate both the continuing evolution of the building process, as well as the timeless nature of the issues involved. Investigated in lectures and site visits. *Co-requisite:* ARC 240.

ARC 240 Structural Principles: Statics and Strength of Materials (3); annually. Introduction to the graphic and mathematical description of structural behavior, as well as to the structural properties of the various materials used in typical architectural construction. Includes discussion of material quality and performance within the context of international standards (DIN, ISO, etc.). Taught in Department of Civil Engineering. *Prerequisite:* PHY 104, *Co-requisite:* ARC 231.

ARC 301 Architectural Design Studio III (6); annually. Investigations in the spatial, structural, environmental and visual design of specific site projects. Exploration of the syntax of architecture and advanced means of representation. Structure and controlled environments are studied as an integral part of design. Several individual problems per course. *Prerequisite:* ARC 202.

ARC 302 Architectural Design Studio IV (6); annually. Continuation of ARC 301, with

emphasis on investigation of urban programs and sites, requiring not only the integration of form, structure, space and technologies, but the consideration of specific contextual issues of physical form and activities. Fundamental urban design and planning issues, and methods and techniques are included. Several individual problems per course. *Prerequisite:* ARC 301.

ARC 321 Seminar: Ideas in Architecture (3); annually. An introduction to the conceptual basis of the work of specific architects, historical and contemporary architectural historians and theoreticians, and schools of thought in architecture with an emphasis on the understanding of both written and visual analysis of built form and design. Class includes lectures, discussions, readings, student presentations, and student projects. *Prerequisite:* ARC 212 and ARC 202. *Co-requisite:* ARC 301.

ARC 322 Seminar: Global Issues in Architecture (3); annually. Examination of our emerging understanding of global issues confronting humankind, including population growth, declining reserves of non-renewable resources, etc. Overview of the environmental impact of human communities through history. Introduction to concepts of energetics, including both the long-term operating economy of buildings, and the embedded energy invested in the physical form of the built environment. Extensive reading, research, discussion, and writing. *Prerequisite:* ARC 321. *Co-requisite:* ARC 302.

ARC 330 Materials and Practices of Concrete Construction (3); annually. In-depth presentation of contemporary regional construction practices using reinforced concrete. Emphasizes the interdependence of good building practices, appropriate form choices in architectural design, and quality in the resulting work. Presents a detailed account of the normative regional building process, from site preparation to final finishes. Lecture/presentation with extensive use of field visits. Taught in the Department of Civil Engineering. *Prerequisite:* ARC 231.

ARC 341 Structural Analysis: Conceiving Forces in Buildings (3); annually. An introduction to the concepts and procedures used to analyze and predict the behavior of buildings in response to static and dynamic loads on the structure. Extensive use of the computer and appropriate software to model, analyze, simulate, and animate structural behavior. Taught in the Department of Civil Engineering. *Prerequisite:* ARC 240.

ARC 342 Structural Design in Concrete (3); annually. An introduction to methods and concepts used by the structural engineer in the design of reinforced concrete buildings. Structural design is presented as a search for strategies appropriate to realize architectural form, synthesizing the structural imperatives of regularity and rationality with specific desires for formal relationships and environmental qualities. Taught in the Department of Civil Engineering. *Prerequisite:* ARC 341.

ARC 351 Environmental Energies and Building Form (3); annually. Presents building form in the context of the environmental energies of light, heat, wind, and sound. Together with moisture, these energies establish the invariant, often harsh, context within which built form must perform. Architectural form is presented as a strategy to mitigate the adverse effects of climate and locale upon the people and activities within the building houses. *Prerequisite:* ARC 330.

ARC 352 Environmental Control Systems (3); annually. An integrated presentation of environmental control systems (lighting, heating, ventilating, air conditioning, sanitary, and acoustics) as they influence one another, and as they constrain building planning and morphology. Taught in the Department of Mechanical Engineering. *Prerequisite:* ARC 351.

ARC 370 Professional Training (0); annually. Minimum of six weeks of on-job experience with an approved professional firm. *Co-requisite:* ARC 302.

ARC 371 Computer-Aided Design (3).

ARC 372 Advanced Modeling and Rendering (3).

ARC 401 Architectural Design Studio V (6); annually. Study and analysis of historical precedents followed by a sequence of design problems of increasing complexity. Emphasis on the planning of buildings and the inter-relationship among form, structure, technologies, materials, and detail. Semester-long problem. *Prerequisite:* ARC 302.

ARC 402 Architectural Design Studio VI (6); annually. Advanced individual problems requiring a synthesis of spatial, structural, environmental, programmatic, technological, and historical issues. Emphasis is placed on program generation, formal synthesis, and advanced levels of complexity and comprehension of the process of design and construction. Problems are presented, analyzed and studied with the aid of faculty. However, students are given increased freedom and responsibilities in determining the scope of their work and their methods of exploration. Semester-long problem. *Prerequisite:* ARC 401.

ARC 410 Furniture Design (3).

ARC 421 Traditional Architecture of the Region (3).

ARC 421F Field Research in Traditional Architecture (3).

ARC 422 Contemporary Architecture in Arid Regions (3).

ARC 423 Islamic Art and Architecture (3).

ARC 424 Evolution of Cities (3).

ARC 431 Prefabrication and Systems Building (3); annually. In-depth examination of the principles, practices and presently available technologies related to the use of prefabricated elements in a systems approach to building. Includes prefabricated subsystems in standard contemporary construction procedures, such as steel frame construction and various roles of reinforced concrete. Emphasis on considerations of cost, available skills and materials, and the expressive characteristics of built form. Taught in the

Department of Civil Engineering. *Prerequisite:* ARC 330 and ARC 342.

ARC 432 Construction Management (3); annually. In-depth study of the interrelationships among the various professional disciplines in the building and construction industry as they pertain to issues of the management and planning of complex construction projects. Includes review of standard practices of tendering, contracting, quantity surveying, cost estimation, supervision, quality control, and economy. Taught in the Department of Civil Engineering. *Prerequisite:* ARC 352 and ARC 431.

ARC 440 Structural Design in Steel and Wood (3); annually. An introduction to methods and concepts used by the structural engineer in the design of steel and wood buildings, and building components. Structural design is presented as a search for strategies appropriate to realize architectural form, synthesizing the structural imperatives of regularity and rationality with specific desires for formal relationships and environmental qualities. Taught in the Department of Civil Engineering. *Prerequisite:* ARC 342.

ARC 460 Professional Practice I: Economics and Management (3); annually. Introduction to the principles and practices of the business and commercial aspects of architectural practice. Includes office management practices, basic business economics, accounting, and the development of sound business plans to assure profitability, and encourage growth. Attention is given to the processes and skills required to establish an independent architectural office. Taught in the Department of Economics. *Prerequisite:* ARC 370 and ARC 401.

ARC 461 Site Planning (3).

ARC 462 Introduction to Landscape Architecture (3).

ARC 470 Professional Training (0); annually. Minimum of eight weeks of on-job experience with an approved professional firm. Work undertaken must be documented in a formal report to

the Department by mid-semester of the following term. *Co-requisite*: ARC 402.

ARC 471 Advanced Computer-Aided Design (3).

ARC 472 Contract Documents (3).

ARC 480 Special Topics in Architecture (3).

ARC 490 Special Projects in Architecture (3).

ARC 500 Final Project Research (3); annually. Students choose a design topic with the guidance of an advisor, and approval of the faculty. Each student prepares an individual program for ARC 502, Final Project Design, concluding with a formal, bound document. *Prerequisite*: ARC 402. *Co-requisite*: ARC 510.

ARC 502 Final Project Studio (8); annually. Individual resolution of the design problems initiated in ARC 500, prepared under the guidance of a selected faculty advisor, presented and defended in a formal public critique. *Prerequisite*: ARC 500 and ARC 510.

ARC 510 Topical Practicum in Architectural Design (6); annually. Studio-based practicum, focusing on problems, methods, and techniques associated with classic variants on the setting for architectural design: urban design, housing, etc. Variants provide templates for student proposals in ARC 500. *Co-requisite*: ARC 500.

ARC 520 Architectural Criticism (3).

ARC 530 Case Studies in Building Construction (3).

ARC 560 Professional Practice II: Building Law (3); annually. In-depth examination of the constraints imposed on the conduct of professional practice in architecture by the current building laws in the United Arab Emirates and other countries in the region. *Prerequisite*: ARC 500 and ARC 510.

ARC 561 Principles of Urban Planning and Design (3).

ARC 580 Special Topics in Architecture (3).

ARC 590 Special Projects in Architecture (3).

Business Legal Issues

BLW 301 Legal Issues in Business (3); annually. Examines business legal issues such as: legal concepts, philosophy, and functions of court systems. Survey of contracts, sales, agents, legal forms of business and the regulation of businesses. *Prerequisite*: third year (junior) standing.

Chemical Engineering

CHE 201 Introduction to Chemical Engineering I (3-0-3); every semester. Systems of units, unit conversion, dimensional consistency of equations, precision, accuracy, error, rounding. Calculations in non-reacting systems. The chemical equation, stoichiometry, limiting and excess reactants, conversion, yield, elementary calculations, involving heat effects in reacting and non-reacting systems. Ideal and real gas relationships, vapor pressure, saturation, vaporization, condensation. Calculations in reacting systems. *Prerequisite*: NGN 100.

CHE 202 Introduction to Chemical Engineering II; (3-0-3); every semester. Steady-state material balances. The principle of conservation of mass. Process flow sheets. Calculation techniques. Degrees of freedom in process specification. Steady state energy balances. Physical and chemical processes. Degrees of freedom in process specification. Simultaneous material and energy balances. *Prerequisite*: CHE 201.

CHE 204 Chemical Engineering Thermodynamics I (3-0-3); annually. Thermodynamic properties of fluids. Diagrams, tables and generalized correlations of thermodynamic properties. Ideal behavior in systems of variable composition. The ideal gas mixture, ideal solution and Raoult's law. *Prerequisite*: CHM 102.

CHE 207 Fluid Flow (3-0-3); annually. Basic equations of fluid flow, flow of fluids in pipes, flow and pressure measurements, pumping of fluids. Viscosity and the mechanism of momentum transfer. Newtonian and non-Newtonian

fluids. Viscosity, theory of gases and liquids. Velocity distributions in laminar flow. Shell momentum balances. Common one-dimensional flow problems. The equations of change for isothermal systems. Dimensional analysis. Multi-dimensional steady state and two-dimensional potential flow. Boundary layer theory. *Prerequisite:* PHY 101 and MTH 205.

CHE 301 Heat Transfer (3-0-3); annually. Thermal conductivity and the mechanism of energy transport. Temperature distributions in solids and in laminar flow. The equations of change for non-isothermal systems. The equations of change for multi-component systems. Design procedures and details for counter-flow double-pipe heat exchangers, shell and tube exchangers, evaporators, vaporizers and reboilers. Furnace calculation. *Prerequisite:* CHE 207.

CHE305 Chemical Engineering Thermodynamics II (3-0-3); annually. Non-ideal behavior in systems of variable composition. Fugacity and fugacity coefficients. Activity coefficients. Phase equilibria at low and moderate pressures. Dew-point, bubble-point and flash calculations. Chemical reaction equilibria. Equilibrium constants and dependence on temperature. Calculations of equilibrium conversions for single and multiple reactions. Use of standard free energies, enthalpies, entropies and equilibrium constants for selected gas and liquid phase reactions. *Prerequisite:* CHE 204.

CHE 306 Chemical Processes (2-0-2); annually. Process of Sulfuric, Hydrochloric and Nitric Acids Production. Ammonia and Phosphates production. Fertilizers. Cement production. Vegetable oils, soaps and detergents. Food production paints and coatings. Gas production. Electro-plating. *Prerequisite:* CHE 202.

CHE 321 Chemical Reaction Engineering (3-0-3); annually. Concepts and terminology of chemical kinetics. Temperature dependence of reaction rates. Interpretation of kinetic data. Temperature effects in batch reactors. Basic concepts in reactor design and the ideal reactor models. Steady state continuous stirred tank

reactors in series. Non-isothermal operation of flow reactors. *Prerequisite:* CHM 231.

CHE 322 Unit Operations I (3-3-4); annually. Vapor-liquid equilibrium. Binary distillation, multi-component distillation, steam distillation, liquid extraction and leaching. *Prerequisite:* CHE 202.

CHE 323 Unit Operations II (3-3-4); annually. Diffusivity and the mechanism of mass transport. Mass transfer coefficients. Interface mass transfer. Continuous and state-wise two phases mass transfer. Gas absorption, adsorption processes and crystallization. Equipment design procedures. *Prerequisite:* CHE 322.

CHE 332 Cost Estimation and Economics (3); Cost and asset accounting, cost estimation, interest and investment costs, taxes and insurance, depreciation, profitability, alternative investments and replacements.

CHE 411 Unit Operations III (3-3-4); annually. Particulate solids, size reduction of solids, sedimentation, fluidization, filtration, humidification and water cooling and drying. *Prerequisite:* CHE 301.

CHE 421 Process Control (3-0-3); annually. General review of Laplace transforms. Linear open-loop systems. First order systems alone and in series. Higher order systems. Linear closed-loop systems. Controllers and final control elements. Closed transfer functions. Transient response. Stability. Development of mathematical models of chemical engineering systems. Analog and digital simulation. Numerical methods for digital simulation of chemical engineering processes. Steady-state simulation programs.

CHE 430 Computer Methods in Chemical Engineering (2-0-2); annually. Interpolation and approximation formula. Numerical integration with equally spaced base points. Smoothing and numerical differentiation techniques. Solution of non-linear algebraic equations. Solution of single and simultaneous ordinary differential equations.

Initial and boundary value problems. Error propagation, stability and convergence.

CHE 431 Process Design I (2-0-2); annually. Introduction to design, flow sheeting, process flow diagram, mass and energy flow diagram. Piping diagram, design information and data. Design of equipment, plant layout and site location. Case studies involving applications of chemical engineering economic principles to the design of a selected chemical manufacturing process. *Prerequisite:* CHE 306.

CHE 432 Process Design II (2-0-2); annually. Details design procedure for plate towers for distillation, design of liquid mixing system, design of gravity settlers. General design considerations, such as materials of construction, site location, plant layout and safety considerations. Processes of Sulphuric, Hydrochloric and Nitric Acids Production. Ammonia and Phosphates production. Fertilizers. Cement production. Vegetable oils, soaps and detergents. Food production. Paints and coatings. Gas production. Electro plating. *Prerequisite:* CHE 322 and CHE 411.

CHE 433 Instrumental Analysis (3-0-3); annually. Introduction to the types of analytical methods, uncertainties in instrumental measurements and sensitivities and detection limits for instruments. An introduction to electro-analytical chemistry. Potentiometric methods. Coulometric methods, voltammetry and polarography, conductometric methods. An introduction to chromatographic separations. Gas chromatography.

CHE 434 Petroleum Refining Processes (3); annually. Origin of crude oil, exploration, drilling and production, crude oil distillation. Cracking processes. Catalytic reforming processes. Other conversion processes and treatment methods.

CHE 435 Pollution Control in Chemical Industries (3); annually. Environmental pollution. Air pollution, engineering control of air pollution. Water pollution, engineering control of water pollution. Noise pollution. Soil pollu-

tion, land and ocean disposal of industrial wastes. Case studies.

CHE 436 Petrochemical Technology (3); annually. Petrochemical industry, raw materials, aliphatic and aromatic petrochemicals. Petrochemicals from methane, petrochemicals from normal paraffins, production of olefins, petrochemicals from aromatics. Polymerization processes, synthetic rubber, fibers and protein.

CHE 437 Gas Purification (3); annually. Refinery gas liquefied petroleum gases natural gas. Acid gas removal, sulfur dioxide removal, gas dehydration, catalytic conversion of gas impurities. Removal of nitrogen compounds from gas streams.

CHE 438 Membrane Separation Processes (3); annually. Definition and classification of membranes, permeation and diffusion, non-equilibrium thermodynamics. Mechanisms of membrane transport. Equilibrium relationships. Separation in the liquid phase. Engineering aspects of membrane separation.

CHE 439 Wastewater Treatment (3); annually. Physical properties of water, uses of water, wastewater, wastewater treatment by physical processes, biological treatment systems, advanced wastewater treatment, industrial wastewater treatment, effluent disposal and reuse and, treatment and disposal of sludge.

CHE 440 Desalination (3); annually. General principles of desalination, sea water chemistry, scale formation and prevention, multi-effect boiling. Submerged tube multi-effect boiling, multi-stage flash desalination. Vapor compression desalination. Dual-purpose power-water desalination co-generation plants.

CHE 498/CHE 499 Design Project I & II (2). An in-depth study of a project of defined chemical engineering significance that is based on laboratory and computer oriented investigations. Students work in close accord with a faculty member on a project of mutual interest. Written reports and oral presentations are required for evaluation by the department. This

course gives the student an opportunity to demonstrate his or her ability to work with minimum supervision.

Chemistry

CHM 001 Preparatory Chemistry (0-0-3); annually. Topics include: activities of science, nature of matter, elements, compounds, chemical symbols and formulas, the mole, chemical reactions, stoichiometry, gases, liquids and solutions, acids and bases, the atomic model, chemical bonding, nuclear chemistry.

CHM 101 General Chemistry I (3-3-4); every semester. An introductory course covering the fundamental chemical principles, concepts and laws. Topics include reaction stoichiometry, types of chemical reactions, solution stoichiometry, gas laws, kinetic theory of gases, thermochemistry, atomic structure and periodicity, the Bohr model, Lewis structures, ionic and covalent bonding, properties of gas, liquid and solid phases and their associated phase diagrams. Laboratory experiments illustrate principles discussed in the course. *Prerequisite:* CHM 001 or placement.

CHM 102N General Chemistry II (3-3-4); every semester. Continuation of General Chemistry I. This course investigates the properties of solutions including colligative and chemical properties. Acid-base and complex ion equilibria, laws of thermodynamics, enthalpy and free energy, electrochemistry, representative elements, transition metals and coordination compounds. Laboratory includes experiments illustrating principles discussed in the course. *Prerequisite:* CHM 101.

CHM 103 Chemistry and Everyday Life (3-0-0); every semester. This course introduces the student to the extraordinary chemistry of ordinary things, the magic of chemistry and the building blocks of chemistry. Topics include secrets of the nucleus and the atomic bomb, perfumes, cosmetics, soaps and detergents,

chemistry in the kitchen, food additives and food coloring, pesticides, toxins and poisons, chemistry of the mind, forensic chemistry, DNA fingerprinting, global warming, acid rain, air and water pollution. (Note: The content covered in this course is equivalent to the content covered in *CHM 102 Chemistry for the Arts* during the 1997-98 academic year).

CHM 205 Organic Chemistry (3-0-3); every semester. Lectures: natural gases, aliphatic and aromatic hydrocarbons, alkyl halides, dienes, synthetic rubber, nucleophilic substitutions, halogenated aromatic compounds, aromatic nitro compounds, occurrence, preparation, reactions, uses and application of the following elements and their compounds; noble gases, halogens, oxygen, sulphur, selenium, tellurium, nitrogen, phosphorous, arsenic, antimony and bismuth, carbon, silicon, germanium, tin and lead, boron, aluminum, gallium, indium and thallium alkali metals.

CHM 221 Organic Chemistry I (3-3-4); annually. This is the first of two intermediate courses in organic chemistry. It covers the chemistry of hydrocarbons and halogenated hydrocarbons. Topics include alkanes, alkenes, alkynes, aromatic hydrocarbons and alkyl halides. The following scheme is generally followed: nomenclature, origin, synthesis and reactions. Stereochemistry is included wherever appropriate. Particular emphasis is placed on synthesis and mechanisms.

CHM 222 Organic Chemistry II (3-3-4); annually. This is the second of two intermediate courses in organic chemistry; it covers the organic functional groups. Emphasis is on the mechanisms for the preparation and reactions of these groups. Topics covered include spectroscopy (IR, UV and NMR), alcohols, ethers, epoxides, aldehydes, ketones, carboxylic acids and amines. *Prerequisite:* CHM 221.

CHM 231 Physical Chemistry I (3); annually. This course investigates in greater depth the basic concepts of thermodynamics. The properties of gases are analyzed as the basis for the study of

the laws of thermodynamics, which are applied to questions of chemical equilibrium, phases and solutions, phase equilibrium and other applications.

CHM 331 Physical Chemistry II (3); annually.

The course covers kinetics, electrochemistry, surface chemistry and transport properties. In kinetics emphasis is on the theory of reaction rates and methods of handling chemical kinetic data. The electrochemical section of the course examines the conventions, underlying theory, and practical applications of electrochemical cells. *Prerequisite:* CHM 231.

CHM 335 Physical Chemistry Laboratory (3-1-6); annually.

This is an advanced laboratory course in Physical Chemistry. Students are assigned a series of experiments to be performed individually. Experiments cover the topics of thermodynamics, kinetics, electrochemistry, surface chemistry and transport phenomena. An original report is submitted after each experiment, including sample calculations and error analysis. *Prerequisite:* CHM 331.

CHM 350 Environmental Chemistry (3); annually.

The course investigates the interaction between natural systems and human activity. Topics include biogeochemical cycles, aquatic chemistry, water pollution and treatment, atmospheric chemistry and air pollutants, photochemical smog, hazardous wastes, toxicological chemistry. It also includes issues of the ozone layer, global warming, acid rain, nuclear waste disposal and treatment of oil slicks. *Prerequisite:* CHM 102N.

Civil Engineering

CVE 200 Engineering Workshop (3); annually.

The course covers: (a) Basic properties of engineering materials, production of stock materials, preliminary manufacturing processes: casting, welding, soldering and riveting, hand work and tools-metal cutting processes: turning, shaping, drilling, milling etc., metal forming

processes, standardization-interchangeability-metrology. (b) Application of practical experience to core subjects in actual or on-going research projects providing *in house* training with instruction on expectancy in the student's professional fields. Opportunities will be offered to experiment with innovative materials, construction and structural elements. *Prerequisite/Co-requisite:* MTH 104.

CVE 241 Surveying I (3); annually.

Introduction. Different types of surveying measurements and coordinate systems. Distance measurements: taping, electronic distance measurement (EDM), stadia, subtense bar. Traverse computations and adjustment. Surveying and mapping using linear measurements. Area: determination and computations for different types of areas. Leveling: theory, methods, equipment, contouring, computations of earth works. Angular measurements. *Prerequisite:* MTH 104.

CVE 301 Structural Analysis I (3); annually.

Structural Engineering. Calculation of reactions for statically determinate beams, frames, trusses, and composite structures. Force calculation in trusses. Shear and moment diagrams for beams and frames. Deflection calculations. Influence lines for determinate structures. Arches and cables. Introduction to indeterminate structures. Consistent deformation method for indeterminate structures. *Prerequisite:* NGN 223.

CVE 311 Design of Structures I (3).

Introduction. Analysis and design of rectangular beams, T-beams, one-way slabs, L beams, doubly-reinforced beams, continuous one-way slabs and continuous beams. Bond and development of reinforcement. Deflections and cracks. Introduction to columns. Design and analysis of columns subject to axial load and bending. Length effects on columns. Introduction to steel design.

CVE 321 Numerical Methods in Civil Engineering (3); annually.

Introduction to numerical analysis. Roots of equations: bracketing methods, open methods, with case studies. Systems of linear algebraic equations: Gauss elimination, Matrix inversion with case stud-

ies. Curve fitting with case studies. Numerical differentiation and integration with case studies. Ordinary differential equations with case studies. Partial differential equations with case studies. *Prerequisite:* MTH 205.

CVE 331 Geotechnical Analysis I (3); annually. Introduction to soil engineering and testing; identification tests, soil structure and soil water systems, compressibility and consolidation. Stresses and strains and shearing strength in soils. Failure criteria, stress distribution in soil masses. Introduction to retaining structures. The laboratory component includes: grain size analysis, the limits, specific gravity, permeability, consolidation, compaction, field density, direct shear and triaxial testing. *Prerequisite:* NGN 223.

CVE 333 Foundation Engineering I (3); annually. Subsurface investigation and site evaluation, determination of allowable soil pressure, design of shallow foundations including structural design. Retaining walls. Introduction to deep foundations. *Prerequisite:* NGN 223.

CVE 341 Water Resources I (3); annually. Ground water hydraulics, pipelines and pipe networks, open channel flow, hydraulic models, hydraulic structures. *Prerequisite:* NGN 241.

CVE 351 Environmental Engineering I (4); annually. Quantity and quality of water and sewage; collection and distribution of water; pumps and pumping stations. Water treatment; sewerage systems; flow in sewers; characteristics of sewage and effluent; sewage disposal. Solid waste disposal. Laboratory Work: Sampling, physical, chemical and bacteriological analysis of water and wastewater. *Prerequisite:* CHM 102 and NGN 241.

CVE 352 Construction Engineering (2); annually. Introduction. Construction planning and scheduling; Critical Path Method. Earthwork and excavation methods and equipment. Soil compaction methods and equipment. Drilling and blasting of rocks. Cranes. Piles and pile construction methods. Form. *Prerequisite:* third year (junior) standing.

CVE 361 Highway Engineering (3); annually. Highway functions. Geometric design controls and criteria, highway cross-section, horizontal alignment design, vertical alignment design, design of at-grade intersections, grade separation and interchanges. Highway drainage. Flexible and rigid pavement design. *Prerequisite:* CVE 241 and CVE 331.

CVE 411 Structural Analysis II (3); annually. Introduction to flooring system. Design and analysis of two-way floor systems by: direct design method, equivalent frame method, and yield line theory method. Torsion design procedure. Analysis and design of framed buildings. Design of square footings, rectangular footings, basement wall footings, combined footing, raft foundations and pile caps. Computer analysis and design of structures and foundations. *Prerequisite:* third year (junior) standing.

CVE 421 Engineering Economy (2); annually. Introduction to investments; interest and financial mathematics, present worth. Relevant economic factors that influence planning, design, execution and maintenance of engineering projects.

CVE 431 Selected Topics in Structural Design (3). Selected topics from the following: design of reinforced concrete bridges, culverts and protection works. Design of steel bridges and plate girders. Design of water retaining structures, water tanks, and dams. Design of buildings to resist lateral load such as earthquakes and wind.

CVE 432 Structural Analysis III (3). Introduction to matrix analysis. Structural analysis of beams, frames, trusses by the slope deflection method, the consistent deformation method, and the force method. Matrix method of structural analysis for plane frames and trusses. Analysis of multi-story buildings. Computer-aided analysis of structures. Introduction to plastic analysis, structural dynamics and finite element method.

CVE 434 Design of Steel Structures (3). Elastic design of steel elements; roof trusses; flexural members; combined axial and bending; buckling of columns; column base plate design; bolted and

riveted connections; welded connections; connections in buildings. Plate girder. Introduction to plastic design.

CVE 435 Computer-Aided Analysis and Design (3). Components and operation of microcomputers. Elementary programming using FORTRAN, BASIC and MCAD. Use of personal computer programs in analysis and design (STAAD3, PCA, SAP90). Development and presentation of design project.

CVE 436 Prestressed Concrete (3). Principles and methods; analysis and design of sections for bending; interactive computer analysis; ultimate strength of sections. Loss of prestress; shear design. Applications to: bridges, buildings and tanks. Special material properties needed for effective prestressing.

CVE 438 Concrete Shell Structures (3). Analysis of: shells, domes, cylindrical tanks and hyperboloids. Folded plates. Circular tunnels; bunkers and silos; buried conduits.

CVE 439 Engineering Mechanics IV (3). Three dimensional stress-strain relations, stress function, asymmetrical bending of homogenous and composite sections, shear flow and shear center, torsion of noncircular sections and multicell sections; curved beams and beams on elastic foundation; energy methods and theories of failure.

CVE 440 Engineering Geology (3). Introduction, application of geology to engineering. Minerals and rocks of the earth. Rock deformation. Geophysical methods. Applications.

CVE 441 Geotechnical Analysis II (3). Stress-strain and strength properties of dry and saturated soils. Analysis of earth retaining structures. Slope stability analysis. Characteristics of local soils. Laboratory measurements of stress-strain properties of soils.

CVE 442 Foundation Engineering II (3). Analysis and design of shallow and deep foundations, covering: retaining walls, combined footings, pile foundations, sheet pile walls, braced cuts and caisson foundations. Emphasis on locally applicable methods.

CVE 444 Geology and Site Investigation (3). Geologic information relevant to civil engineering projects in general. Site investigation methods in rocks and soils. Computer-aided profile data reduction and recording. Case studies.

CVE 445 Environmental Geotechnology (3). Soil and site characterization in relation to natural and man-made hazards, waste containment, and waste site remediation techniques.

CVE 446 Experimental Soil Mechanics (3). Laboratory studies utilizing standard test methods and equipment to assess physical, mechanical, chemical and hydraulic properties of soils and rocks in relation to local terrain and the structural environment in the region.

CVE 447 Irrigation and Drainage Engineering (3). Soil/plant/water relationships; crop water requirements; methods of irrigation (surface, sprinkle, drip, subsurface); irrigation scheduling; water logging and salinity control, drainage criteria; artificial drainage systems; operation and maintenance of irrigation systems.

CVE 448 Coastal and Harbor Engineering (3). Wave characteristics and transformation, wind generated waves, wave forces and wave structure interaction. Water level fluctuations (tides). Planning and layout of port facilities. Design of selected coastal structures. Introduction to selected coastal engineering problems.

CVE 450 Environmental Engineering III (3). Design of sanitary and storm sewers; theory of wastewater treatment processes; design of unit operations; on-site wastewater treatment; waste stabilization ponds, water reuse; industrial wastewater.

CVE 451 Contracts and Specifications (2) annually. Law of contracts; formation principles. Performance or breach of contract obligation. Termination of agreement; pre-qualification. Contract for construction and engineering services. Specifications. Professional liability; insurance and bonds. Water rights. Environmental law. Arbitration of disputes. *Prerequisite:* fourth year (senior) standing.

CVE 452 Water Quality and Pollution Control (3). Pollution of water bodies and control; self purification process; measurement of water quality; water quality for various beneficial uses; wastewater characterization. Measurement of air quality; air pollution control. Environmental impact assessment.

CVE 454 Introduction to Environmental Pollution (3). Effect of consumption and growth. Water quality and pollution. Air pollution and quality, guidelines and standards. Global atmospheric change and its effects; ozone depletion. Hazardous substances and risks.

CVE 455 Environmental Impact Assessment (3). Humanity and environment. Technology-environment interactions. Environmental concerns. Planning and management of impact studies. Assessment of impacts of engineering projects on environment. Environmental monitoring.

CVE 456 Traffic Engineering (3). Characteristics of road users, vehicle and roadway, traffic engineering studies, speed, traffic volume, traffic accidents, travel time and delay, parking. Characteristics of traffic stream (speed-flow density), capacity and level of service of freeways, signalized intersections, at-grade intersection design. *Prerequisite:* fourth year (senior) standing.

CVE 458 Pavement Materials and Design II (3). Soil engineering for highway design; bituminous materials and tests; design of flexible pavements; soil stabilization; design of rigid pavements; highway maintenance and rehabilitation; earthwork operations and equipment.

CVE 460 Project Cost Estimating (3). Introduction to construction equipment. Material handling and transportation. Earthwork. Piling and bracing. Concrete structures. Masonry. Finishes. Roofing. Steel structures. Water-distribution. Sewerage systems.

CVE 461 Surveying II (3). Introduction to the theory of errors: measurements and errors, precision and accuracy, propagation of errors, pre-

analysis and postanalysis. Horizontal control surveying: intersection and resection, transformation of coordinates, horizontal control networks. tachemetry and electronic distance measurements (EDM) Systems. Route surveying. Setting out of different construction works. Photogrammetry and some modern surveying techniques.

CVE 462 Project Planning and Scheduling (3). Introduction. Work breakdown structure. Linear scheduling. Critical Path Method. Precedence diagram methods. PERT. Resource leveling. Least-cost scheduling. Scheduling software. Project cost control.

CVE 463 Construction Management (3). Management in construction industry. Development and organization of projects. Applications and requirements for management organizations. Preconstruction site investigation, planning, scheduling, estimating, and design. Bidding and award, application of controls and selection of a professional construction manager. Concepts of project planning and control.

CVE 464 Building Construction (3). Introduction. Foundations. Masonry construction. Steel frame construction. Cast-in-place concrete framing systems. Precast concrete framing systems. Roofing. Glass and glazing. Cladding. Interior finishes. Interior walls and partitions. Finish for ceilings and floors.

CVE 466 Water Resources II (3). Qualitative approach to the hydrologic cycle. Analysis of precipitation data, estimation of evaporation; evapo-transpiration and infiltration; rainfall-runoff relationships. Stream flow hydrographs and routing. Surface groundwater interactions. Steady and transient pumping tests; modeling of aquifer system. Sea water intrusion in coastal aquifers.

CVE 467 Environmental Engineering II (3). Design of intake works; design of water supply distribution network; design of water supply in buildings. Theory of water treatment processes; design of water treatment units. Treatment of sea and brackish water.

CVE 472 Pavement Materials and Design I

(3). Pavement design parameters; material characterization and appropriate test methods; asphalt concrete mix design; thickness design methods of flexible highway pavements. Pavement distress types and their maintenance. Emphasis on bituminous mixes and pavements.

CVE 498/CVE 499 Civil Engineering Design Project (2); annually. An open-ended, in-depth design project of civil engineering significance that includes the design of a civil engineering system meeting desired objectives within one of the civil engineering practice areas. Students work in close accord with one or more faculty members, preferably in a team environment. The project outcomes must demonstrate that students have attained the level of competency needed for entry into the civil engineering profession. *Prerequisite:* fourth year (senior) standing.

Communication

(See English Communication Skills)

Communication Skills

(See English Communication Skills)

Computer Engineering

COE 221 Digital Systems (3); annually. Number systems. Boolean algebra. Combinational logic design. Logic minimization techniques. Sequential logic design. State minimization Techniques. Sequential circuit implementation. PLA and Memories. Introduction to computer design.

COE 221L Lab for Digital Systems (1); annually. *Co-requisite:* COE 221.

COE 331 Computer Architecture and Organization (3); annually. Introduction and historical

overview. The five classic components of a computer. Performance measures for computers. CPU description at the instruction level. CPU organization. CPU types. CPU design: Register transfer language, Hardwired and micro-program control, CISC and RISC processors. Instruction and hardware study of a commercial 8-bit micro-processor (e.g. Intel 8088). *Prerequisite:* ELE 221.

COE 351 Microcomputer Systems Design (3); annually. Design of computer applications in engineering (instrumentation and control), using 16 and 32 bit microcomputers. Interfacing, timing and other problems are covered.

COE 371 Computer Networks (3); annually. Network classifications, architecture and topologies. Layered reference models. Functional description of layers. Switching and routing. Network protocols. Network control: traffic management and congestion. Examples of networks such as the internet. *Prerequisite:* ELE 221 and ELE 361.

COE 381 Operating Systems (3); annually. Introduction to operating systems; process management, process scheduling; Inter-process communication. Memory management techniques; Virtual memory; I/O management; Dead-lock avoidance; File system design. Security issues. Examples from commonly-used operating systems (e.g. Windows, and UNIX). *Prerequisite:* COE 351.

COE 381L Lab for Operating Systems (1); annually. *Co-requisite:* COE 381.

COE 411 Microprocessors and Computer Systems (3); annually. Microprocessor characteristics and architecture. Microprocessor programming. Emory interface and address decoding. I/O interface and programmable peripheral interfaces. A/D and D/A conversion. Interfacing with analog systems. Serial and parallel interfacing. Hardware interrupts, basic interrupt interface and programmable interrupt controllers. Direct memory addressing, systems design, computer interfacing and programming. *Prerequisite:* ELE 221.

COE 411L Lab for Microprocessors (1); annually. *Co-requisite:* COE 411 .

COE 421 Switching Circuits (3). Threshold, symmetric functions, and iterative networks. Multivalued and Fuzzy Logic. Complex sequential machine realization. State equivalence and minimization. Automata and linear machines. State identification and fault detection. *Prerequisite:* ELE 221.

COE 422 Database Engineering (3). Theory, design and applications of database machines. Hardware implementation of database functions such as search, sort, relation operations and others. Examples of early and current machines.

COE 423 Artificial Neural Systems (3). Introduction to theory, architecture and application of artificial neural systems. Supervised, unsupervised and reinforcement learning in single and multiple layer neural networks. Associative neural memory recording and retrieval dynamics. Self-organizing maps. Learning capacity and generalization. Hardware implementations. *Prerequisite:* ELE 351.

COE 424 Design of Digital Computers (3). Design of arithmetic units. Design of hardwired and micro-programmed control units. Design of semiconductor memories. Direct memory Access circuits. Design of a small computer. *Prerequisite:* COE 351.

COE 425 Modern Computer Organization (3). Memory organization: Memory hierarchy, Cache memory, Virtual Memory and memory management. Pipelining: pipeline hazards. Multiple functional units. Superscalar and vector processors. Parallel Processing: SIMD Computer – MIMD computers – MIMD classification Interconnection Networks, Interprocessor arbitration, Interprocessor communication. Software for multiprocessors – Commercial Computer Design examples. Design Project.

COE 426 Selected Topics in Computer Software Engineering (3). Selected topics in the field of Computer Software Engineering that deal with new trends and practical issues.

COE 427 Selected Topics in Computer Hardware Engineering (3). Selected topics in the field of Computer Hardware Engineering that deal with new trends and practical issues.

COE 429 Computer Graphics (3). Hardware and software aspects of graphics generation. Programming assignments will provide practical experience in implementing and using standard graphic primitives and user interfaces.

COE 430 Algorithms and Data Structures (3). Structured and modular design and implementation; arrays, records, sets, pointers, files, strings; defined types, stacks, queues; searching, hashing, sorting; recursion; procedure specifications, exceptions, testing, debugging. *Prerequisite:* COE 351.

COE 455 Digital Image Processing (3). Basics of digital images. Image transforms. Image enhancement. Image point processing and filters. Image restoration. Image compression. Image segmentation. Edge detection and thresholding. *Prerequisite:* ELE 445.

COE 498/COE 499 Computer Engineering Design Project (2) annually. An open-ended, in-depth design project of computer engineering significance that includes the design of a system, process or hardware component to achieve functional objectives, representative of problems in modern high-tech industry. Students work in close accord with one or more faculty members, preferably in a team environment. The project outcomes must demonstrate that students have attained the necessary level of competency for entry into the computer engineering profession.

Computer Science

CMP 101 Computer Literacy and Information Access (3-2-4); every semester. This course introduces students to the use of computers. The hardware and system software of computers are described. Commonly-used software applications (word processing, spread sheets, databases, etc.) as

well as communication (e-mail, World Wide Web, etc.) are thoroughly discussed. Students will have extensive hands-on training during supervised laboratory sessions.

CMP 102 Fortran Programming (3-1-3); annually. Design and analysis of programs in FORTRAN. An introduction to computing using structured programming in FORTRAN. An introduction to computing using structured programming concepts. Not applicable to the major requirements in computer science. *Co-requisite:* MTH 103.

CMP 103 Information Technology in Design (3-1-3); annually. This course teaches students how to make the computer a valuable tool in the design process. The material covers care and operation of hardware and operating systems, keyboarding, creation of digital documents, spreadsheets and use of relational databases and equipment such as printers and scanners. The software introduced in this course includes an appropriate selection from PowerCADD, form. z, AppleWorks, Photoshop, Illustrator, Fontographer, Pagemaker, QuarkXpress, Premiere, Director, etc.

CMP 104 Pascal Programming (3-1-3); annually. Design and analysis of programs in Pascal. An introduction to computing using structured programming concepts. Not applicable to the major requirements in computer science.

CMP 105 C Programming (3-1-3); annually. Design and analysis of programs in C. An introduction to computing using structured programming concepts. Not applicable to the major requirements in computer science.

CMP 106 PL/1 Programming (2-1-2); annually. Elementary and intermediate programming techniques in PL/1. Computer solution to numeric problems and non-numeric problems.

CMP 107 COBOL Programming (2-1-2); annually. Elementary and intermediate programming techniques in COBOL. Computer solution to business oriented problems.

CMP 120 Introduction to Computer Science I

(3-0-3); annually. Introduction to programming and program structure using C++ or Java. Fundamentals of object oriented programming. Working with objects and classes. Inheritance. Graphic programming. Event Handling. User interface components. The student is expected to complete several projects. *Prerequisite:* CMP 102 or CMP 104 or CMP 105.

CMP 121 Introduction to Computer Science II (3-0-3); annually. Advanced programming with Java / C++: This course is a continuation of the topics covered in CMP 120. The student is expected to complete several projects. *Prerequisite:* CMP 120.

CMP 213/MTH 213 Discrete Mathematics (3-0-3); annually. See MTH 213.

CMP 232 Data Structures (3-0-3); annually. Study of basic data structures and their applications. Lists and trees; graph algorithms; internal and external sort and search techniques; hashing; analysis and design of efficient algorithms; file processing techniques. *Prerequisite:* CMP 120.

CMP 241 Introduction to Computer Systems and Assembly Languages (3-0-3); annually. Introduction to computer structure. Registers, machine instructions and formats; number and character representation; execution control and addressing techniques. Basic input-output programming; files; procedures, segmentation, and linkage, recursion and re-entrancy; floating-point and string operations. Symbolic and machine-level debugging. *Prerequisite:* CMP 121.

CMP 242 Organization of Computer Systems (3-0-3); annually. Study of computer system organization. Combinational and sequential circuit analysis and synthesis; medium and large-scale integrated circuits. Register-transfer language and microprogramming; instruction fetch and execution; flow of control. Input-output, controllers, interrupts, communications and codes. Introduction to computer networks. *Prerequisite:* CMP 213. *Co-requisite:* CMP 241.

CMP 310 Introduction to Operating Systems (3-0-3); annually. Study of supervisory programs.

System services and file systems; CPU scheduling; memory management; virtual memory; disk scheduling. Deadlock characterization, prevention, and avoidance; concurrent processes; semaphores; critical sections; synchronization. Distributed systems and communication protocols. *Prerequisite:* CMP 121.

CMP 311 Computer Networks (3-0-3); annually. The theory and application of inter-computer communication. Local- and wide-area networks; data transmission and error correction; OSI and TCP/IP layering protocols; ethernet, token ring, token bus, and other network technologies; network topologies; the client-server model; bridges and multi-protocol routers; the internet. Applications include electronic funds transfer and distributed databases. *Prerequisite:* CMP 310.

CMP 315 Computer Component and Circuits (3-0-3); annually. Introduction to the basic elements of electricity, electronics, and semiconductor device theory as applied to computer components. Voltage, current, Ohms's law; capacitance, inductance, reactance, impedance, and analysis of AC circuits; transmission lines; transistors, flip-flops, and small-scale integrated circuits; medium and large-scale integrated circuits and the microprocessor. *Prerequisite:* MTH 104 and PHY 102.

CMP 320 Database Systems (3-0-3); annually. Introduction to database concepts, data independence, logical and physical views of database systems. Data models: hierarchical, network and relational. Data description languages, query functions, relational algebra. *Prerequisite:* CMP 213.

CMP 321 Computer Graphics (3-0-3); annually. Detailed study of two-dimensional graphics and introduction to issues from three-dimensional graphics. Graphics hardware and applications. Study of graphics primitives in two dimensions: lines, attributes, windowing, clipping, transformations. Overview of other topics: three-dimensional transformations, modeling, color science, rendering. *Prerequisite:* CMP 121, MTH 104

and CMP 213 (MTH 205 can be substituted for CMP 213).

CMP 324 File Processing (3-0-3); annually. External storage devices. Sequential, Indexed Sequential and Direct file organizations. Tree-structured, multilist, inverted, cellular multilist, and hybrid file organizations. File systems. External sorting and merging. The protection problem. Introduction to database systems. *Prerequisite:* CMP121.

CMP 334 Organization of Programming Languages (3-0-3); annually. Formal definition of programming languages, including specification of syntax and semantics. Simple statements including precedence, infix, and postfix notation. Global properties of algorithmic languages including scope of declarations, storage allocation, grouping of statements, binding time of constituents, subroutines, co-routines, and tasks. List processing, string manipulation, data description, and simulation languages. Run-time representation of program and data structures. *Prerequisite:* CMP 232.

CMP 335 Formal Languages and Computability I (3-0-3); annually. An introduction to theoretical computer science. Topics include regular expression and finite state concepts; basic automata theory; formal grammars and languages; computability; Turing machines; elementary recursive function theory. *Prerequisite:* CMP 213.

CMP 337 Parallel Computing (3-0-3); annually. Hardware and software issues in parallel computing. Parallel architectures, network topologies, models of parallel computation, languages for parallel programming and parallel algorithms. Parallel program design and debugging using the language Occam. Issues of non-determinism, synchronization and deadlock. Survey of parallel applications. *Prerequisite:* CMP 232 and 242.

CMP 340 Analysis of Algorithms. (3-0-3); annually. Design of computer algorithms for numeric and non-numeric problems; relation of data structures to algorithms; analysis of time and space requirements of algorithms; complexity and

correctness of algorithms. *Prerequisite:* CMP 121, CMP 213 and CMP 232.

CMP 365 Switching Theory (3-0-3); annually. Switching algebra, gate network analysis and synthesis, Boolean algebra, combinational circuit minimization, sequential circuit analysis and synthesis, sequential circuit state minimization, hazards and races, and elementary number systems and codes. *Prerequisite:* CMP 213.

CMP 385 Professional and Ethical Issues in Computer Science (1-0-1); annually. Student presentations and discussions of case studies relating to computer ethics. (Participation in the computer science seminar series required). *Prerequisite:* third or fourth year (junior or senior) standing in computer science or permission of instructor.

CMP 410 Compiler Construction (3-0-3); annually. Review of program language structures, translation, loading, execution and storage allocation. Compilation of simple expressions and statements. Organization of a compiler including compile-time and run-time symbol tables, lexical scan, syntax scan, object code generation, error diagnostics, object code optimization techniques, and overall design. Use of compiler writing languages and bootstrapping. *Prerequisite:* CMP 232 and 335.

CMP 412 Computer System Architecture (3-0-3); annually. Advanced study of the architecture of computer systems. Common processor organizations, hardwired and micro-programmed control, input/output subsystem; bus control; programmed I/O; DMA and interrupts; memory subsystem; interleaved, cache and associative memory; cache design; instruction pipelines, arithmetic pipelines, and their scheduling, RISC and CISC architectures, common multiprocessor architectures. *Prerequisite:* CMP 242.

CMP 413 Performance Evaluation of Computer Systems (3-0-3); annually. Modeling and evaluation of computer systems. Probability spaces and probability calculus, random variables and their distribution functions, the calculus of expectations. Markov chains; birth-death

processes; Poisson processes; single queue; network of queues and their simulation. System simulation for performance prediction. Modeling concurrent processes and the resources they share. *Prerequisite:* CMP 310, MTH 104 and STA 215.

CMP 421 Image Processing (3-0-3); annually. An introduction to basic techniques of analysis and manipulation of pictorial data by computer. Image input/output devices, image processing software, enhancement, segmentation, property measurement, Fourier analysis, computer encoding, processing and analysis of curves. *Prerequisite:* CMP 232.

CMP 424 Artificial Intelligence (3-0-3); annually. Introduction to the types of problems and techniques in Artificial Intelligence. Problem-solving methods. Major structures used in Artificial Intelligence programs. Study of knowledge representation techniques such as predicate logic, nonmonotonic logic, and probabilistic reasoning. Examples of expert systems. Introduction to natural language understanding and various syntactic and semantic structures. Study learning as a form of problem-solving through problem decomposition and interaction among subparts. Study techniques relevant to expert systems. Introduction to computer understanding of images. *Prerequisite:* CMP 213.

CMP 425 Information Theory (3-0-3); annually. Information concepts, communication and data transmission, Shannon's theory, the mathematical concept of information, encoding of data and binary representation, Hoffman coding, entropy as a measure of the amount of information, Markov processes and probability, area of application. *Prerequisite:* CMP/MTH 213 and MTH 203.

CMP 434 Programming Languages (3-0-3); annually. Comparative study of programming languages from both theoretical and applied viewpoints. Typical issues include syntax and semantics, scope and binding times, storage allocation, parameter-passing techniques, control structures, run-time representation of programs and data. Detailed examples from the imperative,

functional, parallel, object-oriented and logical programming paradigms. *Prerequisite:* CMP 232.

CMP 435 Software Engineering (3-0-3); annually. Study of the design and production of large and small software systems. Topics include systems engineering, software life-cycle and characterization; use of software tools. *Prerequisite:* CSC 332.

CMP 436 Object-Oriented Analysis and Design (3-0-3); annually. An exploration of object-oriented design and software construction. Topics in object-oriented analysis and programming: classes, methods, messages, inheritance, static and dynamic binding, polymorphism, templates, design methodologies, class libraries and software reuse. Substantial object-oriented software project required. *Prerequisite:* CMP 232.

CMP 437 Introduction to Symbolic Computation. (3-0-3); annually. History of systems for symbolic computation. Algebraic Structures. Forms and Data Structures. Arithmetic on integers, polynomials, rational functions and power series. Modular arithmetic. Homomorphism Methods. Greatest Common Divisor Algorithms. Polynomial Factoring. Solution of Equations. Symbolic Integration. *Prerequisite:* CMP 122.

CMP 438 Programming Robots (3-0-3); annually. An examination of programming issues involved in creating autonomous robots, which can interact with their environments in “intelligent” ways. Topics include traditional robotics, behavior-based robotics, sensor processing, sensor-based control, programming robotic behaviors. *Prerequisite:* CMP121

CMP 440 Formal Languages and Computability II (3-0-3); annually. Advanced topics in theoretical computer science. Theory of computation; languages and syntactic analysis; computational complexity and NP-completeness. *Prerequisite:* CMP 335.

CMP 441 Hypermedia Computing (3-0-3);

annually. Hypermedia is the integration of text, graphics, animation, sound and video into a single computer application. This course gives students a broad understanding of the technical aspects of hypermedia application development as well as the conceptual issues that affect this technology. Each student develops an individual hypermedia project based on Hypercard on IBM computer. *Prerequisite:* fourth year (senior) standing and permission of instructor.

CMP 481 Introduction to Simulation and Modeling (3-0-3); annually. Design and implementation of simulation models for systems design and analysis. Emphasis on discrete stochastic systems and real-world business and government problems including resource allocation, queuing, simulation languages and their applicability to problem solving. *Prerequisite:* CMP 121.

CMP 482 Introduction to Neural Networks (3-0-3); annually. Presents different types of neural networks and describes the basic mechanisms that underlie each network. Discusses fundamental network properties necessary to achieve autonomous behavior. Analyzes how well each network satisfies these properties. *Prerequisite:* fourth year (senior) standing and permission of instructor.

CMP 483 Introduction to Fuzzy Systems (3-0-3); annually. This course covers concepts and techniques in fuzzy logic as well as their applications in developing intelligent systems for control, decision making and pattern recognition. Topics to be covered include fuzzy sets, fuzzy rule-based inference, fuzzy logic control, possibility theory and its relationship to probability theory, fuzzy expert systems, neuro-fuzzy systems and fuzzy pattern recognition. *Prerequisite:* CMP 121, MTH 213 and STA 201.

CMP 490 Topics in Computer Science (3-0-3); annually. Topics of current interest in computer science not covered in existing courses. May be repeated under a different subtitle. *Prerequisite:* fourth year (senior) standing and permission of instructor.

CMP 491 Independent Study (variable credit:

1-6 credit hours); annually. Involves investigation under faculty supervision beyond what is offered in existing courses. For further information, consult the Directed Individual Studies section in this catalog. *Prerequisite:* Overall GPA of at least 2.00, third or fourth year (junior or senior) standing, and consent of instructor, department chair and dean.

CMP 495 Seminar in Computer Science (3-0-3); annually. Faculty supervised projects by students on special topics of current interest. Both oral and written presentation on the topics. *Prerequisite:* third or fourth year (junior or senior) standing and consent of instructor.

CMP 499 Honors Work in Computer Science (variable credit: 2-3 credit hours).

Cultural Studies

CSC 201 Western Cultural Studies I (3); every semester. This course aims to familiarize students with the basic doctrines and concepts of Western civilization. It covers reading material from modern and contemporary authors. The focus is on reading selections from the *Great Books* that have made the Western civilization what it is. It deals with readings that cover metaphysics, theology, politics, ethics, science and literature.

CSC 202 Western Cultural Studies II (3); each semester. This course continues the process of familiarizing students with the basic doctrines and concepts of Western civilization. It covers material from the pre-Socratic time through the Middle Ages. The focus is on reading selections from the *Great Books* that have made the Western civilization what it is. It deals with readings that cover metaphysics, theology, politics, ethics, science and literature.

CSC 203 Islamic Cultural Studies I (3); each semester. This course aims at familiarizing students with the basic doctrines and concepts

of Islamic civilization. It covers material from the period of the Prophet through Middle Islam. The focus is on reading selections from the *Great Books* that have made the Islamic civilization what it is. It deals with readings that cover metaphysics, theology, politics, ethics and science.

CSC 204 Islamic Cultural Studies II (3); each semester. This course aims at familiarizing students with the basic doctrines and concepts of modern Islamic and Arab civilization. The focus is on reading selections from well-known authors and reformers that have shaped modern Islamic and Arab thinking. It deals with readings that cover metaphysics, theology, politics, ethics, science and literature.

Design

~~Descriptions for Design courses that are to be taught in the 1998-99 academic year are listed below. Additional course titles are also listed and the curriculum for these courses will be provided in subsequent catalogs as the curriculum develops.~~

DES 111 Descriptive Drawing I (3); annually. This basic course introduces the student to the fundamental principles of descriptive drawing. Various conceptual approaches are explored and assignments encourage the student to develop an understanding of image generating techniques and materials.

DES 112 Descriptive Drawing II (3); annually. This drawing course will further introduce the student to principles of drawing and emphasis will be given to the development of an individual approach to image generation. Various techniques and materials will be explored and assignments will encourage the development of skills needed to effectively communicate visual information. *Prerequisite:* DES 111.

DES 121 History of Material Culture I (3); annually. This course examines the artistic material culture of humanity through architecture, monuments, sculpture and painting. The

technological, religious and social forces that shaped these works are explored. The first part of this course covers the time span from the Stone Age through the Ancient Middle East, Classical, Medieval and Islamic eras.

DES 122 History of Material Culture II (3); annually. This course is a continuation of DES 121; it traces development of world artistic material culture from the fifteenth century to the present time.

DES 131 Design Foundations I (3); annually. In this course, students are introduced to the principles, the conceptual and critical skills, and the techniques of design. Students learn to observe the world critically and meticulously and to analyze both the broad structure and the small details of visual phenomena; they master skills needed to conceptualize and communicate their observations through the traditional means (drawing, painting, and drafting) and through digital and other media. Class assignments, critiques and presentations will enable students to develop an aesthetic awareness and teach them the skills of design.

DES 132 Design Foundations II (3); annually. This course continues the introduction of principles of design, with an emphasis on testing aesthetic and perceptual assumptions. Students develop problem-solving techniques through individual design solutions. While DES 131 concerns itself primarily with discovery and critical understanding of the phenomenal world, DES 132 is concerned with manipulation and synthesis, and the design and creation of unique two and three dimensional design concepts. *Prerequisite:* DES 131.

DES 200 Multiples (Printmaking) (3); annually. Students are introduced to a variety of techniques in traditional and alternative printmaking methods. Includes intaglio, woodblock, linocuts, monoprints, photoetching and alternative methods. Traditional mechanical reproductive processes, as well as, a basic history and theory of the graphic arts are investigated. Issues surrounding the mechanical reproduction of

images, using digital media, to create a global visual culture are also considered. *Prerequisite:* DES 112 or consent of instructor.

DES 321 Typography (3); annually.

DES 322 Packaging Design (3); annually.

DES 323 Advertising (3); annually.

DES 340 History of Contemporary Design (3).

Economics

ECO 201 Principles of Microeconomics (3); every semester. An introduction to the principles of microeconomics. The course focuses on supply, demand and product markets, production and costs and pricing, and output under different market structures.

ECO 202 Principles of Macroeconomics (3); every semester. An introduction to the fundamental concepts of macroeconomics. It focuses on national income and product accounts, consumption, investment, international trade and output. It also introduces students to the use of fiscal and monetary policy to stabilize the economy.

ECO 203 Managerial Economics (3); annually. It focuses on the application of economics concepts to managerial problems. It integrates traditional managerial coverage with modern management techniques and theory (for the purpose of efficient managerial decision-making). Topics covered include: optimization techniques, demand estimation and forecasting, production and cost analysis, market structure and pricing practices. *Prerequisite:* ECO 201 and STA 202.

ECO 204 Macroeconomics (3); annually. An intermediate course in macroeconomics. It provides students with a theoretical basis in macroeconomics, introduces them to the use of macro models in a real-world context and emphasizes the issues that are important to the business person. Topics covered include the nature of risk and its impact, the use of forecasts, the volatility of foreign exchange markets, and the role of

fiscal and monetary policy in stabilizing the economy. *Prerequisite:* ECO 202.

Electrical and Electronic Engineering

ELE 201 Statics and Dynamics (3); annually. Principles of mechanics. Concepts of free-body diagram, principles of equilibrium of particles and rigid bodies in two and three dimensions. Fundamental concepts of kinematics and kinetics. Plane motion of rigid bodies. Rectilinear and curvilinear motion of particles. Newton's second law. Dynamics of system of particles. Energy and momentum methods. *Prerequisite:* PHY 101.

ELE 211 Electric Circuits I (3); annually. Introduction to circuit analysis. Kirchoff's laws. Circuit theorems. DC circuit analysis. Transient response in electric circuits. Magnetic circuits. *Prerequisite:* PHY102.

ELE 212 Electric Circuits II (3); annually. Sinusoidal steady-state analysis. Steady-state power calculations. Balanced three-phase circuits. Mutual inductance. Resonance. Laplace Transform in circuit analysis. Fourier series analysis. Two-port networks. *Prerequisite:* ELE 211.

ELE 212L Lab for Electric Circuits II (1); annually. *Prerequisite:* ELE 212.

ELE 241 Electronics I (3); annually. Review of semiconductor physics. PN junctions. Diode circuits. Special diodes. Bipolar junction transistor (BJT). DC and small signal analysis of BJT circuits. MOSFETS. DC analysis of depletion and enhancement MOSFET circuits. Small signal analysis of MOSFETS. JFETS. *Prerequisite:* ELE 211.

ELE 241L Lab for Electronics I (1); annually. *Prerequisite:* ELE 241.

ELE 311 Electromagnetic Theory (3); annually. Vector Analysis. Static electric field: Coulomb's and Gauss's laws and applications, electric potential, electric flux density and dielec-

tric constant, boundary conditions, capacitance and capacitors, Poisson and Laplace equations, method of images. Static magnetic field: fundamentals of magneto-static in free space, Biot-Savart and Ampere's circuital laws and applications, magnetic materials, boundary conditions, inductances and inductors, magnetic energy, force and torque. Time-varying fields and Maxwell's equations. *Prerequisite:* MTH 205 and PHY 102.

ELE 321 Signals and Systems (3); annually. Signals and systems, continuous and discrete. Systems modeling. Convolution of discrete-time continuous signals. The Fourier series and Fourier transform. Generalized Fourier transform. Discrete-time Fourier transform. Frequency domain analysis of systems. The Laplace transform and the transfer function representation. The Z-transform and discrete-time systems. Introduction to design of digital filters and controllers. *Prerequisite:* ELE 201 and MTH 205.

ELE 332 Instrumentation and Measurements (3) annually. Basic measurement concepts. Error and statistical analysis, electrical measuring instruments, field measurements that include temperature, pressure, flow, level transducer interfacing. Digital instrumentation. Data acquisition and control. Noise reduction techniques. *Prerequisite:* ELE 212, ELE 241 and STA 202.

ELE 341 Electronics II (3); annually. Differential amplifiers, multistage amplifiers. Frequency response. Spice circuit simulation. Feedback. Operational amplifiers. Active filters. Oscillators. Power amplifiers. *Prerequisite:* ELE 241.

ELE 341L Lab for Electronics II (1); annually. *Prerequisite:* ELE 341.

ELE 351 Electric Machines I (3); annually. Principles of electromagnetism. Single and three-phase transformers. Electromechanical energy conversion. DC machines. Synchronous and asynchronous machines. *Prerequisite:* ELE 212 and ELE 311.

ELE 351L Lab for Electric Machines I (1); annually. *Prerequisite:* ELE 351. *Co-requisite:* ELE 351.

ELE 353 Control Systems I (3); annually. Introduction. Mathematical models of systems. State variable models. Feedback control system characteristics. Performance and stability of feedback control systems. The root-locus method. Stability in the frequency domain. Design of feedback control systems. The design of state variable feedback systems. Robust control systems. *Prerequisite:* ELE 201.

ELE 361 Communications I (3); annually. Introduction. Spectral Density, Correlation Functions. Signal transfer through networks. Ideal filters. Analog modulation. Amplitude modulation systems (DSB-SC, DSB-TC, QAM VSB). Frequency Division Multiplexing (FDM). Gaussian processes, Narrow band noise. Noise in AM systems. Angle modulation (PM, FM) and application. Noise in FM systems, Pre- and de-emphasis. Practical aspects in sampling theorem. Pulse analog modulation systems (PAM, PWM, PPM). *Prerequisite:* ELE 311, ELE 321 and ELE 341.

ELE 361L Lab for Communications I (1); annually. *Prerequisite:* ELE 361.

ELE 371 Power Systems (3); annually. Power unit system. Symmetrical components. Transmission-line parameters and steady-state operation. Power flows. Symmetrical and asymmetrical faults. Fundamentals of power system protection. *Prerequisite:* ELE 351.

ELE 405 Computational Methods for Electrical and Computer Engineering (3); annually. Numerical errors. Interpolation and curve fitting. Numerical integration. Linear system of algebraic equations. System of coupled nonlinear equations. Ordinary differential equations: Euler, Runge-Kutta, predictor-corrector methods. Boundary value problems. Optimization techniques. Constrained and multi-objective optimization. Applications. *Prerequisite:* CMP 102 and MTH 205.

ELE 422 Semiconductor Devices (3). Semiconductor physics at equilibrium and non-equilibrium. Poisson equation. Current continuity equations for the electrons and holes. Static and

dynamic behavior of PN junction. BJT and MOST. SPICE models. Optoelectronic devices. Microwave devices. *Prerequisite:* ELE 241.

ELE 423 VLSI Design (3). Design styles, levels, methodology and tools. IC technology overview. BJT and MOS fabrication processes. IC layout. Design rules. Symbolic layout. IC layout CAD tools. Digital MOS building blocks. Area, delay and power metrics. Structured arrays. Analog MOS building blocks. Switched capacitor circuits. Overall chip design. *Prerequisite:* ELE 341.

ELE 425 Optoelectronics (3). Nature of light-principle of laser action, characteristics of gas laser, organic dye laser, solid state laser, and laser applications, Light emitting diodes, photoconductors solar cells, photovoltaic devices, spectral response, efficiency and interface circuits. *Prerequisite:* ELE 341.

ELE 426 Microwave Electronics (3). Planar tubes, performance, pulsed operation, multitude arrangements, efficiency and gain, construction, Klystrons, reflex Klystron, two cavity Klystron oscillator, extended-interoscillator, two-cavity amplifier, multicavity amplifiers, noise applications and circuits, TWT, the electron gun, magnetic beam focusing and the interactive circuit. Crossed field tubes, crossed field interaction mechanism, slow wave circuits for cross field tubes, crossed field oscillators, coaxial magnetrons, voltage-tunable magnetrons, and crossed-field amplifiers. Microwave semiconductor devices, Schottky barrier diodes, mixer diode parameters, varactor diodes, varactor-frequency multiplexed, varactor parametric amplifier, PIN diode, and microwave bipolar transistor. Gnu devices, IMPUTE diode. *Prerequisite:* ELE 341.

ELE 432 Medical Electronics I (3). Principles of medical instrumentation, biomedical sensors and transducers, temperature, displacement, acoustical, chemical and radiation measurements, biopotential amplifiers and signal processing, the origin of biopotentials, biopotential electrodes, measurement of biopotentials such as ECG, EEG

and EMG, blood pressure measurements. *Prerequisite:* ELE 341.

ELE 433 Medical Electronics II (3). Blood flow measurement, respiratory system measurements, chemical biosensors, clinical laboratory instrumentation, therapeutic devices and electrical safety. *Prerequisite:* ELE 342.

ELE 434 Medical Imaging (3). Ultra-sound imaging, Introduction to medical radiology and x-ray imaging. Computerized tomography. Principles of magnetic resonance imaging. *Prerequisite:* ELE 341.

ELE 438 Selected Topics in Medical Electronics (3). Selected topics in the field of medical electronics that deal with new trends and practical issues.

ELE 441 Industrial Electronics (3). Data acquisition systems: sensors, signal conditioning, A/D and D/A conversion. Controllers, microprocessor and microcontroller based systems. Memory and I/O interfaces. Programmable logic controllers. Actuators. Industrial applications. *Prerequisite:* ELE 221 and ELE 341.

ELE 443 Power Electronics and Drives (3). Power Semiconductor Devices. Line commutated converters. AC Switching Controllers. Choppers. Inverters. Adjustable Speed DC and AC Motor Drives. *Prerequisite:* ELE 241.

ELE 444 Control Systems II (3). State-Space modeling and analysis. controllability and observability. State feedback design and pole placement. Dynamic observers and output feedback design. Multivariable systems in the frequency domain and design by Nyquist array techniques. Introduction to optimal control systems. Introduction to nonlinear control systems. *Prerequisite:* ELE 352.

ELE 445 Digital Signal Processing (3); annually. Overview of continuous and discrete signal processing. Discrete Fourier transform. Fast Fourier transform. Signal sampling and reconstruction. Digital filters. Correlation and spectral estimations. *Prerequisite:* ELE 321.

ELE 446 Selected Topics in Communication

Engineering (3). Selected topics in the field of Communication Engineering that deal with new trends and practical issues.

ELE 451 Communications II (3). Radio broadcasting systems. Television systems. Audio and video recording. Telephony systems. Mobile communication systems. Telegraphy systems. Facsimile systems (analog and digital). Microwave links. Satellite systems. Radar systems (primary and secondary). Optical fiber systems. Data and computer communication systems. *Prerequisite:* ELE 361.

ELE 452 Digital Communications (3). Model of digital communication systems. Geometric interpretation of signals. Detection of known signals in noise. Coding techniques: PCM, DPCM, DM, ADM. Digital modulation techniques. Bandwidth efficiency, intersymbol interference, synchronization. Error-correcting codes. *Prerequisite:* ELE 361.

ELE 453 Microwave Engineering (3). Electromagnetic plane waves. Microwave transmission lines, smith chart and stubs. Microwave waveguides and components. Microwave linear beam tubes. Microwave transistors and tunnel diodes. Avalanche transit-time devices. Gunn diodes. *Prerequisite:* ELE 361.

ELE 454 Antennas and Propagation (3). Introduction. Linear antennas, transmission and receiving, near fields. Mutual and self impedances, radiation pattern. Dipole antenna, telescopic antennas. Loop antenna. Antenna arrays. YAGI antennas and the corner reflector. Circular and Parabolic dish antennas. Aperture antennas. *Prerequisite:* ELE 361.

ELE 471 Digital Control Systems (3). Discrete-time Systems and the Z-transform. Sampling and reconstruction. Open-loop and closed-loop discrete-time Systems. System time-response characteristics. Stability analysis techniques. Digital Controller design. State-Space representations of discrete-time Systems. Pole-assignment design and state estimation. Linear quadratic optimal Control. *Prerequisite:* ELE 352.

ELE 472 Nonlinear Control (3); annually. Analysis of nonlinear systems. Phase plane analysis, limit cycle, describing function and its applications. Stability analysis of nonlinear systems using Liapunov, input/output and asymptotic methods. Design methods of nonlinear controllers: linearization, absolute stability theory, sliding modes and feedback linearization. *Prerequisite:* ELE 352.

ELE 474 Selected Topics in Control Systems (3). Selected topics in the field of control systems that deal with new trends and practical issues.

ELE 498/ELE 499 Electrical and Electronic Engineering Design Project (2); annually. An open-ended, in-depth design project of significance in electrical or electronic engineering that includes the design of a system, process or component to achieve functional objectives, representative of problems encountered by practicing electrical engineers. Students work in close accord with one or more faculty members, preferably in a team environment. The project outcomes must demonstrate that students have attained the necessary level of competency for entry into the electrical and electronic engineering profession.

Engineering

NGN 100 Introduction to Engineering (1); every fall. The engineering profession in history. A survey of career fields with an emphasis on each engineering field. Work opportunities and the responsibilities, ethics and risks involved in the engineering profession. The Engineer's need for documentation and data presentation with an introduction to the fundamentals of the methodology of analysis and problem solving. Study of dimensions, unit systems, and standards in engineering. The creative aspects of the process of engineering design, its stages and its phases.

NGN 102 Engineering Drawing I (3); every semester. Introduction to the use and preparation of manually and computer generated engineering

drawings. Types of drawings: pictorial and engineering drawings. Stereographic images; perspectives, axonometrics. Plane images: oblique and orthographic projections. First and third angle projections. Auxiliary views. Types and applications of lines, tables, geometrical constructions, dimensioning, sectioning, drawing conventions and abbreviations used in engineering.

NGN 103 Engineering Drawing II (3); annually. Descriptive geometry including development and interpretation of surfaces. Computer-aided advanced assembly drawings. Screws, fasteners and springs. Assembly consideration: tolerances, limits and fits. Surface finish, welded and riveted constructions. 3-D drawing, solid modeling and rendering.

NGN 221 Engineering Mechanics I : Statics (3); annually. Fundamental concepts and principles of mechanics, vectors and force systems. Concepts of free-body-diagram; principles of equilibrium of particles and rigid bodies in two and three dimensions. Analysis of structures: trusses, frames, and machines. Shear and bending moment in beams, center of gravity, centroids distributed forces and area moment of inertia, friction. Method of virtual work. *Prerequisite:* PHY 101.

NGN 222 Engineering Mechanics II : Dynamics (3); annually. Fundamental concepts of kinematics and kinetics with application to motion of particles and plane motion of rigid bodies. Rectilinear and curvilinear motion of particles. Newton's second law, impulse and momentum methods. Impact, Dynamics of systems of particles. Kinematics of rigid bodies. Plane motion of rigid bodies. Forces and accelerations. Energy and momentum methods. *Prerequisite:* NGN 221.

NGN 223 Engineering Mechanics III (3); every semester. Tension and compression, Statically Indeterminate force system, Thin-Walled pressure vessels, direct shear stresses, Torsion, shearing forces and bending moment, stresses in beams, elastic deflection of beams, Moment – area method, Method of singularity function, Statistically indeterminate elastic beams, Special

topics in elastic beam theory, Plastic deformations of beams, columns, strain energy methods, Combined stresses, Theories of failure, theory of elasticity. *Prerequisite:* NGN 221.

NGN 231 Materials Science (3) Introduction to chemical and physical structures. Bonding systems and mechanisms. Amorphous and crystalline systems. Electrical, optical and physical properties and their relationship with material morphology and bonding. Deformation mechanisms and failure systems. Hardening and softening mechanisms and introduction to composite materials systems.

NGN 241 Fluid Mechanics I (3); annually. Fundamental concepts. Properties of fluids: measurement of specific gravity, viscosity and surface tension. Fluid Statics: pressure and its measurement, hydrostatic forces on submerged surfaces, stability of floating bodies. Basic equations of motion: continuity, momentum and energy equations, Bernoulli's equation. Measurement of static and stagnation pressure, velocity and flow rate in closed conduits and open channels. Flow in closed conduits (internal flow), laminar and turbulent flow. Flow over immersed bodies (external flow). Lift and drag. Dimensional analysis and dynamic similitude. *Prerequisite:* NGN 222.

NGN 461 Management for Engineers (3); Engineers as managers. Nature of organizations. Functions of organizations. The tools of engineering management: Personnel management. Team-work and creativity, personal management, finance, communication skills. Case study. *Prerequisite:* fourth year (senior) standing.

NGN 462 Engineering Project Management (3); Projects in engineering organizations. Project initiation. Effective project management, the project life cycle, planning and scheduling, resourcing, cost estimating. Project monitoring and control. Introduction to computer packages. Case study. *Prerequisite:* fourth year (senior) standing.

NGN 463 Quantitative Operational Management (3); Models in operational manage-

ment. Linear programming: formulation of linear programming models, standard forms. Principles of the simplex method. Computational problems: computer solution, additional topics in linear programming. Network analysis: examples of network problems, transportation models, formulation of transportation models, formulation of standard and non-standard assignment problems, maximal flow models. Shortest route models. Project management. Term project. *Prerequisite:* fourth year (senior) standing.

NGN 464 Engineering Economics (3); Economics concepts and theories of planning. Bases and methods of economic analysis of engineering projects. Application of these principles in understanding economic activity of private and public engineering companies at various micro and macroeconomic levels.

NGN 465 Quality Control for Production Systems (3); Control charts and diagrams (types, construction, application and implementation), control charts for variables, control charts for attributes, acceptance sampling: lot by lot acceptance sampling by attributes, acceptance sampling plans and standards, quality costs-product liability, quality improvement, implementation of quality control system, quality engineering.

English Communication Skills

COM 001 Fundamentals of Writing (0); every semester. This course is for students who need instruction on the basics of English writing, including sentence structure and the mechanics of writing. By the end of the course, students will be able to write a coherent, unified paragraph and will also be familiar with academic essay writing.

COM 101 Academic Writing (3); every semester. This course introduces first year students to the writing tasks they will need at the university. Instructional emphasis is placed on the process of writing academic compositions, including

brainstorming for ideas, outlining, writing a first draft, reading the draft, editing for grammatical mistakes, revising the draft, rereading it, etc.

COM 102 Writing and Reading Across the Curriculum (3); every semester. This course gives students the chance to practice in-depth various methods of academic writing. The focus of instruction is on reading and writing across a range of academic disciplines as well as on introducing students to methods of reporting research.

COM 203 Genre Analysis (3); every semester. This course introduces students to a variety of literature genres including poetry, drama, and fiction. Students read and write about and to writing about a number of literary topics.

COM 204 Advanced Academic English (3); every semester. In this course, students focus on improving their ability to communicate effectively in an academic setting. Opportunities are given to students to summarize, critique and synthesize readings; to write essays; to present information orally to the class; and to write a formal research paper.

COM 205 English for Media (3); every semester. This course is intended for Architecture and Design students. Course content focuses on the understanding and use of English in areas pertinent to the visual arts: aesthetics, criticism, design, painting, film and advertising.

COM 206 English for Business (3); every semester. This course is intended for Business and Management majors only. Its purpose is to help students write and speak more effectively in business contexts. Emphasis is placed on written and spoken communication skills and on preparing, writing and presenting reports.

COM 207 English for Engineering (3); every semester. This course is intended for Engineering students only. Its purpose is to introduce them to English used for communication in their field with a special emphasis on writing and presenting technical reports.

COM 208 Public Speaking (3); every semester.

This course introduces students to the art of public speaking, debate and argument; it also reinforces oral communication skills presented to the students during their first year English courses. Students gain confidence as public speakers by learning the techniques of making effective presentations and by gaining extensive practice in public speaking.

COM 209 Dramatic Expression (3); every semester. This course is intended to give students an opportunity to perform publicly in a variety of formats, including poetry reading, acting, miming and singing.

COM 210 Writing for the Media (3); spring semester. This course is intended for Multimedia and Visual Communication students. The course covers the intermediate analysis of and practice with forms of media writing: news stories, interviews, headlines, captions, scripting for TV, radio and advertising. May also include hands-on projects designed for use by a local newspaper or television/radio station and advertising copy.

English Language

ENG 123 Introduction to Language Study (3); every semester. This course is an introduction to the study of the structures and functions of language: phonetics and phonology, morphology, syntax, semantics, and pragmatics. This course also includes the study of language acquisition, language evolution and variation and language education.

ENG 126 History of the English Language (3); annually. This course is an introduction to the development of the English Language from its Indo-European roots to the present day. The study of linguistic change in English through the various periods (Indo-European; Germanic, Old, Middle and Modern English) will cover phonological, morphological, syntactic, lexical and semantic changes.

ENG 220 Language in Education (3); alternate

years. This course is a study of the applications of theories of language analysis and language acquisition in the English language classroom. The course deals with issues relating to bilingualism, multi-lingualism, language planning, intervention programs and similar topics.

ENG 222 Phonetics (3); alternate years. This course examines the articulation and the perceptual and acoustic characteristics of English Language sounds. The sounds of other languages, especially colloquial Arabic of the Gulf variety, will also be studied. The course includes practice in sound transcription and production.

ENG 224 Phonology (3); alternate years. The central unit of analysis in this course is the phoneme, which is analyzed in relation to a number of languages. Students will learn to solve problems arising from the phonotactic rules of particular languages.

ENG 226 Morphology (3); alternate years. This course is devoted to the study of English word-formation processes and the way in which morphology interacts with other aspects of language (such as phonology, syntax and lexis).

ENG 228 Semantics (3); alternate years. This course is a study of the linguistic meaning of words and sentences. It includes various aspects of meaning, such as semantic features, homonyms, ambiguity, synonyms, antonyms, thematic roles, metaphors and idioms.

ENG 230 Pragmatics (3); alternate years. This course examines in-depth how context determines and influences the interpretation of meaning. The study includes aspects of discourse such as social distance between speaker and listener, their respective beliefs, the topic, the medium, the setting and other related factors.

ENG 232 English Grammar (3); alternate years. This course focuses on the fundamental rules of English grammar as they relate to sentence formation. Emphasis is placed on the study of patterns of predication, complementation, coordination and modification.

ENG 234 Language and Society (3); alternate

years. This course examines language variation in English as it relates to geographic and social considerations. The course covers such topics as dialect, accent, standard English, lingua franca, pidgin and creole style and jargon.

ENG 236 Discourse Analysis (3); alternate years. This course examines human discourse as a means of achieving a better understanding of what language is and how it works. The course emphasizes the interrelation between language forms and language functions culminating in the study of speech acts and the ethnography of speaking.

ENG 320 EFL Teaching Models and Methods (3); alternate years. In this course, students become familiar with methods of second language teaching as well as with theories of second language acquisition. The main goal of the course is for students to learn to judge for themselves what *method* means and how best to apply a language teaching method to a particular language learning situation.

ENG 322 The Second Language Reading Process (3); alternate years. In this course, students identify the pedagogical and assessment issues that are related to the reading of texts in a second language. Students also study the relationship between the reader and the text, and between the writer and the text.

ENG 324 EFL Writing Practicum (3); alternate years. This course covers topics central to second language writing instruction. These topics include: the writing process, the differences between first and second language writing, ways to respond to writing and methods of writing assessment.

ENG 328 Contrastive Linguistics (3); alternate years. This course compares and contrasts between the systems of English and the Arabic languages to help identify common and different features. The implications of such analysis for language learning and development of culture and thought patterns will be studied.

ENG 330 Psycholinguistics (3); alternate years.

This course introduces the fields of first and second language acquisition highlighting such issues as stages of acquisition, order of acquisition and theories of language learning. The practicum aspect of this course involves collecting and analyzing data from learners.

ENG 334 Sociolinguistics (3); alternate years. Language has an undeniable social element. In the realm of human studies, it can only be separated from its social context in theory. In practice, it always occurs within a social context, even when one is talking to him/herself! In this course, the sociological implications of language will be studied, from societal multi-lingualism and diglossia to systematic and free variation within a given speech community.

ENG 420 Seminar in English Language (3); alternate years. The topic and the instructor of the seminar may change from year to year depending on the interests of the faculty.

ENG 422 Advanced Studies in English Grammar (3); alternate years. In this course, students analyze English grammar at both the phrase and clause level. The objective is for students to understand grammatical structures when encountering them in literary texts and to apply them appropriately when writing academic compositions.

ENG 424 History of English Language II (3); alternate years. This course takes an in-depth analysis of the historical changes in the English language that have led to many of today's dialects of English. These dialects include: Black English Vernacular, Standard English, British English, American English and others. Video segments will be viewed to provide authentic samples of dialect differences.

ENG 426 Tutorial in English Language (3); annually. This course is offered on demand. The instructor and the student agree on the topic and the requirements of the course. *Prerequisite:* Normally an average of 77 or above in the major and the consent of the instructor.

English Literature

ENG 107 Special Topics in Ancient Literature (3); occasionally. The course examines Ancient Literature in English from the non-Western world. It is specifically designed for students who are beginning their study of Ancient Literature.

ENG 108 World Literature Today (3); annually. The course examines World Literature in English from the non-Western world. It is specifically designed for students who are beginning their study of literature.

ENG 109 Special Topics in Modern Literature (3); alternate years. The course examines Modern Literature in English from the non-Western world. It is specifically designed for students who are beginning their study of literature.

ENG 110 Survey of English Literature I (3); annually. This course is designed to introduce students to English Literature from Anglo-Saxon times up to the mid-1700s. Representative texts will be studied in relationship to their social, political and historical background. Required for English majors. *Prerequisite:* Passing grade or current enrollment in COM 203.

ENG 111 Survey of English Literature II (3); annually. This course continues the survey begun in 101, moving mid 1700s to the present day. Representative texts will be studied in relationship to their social, political, and historical background. Required for English majors. *Prerequisite:* ENG 110 or passing grade or current enrollment in COM 203.

ENG 202 Studies in Old and Middle English Literature (3). The course begins with Beowulf through which the Old English Period is surveyed. It then turns its attention to the major literary works and genres of the Medieval Period, with a special emphasis on Chaucer. Langland, the Gawain poet, medieval miracle and morality plays and the romance will also be highlighted. Required for English majors. *Prerequisite:* ENG 110.

ENG 203 Poetry and Prose: 1500-1660 (3). This course examines Renaissance poetry and prose, excluding Shakespeare. The Renaissance ethos and considerable impact on the *modern world* are studied through the works of Sidney, More, Bacon, Marlowe, Johnson, Donne and Milton. English majors must take either this class or ENG 205. *Prerequisite:* ENG 110.

ENG 204 Shakespeare Drama and Poetry (3). The course is an intensive study of a number of plays with emphasis on related critical issues. Shakespearean poetry is also studied. Works are discussed in their socio-historical context. Required for English majors. *Prerequisite:* ENG 110.

ENG 205 Poetry and Prose: 1660-1800 (3); The English *version* of the French Enlightenment is the focus of this course. Important figures of the Restoration and the Age of Reason studied include Dryden, Swift, Pope and Johnson. The course also probes the rise of technological culture and the introduction of a scientific idiom into literature. English majors must take either this course or ENG 203. *Prerequisite:* ENG 110 or ENG 111.

ENG 207 The Beginnings of the Novel (3). This course provides an introduction to and historical overview of, the development of the novel as a new literary form of discourse through a close reading of a number of significant texts from the seventeenth and eighteenth centuries. English majors must take either this class or ENG 212. *Prerequisite:* ENG 111.

ENG 209 The Romantic Age (3); annually. The course traces the development of English Romanticism, beginning with Blake, Wordsworth and Coleridge. It then follows the trajectory of the second-generation Romantics, focusing on Byron, Shelly and Keats. Romanticism is viewed as a movement that, in spirit and practice, sought to topple classical and Neoclassical Enlightenment through patterns. Aspects of American Romanticism are also emphasized. English majors must take either this class or ENG 212. *Prerequisite:* ENG 111.

ENG 211 The Nineteenth-Century English

Novel (3). Seven or eight novels representing the period will be studied in detail through intensive reading. This will be done while studying the background of social and industrial change during the period. *Prerequisite:* Must be an English major and have completed ENG 110 or ENG 111.

ENG 212 The Victorian Age (3). This course examines the Victorian sensibility through representative texts. In the first part of the course, poets, including Tennyson and Browning, will be studied together with a sampling of the Victorian essay. The second part is devoted to the tremendously important Victorian novel. Required for English majors. *Prerequisite:* ENG 111.

ENG 214 Studies in Twentieth-Century Literature (3). The contents of this course familiarize students with key writers of this century, with an emphasis on analyzing fundamental and recurrent twentieth-century themes. Attempts are made to contextualize works and underscore the extent to which literature in our time has responded to critical cultural, economic and political forces. Required for English majors. *Prerequisite:* ENG 111.

ENG 216 Introduction to Literary Theory and Criticism (3); alternate years. This course is an introduction to central issues, including the notion of literature, the relationship of literature to criticism and the making of literary canons. Key schools, including formalism, structuralism, post, post-structuralism, deconstruction and reception theory, are introduced in their respective historical contexts. Required for English majors. *Prerequisite:* a 200 level course.

ENG 218 Special Topics in American Literature (3); Occasionally. This course is designed to familiarize students with American literature by placing an emphasis on a certain topic and/or by studying the use of particular metaphor, image or genre. Topics may include the African American experience, the literature of the South, the image of woman, realism and symbolism and

forms of narrative. Required for English majors. *Prerequisite:* ENG 110 or ENG 111.

ENG 219 Classics of the Western Tradition (3); annually. This course provides students with an opportunity to read texts they are unlikely to encounter in other courses. These may include the epics of antiquity, the Attic tragedians, Virgil, Dante, Cervantes, Rabelais, Montaigne, Voltaire, Rousseau, Diderot, Goethe and Tolstoy. *Prerequisite:* ENG 110 or ENG 111.

ENG 312 East and West (3); annually. The course is devised as a fourth year (senior) seminar with varied content that retains one focus, the study of one aspect of literary relations between East and West. The theme of *orientalism* or the image of the West in representative texts of the Arabic literary canon. *Prerequisite:* a 200 level course.

ENG 314 Literature and Society (3). The course examines the relation between literary technique and social purpose in texts selected from different historical periods. It also tackles how literature distorts, reflects and/or refracts reality for different endings. Sociology of literature and Marxist literary theories provide the theoretical framework of the course. *Prerequisite:* a 200 level course.

ENG 315 Literature for Our Time (3). The course is an exploration of the ways twentieth-century literature responds to the complex reality of our world. The emphasis is on contemporary modernist and postmodernist fiction from a variety of national literatures. Writers may include Duras, Robbe-Grillet, Lessing, Boll, Mann, Morrison, Walker, Kundera, Atwood, Munro, Coetzee, Achebe and Emecheta. *Prerequisite:* a 200 level course.

ENG 316 Seminar in Literary Criticism (3). This seminar aims to provide students with the opportunity to delve deeper into the field of literary theory and criticism by focusing on a specific topic. Such topics may include the study of a specific school or a theoretical issue. It may also concentrate on praxis, by applying a variety of schools on literary samples. *Prerequisite:* a 200

level course.

ENG 317 Contemporary Literature in English (3). The course is designed to acquaint students with writers on the fringes of, or outside, the Anglo-American canon. They may include Anglo-Indian, Canadian, South African, Black African and Australian writers. *Prerequisite:* a 200 level course.

ENG 318 World Literature Today (3); annually. This course targets *literature of lesser diffusion* around the world. It may highlight the literature of certain Third World countries, or that of any less known national literature worthy of attention. *Prerequisite:* a 200 level course.

ENG 319 Women in Literature (3); alternate years. The course examines the literary representation of women and womanhood and how this is predicted by social norms and stereotypes. It also surveys the self-representation attempts of women writers. Basic feminist theory is introduced. Texts are chosen from different periods and genres. *Prerequisite:* a 200 level course.

ENG 410 Seminar in English Literature (3); alternate years. The topic and the instructor of the seminar may change from year to year depending on the interests of the faculty. *Prerequisite:* a 300 level course.

ENG 415 Tutorial in English Literature (3 - 6 credits). This course is offered on demand. The instructor and the student agree on the topic and the requirements of the course. *Prerequisite:* a 400 level course.

Environmental Studies

(See Chemistry)

Finance and Banking

FIN 201 Corporate Finance (3); annually. Introduction to business finance, including

global aspects; acquisition and use of short-term funds and long-term capital; overview of money and capital markets; management of assets, liabilities and capital accounts; financial analysis and time value of money; cash operation, and long-range budgeting; leasing; corporate securities; dividend policy; and cost of capital. *Prerequisite:* ACC 202, MTH 201 and STA 201.

FIN 301 Financial Statement Analysis (3); annually. The foundation capstone course that integrates and synthesizes the core business courses such as accounting, finance, marketing, management and statistics. Students use the case method to study and analyze corporations, and utilize computer based business information systems, such as EDGAR, to download and analyze financial statements. Students work in teams and present their analyses using visual, multimedia systems. *Prerequisite:* ACC 202, MTH 201 and STA 201.

FIN 302 Financial Markets and Institutions; annually. The history, purpose, function, and organization of the short-term money market and long-term capital market. An integrated view of the participating institutions and the markets in which they operate, their investment constraints and their resulting portfolios. *Prerequisite:* FIN 201.

FIN 303 Investment Analysis (3); annually. Investment objectives. Methods of appraising corporate equity, debt and other securities. Portfolio theory and management, technical analysis, random walk theory and the role of institutional investors. Case studies, computer simulation and on-line data are used throughout the semester to enhance the learning process. *Prerequisite:* FIN 201 and FIN 301.

FIN 305 Commercial Banking (3); annually. An introduction to commercial bank management. This course covers the structure and internal organization of commercial banks and it emphasizes the dynamic nature of assets, liability and equity management. It also covers the application of decision-making procedures to financial management situations, including: evaluation of bank

performance, capital acquisition, liquidity and loans. *Prerequisite:* FIN 302.

FIN 400 Portfolio Management (3); annually. This course provides the theoretical and operative framework for portfolio and advanced investment management. Students apply portfolio models and concepts to *live* market data to perform analytical skills and evaluate equities, fixed income securities and other investments. Asset pricing, diversification and other financial models are covered in detail. *Prerequisite:* FIN 301.

FIN 401 Advanced Financial Management (3); annually. Investment, financing and dividend-policy decisions of the financial manager. Case studies and problems are some of the tools used that enable the student to make and see the effects of financial decisions. *Prerequisite:* FIN 302.

Graphic Design

Descriptions for Graphic Design courses that are to be taught in the 1998-99 academic year are as follows. (Additional course titles are also listed and the curriculum for these courses will be provided in subsequent catalogs as the curriculum develops).

GRA 201 Graphic Design Studio I (4); annually. Introduces applied graphic design. Explores photographic image making, manipulation, and letterform and type, as approaches to visual problem solving. Emphasizes formal relationships and investigates concept development through sequence and series. Refers to visual books, graphic system, and moving images. *Prerequisite:* DES 112 and DES 132.

GRA 202 Graphic Design Studio II (4); annually. Investigates the expressive visual potential of words and images. Explores the connotations of mark, form and text. Includes assigned projects,

readings, discussions and lectures. *Prerequisite:* GRA 201.

GRA 211 Illustration Concepts (3); annually. Students will explore illustration as a means of communication. Illustration will be taught both as a means of reporting on the world around us, and as a means of expressing ideas and point of view. A wide variety of media will be used; studio sessions will emphasize drawing from life, drawing on location and developing ideas from concepts to finished art. *Prerequisite:* DES 111.

GRA 240 Computer Graphics I (3); annually. Students will study the fundamental issues in computer graphics, while learning to use both bitmap and vector graphics software. Subjects include: developing ideas from paper to computer, color management, file formats, requirements for a variety of markets, and printing issues. *Prerequisite:* CMP 101 or consent of the instructor.

GRA 241 Computer Graphics II (3); annually. This is a continuation of Computer Graphics I (GRA 240). Students will prepare graphics for a variety of media, including publications, advertising and the internet, and will have an introduction to multimedia applications. 3-D design considerations will be introduced. *Prerequisite:* GRA 240.

GRA 301 Graphic Design Studio III (4).

GRA 302 Graphic Design Studio IV (4).

GRA 320 Intermediate Typography (3).

GRA 321 Advanced Typography (3).

GRA 330 Production and Paste-Ups (3).

GRA 370 Professional Training/ Practicum (0).

GRA 400 Final Project Research (3).

GRA 401 Graphic Design Studio V (4).

GRA 402 Final Project Studio (5).

GRA 420 Publication Design (3).

GRA 421 Portfolio Presentation (3).

GRA 422 Exhibit Design (3).

History

HIS 101 Survey of Islamic History I (3); annually. This course introduces students to the basic doctrines and concepts of classical and medieval Islamic and Arab history. The focus is on reading selections from well-known historians and historiographers that affected the development of historical works in Islamic culture. Moreover, it deals with major themes and disciplines that have occupied the writing of history and their relation to Islamic law, theology, politics, ethics and science.

HIS 102 Survey of Islamic History II (3); annually. This course deals with the modern history of Islam and the Arab world, starting with the rise of the Ottomans and ending with the Arab revolt. Major doctrines and concepts of modern Islamic and Arab thinking are outlined. The focus is on reading selections from well-known historians and thinkers that have shaped modern Islamic and Arab thinking about history, Islam and Arabism. Moreover, the course deals with major themes and disciplines that have prevailed in modern historical writings.

HIS 201 History of Modern Europe (3); annually. This course examines the political, military, social, and economic factors that have shaped historical events in modern Europe. Students will be trained in historical data collection and in the analysis of related topics.

HIS 202 History of the United States of America (3); annually. This course surveys the history of the United States from the time of early European settlement, through its independence and until the emergence of the US as a major world power.

HIS 203 Early History of the Arabs (3); annually. This course is a survey of Arab history from pre-Islamic times to the beginning of the Ottoman takeover of the Islamic and Arab lands. Texts from the various periods will be examined to help students identify the religious, political,

social and economic factors that have determined the course of events.

HIS 204 Modern Arab History (3); annually.

This course surveys events which occurred in modern Arab history after independence was gained from the Ottomans. It also examines the struggles faced by the Arabs since that time. Emphasis will be placed on the Colonial Era, new Arab states, the creation of Israel, and the Arab-Israeli wars.

HIS 205 World History To 1500 (3); annually.

A study of the world's major civilizations prior to 1500 concentrating on their primary institutions and their cultural contacts. Particular attention is devoted to the Arab and Islamic world China, India, the Mediterranean world and Western Europe.

Information Systems

(See Management Information Systems)

Intensive English

IEP 001 Novice Level (0); every semester. At this level, instruction involves the presentation of large amounts of language. The primary goals are to improve student fluency in both the conversational and written modes, to increase vocabulary as rapidly as possible, to develop basic reading skills and to introduce the mechanics of writing at the sentence and paragraph level.

IEP 002 Elementary Level (0); every semester. In this course, language instruction moves from functional, survival English to academic discourse. To that end, important reading skills such as skimming, scanning, and predicting are practiced and writing activities extend beyond the paragraph to the multi-paragraph essay. Complex grammatical concepts involving time relationships are also introduced, note-taking from authentic materials is practiced and oral presen-

tations are given.

IEP 003 Intermediate Level (0); every semester.

At the intermediate level, instruction takes on an overtly academic quality. High-level reading skills such as inferencing and synthesizing information from more than one source are introduced, while writing instruction involves the exploration of various rhetorical modes. Students are also expected to develop an awareness of contextual clues, an understanding of speaker purpose, a recognition of idiomatic usage and an accurate and fluent speech production.

IEP 004 Advanced Level (0); every semester.

This course prepares students for university studies, though the focus is still on the major language skills rather than the actual content being covered. Students are required to read longer texts and to write longer essays. They study complex grammatical usage at the clause level. Finally, public speaking skills are refined through the discussion of complex source material and through oral presentations on topics involving persuasion and argumentation skills.

IEP 005 Bridge Level (0); every semester.

This course simulates credit-bearing instruction at the university by integrating academic listening, speaking, reading, and writing into the daily classroom pedagogy. Extensive reading is expected and major reading skills reviewed and thus, reinforced through large amounts of practice. The instruction includes an introduction to writing term papers.

Interior Design

Descriptions for Interior Design courses that are to be taught in the 1998-99 academic year are listed below. Additional course titles are also listed and the curriculum for these courses will be provided in subsequent catalogs as the curriculum develops.

IDE 201 Interior Design Studio I (4); annually.

This project-oriented course is designed to

equip students with the fundamental planning tools of the design trade. Students will apply basic principles of gathering, quantifying and organizing design information for proper planning use. With this in mind, and with the knowledge acquired in Fundamental Design, they will further explore and develop interior design solutions in basic graphic, 3-dimensional and computer generated forms. *Prerequisite:* DES 112.

IDE 202 Interior Design Studio II (4); annually. The objective of this course is to strengthen student skills in the practical application of design principles, process, and practice. Students are encouraged to investigate critical design concepts, criteria, and concerns, and then, translate these values into viable and meaningful graphic, 3-dimensional and computer generated solutions. Students will analyze and synthesize form, function, scale, light, color, organization, etc. in relation to a given design project in the class. *Prerequisite:* IDE 201.

IDE 301 Interior Design Studio III (4).

IDE 302 Interior Design Studio IV (4).

IDE 320 History of Interior Design (3).

IDE 321 Color and Materials (3).

IDE 322 Lighting and Acoustics (3).

IDE 323 Commercial Spaces (3).

IDE 324 Office Spaces (3).

IDE 325 Theme Design (3).

IDE 400 Final Project Research (3).

IDE 401 Interior Design Studio V (4).

IDE 402 Final Project Studio (5).

IDE 410 Small Space Problems (3).

IDE 411 Advanced Detailing (3).

International Business

INB 201 Fundamentals of International Business (3); annually. An introductory course that studies the nature and scope of international trade

and investment, international institutions, the international monetary system and exchange markets and some of the major issues involved in the functional aspects of international business. *Prerequisite:* ECO 201 and ECO 202.

Legal Issues - Business

(See Business Legal Issues)

Management

MGT 101 Fundamentals of Management (3); annually. Current management theories, research and practice. Course content represents a synthesis of behavioral sciences providing a broad framework for management. Topics include organizational goals and responsibilities, models, decision theory, planning, control organization, motivation, leadership, group behavior, conflict and organizational change. *Prerequisite:* first year (freshman) standing.

MGT 301 Organizational Behavior (3); annually. Current management theories, research and course content represent a synthesis of behavioral sciences providing a broad framework for management. Topics include organizational goals and responsibilities, models, decision theory, planning control, organization, motivation, leadership, group behavior, conflict and organizational change. *Prerequisite:* MGT 101.

MGT 302 Managing Human Resources (3); annually. Understanding the principles and operations of personnel administration and industrial relations systems in organizations by analyzing and applying theoretical concepts to functional situations. Usually offered every term. *Prerequisite:* MGT 301.

MGT 303 Management and Leadership Development (3); annually. Develops the managerial leadership and organizational perspectives essen-

tial to the success of small to large businesses and individual managers. Development of the management and organization, and the leadership, creativity and innovation are stressed. Enhancing the manager's communication and negotiation skills is a critical dimension to developing effective managers. Developing an understanding of management philosophy and values, and their practical impacts on managing a business is stressed. *Prerequisite:* MGT 301 and MGT 302.

MGT 306 Entrepreneurship (3); annually. Students study how to identify and evaluate entrepreneurial opportunities in a global context. Applications cover the creation and management of stand-alone ventures and those developed within corporations. Various simulation and case study techniques are employed to provide the student with an entrepreneurial environment. *Prerequisite:* FIN 301.

MGT 403 Project Management (3); annually. Students examine business decision-making theories and practices appropriate to information systems development and re-engineering projects involving large-scale, complex systems. They use tools to facilitate the monitoring and prioritizing of external and internal project activities such as modeling decisions, evaluating risks, defining opportunities and identifying alternative courses of action and reaction to unplanned events. *Prerequisite:* FIN 301 and MIS 201.

MGT 406 Business Policy and Strategy (3); annually. Integration of knowledge in functional areas of business and in the simulation of management experiences. Various methods of simulating a management environment are employed, including *live* case studies and computerized management problems. Students will analyze a corporation chosen by the faculty of the School of Business and Management and will present their findings to members of the UAE business community and to members of the AUS faculty. *Prerequisite:* fourth year (senior) standing.

Management Information Systems

MIS 201 Fundamentals of Management Information Systems (3); annually. Covers information as an organizational resource. Topics include: decision making frameworks, transaction processing systems, decision support systems, external information systems, office automation, competitive information systems and financial systems. A technology update is provided in hardware and software basics, database management and telecommunications. *Prerequisite:* ITC 101.

MIS 301 Programming Concepts (3); annually. Basic concepts of computer programming and graphical user interfaces. Development of the algorithmic models used in constructing modern applications. *Prerequisite:* MIS 201.

MIS 302 Introduction to Systems Analysis (3); annually. Traditional analysis, design through a data flow analysis and the system development life cycle approach. Methods for structured analysis and design are covered. Data structures, definitions and normalization are also addressed. Emphasis is on gaining an ability to use the various tools associated with systems analysis. *Prerequisite:* MIS 301 and MIS 302.

MIS 303 Database Management (3); annually. Managing and communicating the data resources using database principles and user oriented data languages. *Prerequisite:* MIS 301 and MIS 302.

MIS 401 Applied Systems Design (3); annually. This course builds on previous courses and allows students to apply the tools studied in MIS 302. The class follows the life cycle process to produce specifications for a current system, develop the physical design for the system and, to the extent possible, implement the system. The use of project teamwork is emphasized. *Prerequisite:* MIS 303.

MIS 404 E-Commerce (3); annually. An overview course that examines how the internet and

the World Wide Web are used for marketing and business purposes. Students will study well-established US and UAE companies that have established a marketing presence on the internet. Projects include building a web site to market a specific product and establishing a simulated business on the internet. *Prerequisite:* FIN 301 and MIS 201.

Marketing

MKT 201 Principles of Marketing (3); annually. Students are introduced to the concept of making marketing decisions in business and in non-profit organizations. Particular attention is devoted to analyzing customer needs; segmenting markets; and developing product, promotion, pricing and distribution strategies. Relationships between consumers, business and government are explored. *Prerequisite:* ACC 201, ECO 201 and ECO 202 .

MKT 301 Consumer Behavior (3); annually. Study of marketing, psychology, sociology, and cultural anthropology to determine motivations for product purchases. A multimedia approach is used to illustrate the use of behavioral science theory to create new products and promotional campaigns. Students learn to analyze consumer decisions for products or services and to determine effectiveness of information provided by government and other organizations. *Prerequisite:* MKT 201 and STA 202.

MKT 302 Marketing Research (3); annually. This course examines research tools students can use to aid them in making marketing decisions. Students learn to define research problems, to select projects and to analyze data. The execution of a consumer survey is a major component of the course. Students use computer statistical packages to analyze research data. *Prerequisite:* MKT 201 and STA 202.

MKT 303 Strategic Marketing (3); annually. An analysis of current marketing management

issues. Students develop a marketing plan for an outside organization, analyze case studies and participate in computer simulation exercises. *Prerequisite:* MKT 301, MKT 302 and MIS 201.

MKT 304 Sales Management (3); annually. An introduction to professional sales force management. This course is designed to develop student skills in planning a sales program, organizing the selling effort and in recruiting, training and motivating the sales force. *Prerequisite:* MKT 201.

Mathematics

MTH 001 Preparatory Mathematics (5-0-0); a pre-Calculus course; every semester. Polynomials, functions, exponents and logarithms, coordinate geometry and graphing, conic sections, trigonometry, complex numbers, vectors and their addition, sequences and series, elements of statistics and probability.

MTH 002 Preparatory Business Mathematics (5-0-0); every semester. This course is preparatory to MTH 101 Mathematics for Business. It covers integers and variable expression, fractions, decimals and real numbers, polynomials, ratio and proportion, percentage, geometry and application.

MTH 100 Fundamentals of Logic and Geometry (3-0-3); every semester. This course covers logic and set theory, and geometry in the plane and space. Topics include: fundamentals of inductive and deductive reasoning, propositional and first order logic; sets, relations and functions; Euclidean and Analytical geometries in 2 and 3 dimensions; linear transformations and quadratic forms. The course makes extensive use of computer algebra systems and drawing software.

MTH 101 Mathematics for Business I (3-0-3); every semester. Sets, relations and functions. Analytic geometry: Straight lines, the circle, the ellipse, the parabola and hyperbola. Trigo-

nometric, exponential, logarithmic, and inverse functions. Differentiation: Rate of change, the derivative and Taylor approximation, the chain rule. For all business students in first semester. *Prerequisite:* MTH 001 or placement.

MTH 102 Mathematics for Business II (3-0-3); every semester. Sequences, series and power series. Functions of more than one variable, partial differentiation, applications to maxima and minima of functions with two variables. Indefinite and definite integrals, methods of integration, applications. Linear equations. Matrix algebra and applications. For all business students in second semester. *Prerequisite:* MTH 101.

MTH 103 Calculus I (4-1-4). Limits, continuity, derivatives and applications. Antiderivatives; the fundamental theorem of calculus. Applications of integration. The course has a computer laboratory component. *Prerequisite:* MTH 002 or placement.

MTH 104 Calculus II (4-1-4). Transcendental functions; exponential and logarithmic functions; trigonometric functions. Techniques of integration; indeterminate forms; infinite series; Taylor series; Parametrized Curves, polar coordinates. The course has a computer laboratory component. *Prerequisite:* MTH 103.

MTH 111 Mathematics for Architects (3); annually. Similar to MTH 100, Logic and Geometry, with increased emphasis on solid and analytical geometry. Includes an introduction to calculus sufficient to meet the practical and conceptual requirements of ARC 240. Taught in the Department of Mathematics.

MTH 203 Calculus III (4-1-4); annually. Calculus of functions of several variables. Vectors and analytic geometry of three dimensional space; partial derivatives, gradients, directional derivatives, maxima and minima; multiple integrals; line and surface integrals, Green's Theorem, Divergence Theorem, and Stokes' Theorem. The course has a computer laboratory component. *Prerequisite:* MTH 104.

MTH 205 Differential Equations (3-0-3); annually. Theory, methods of solution, and applications of ordinary differential equations with an emphasis on first order equations and linear equations. Additional topics from power series solutions, Laplace transforms, linear systems and numerical methods. *Prerequisite:* MAT 203.

MTH 213/CMP 213 Discrete Mathematics (3-0-3); annually. The course covers logic, counting, relations and function, graph theory and Boolean algebra. *Prerequisite:* MTH 103.

MTH 221 Linear Algebra (3-0-3); annually Systems of linear equation, algebra of matrices. Linear transformations, determinants, vector spaces, inner product spaces, eigenvalues and eigenvectors, diagonalization and orthogonality. Special matrices. Applications. *Prerequisite:* MTH 104.

MTH 311 Advanced Calculus I (3-0-3); annually. The real number system. Rigorous presentation of limits, continuity, differentiability and Taylor's theorem for functions of a real variable. Definition, existence and properties of the Riemann integral. *Prerequisite:* MTH 203.

MTH 313 Number Theory and its Applications (3-0-3); annually. Introduction to the theory of numbers motivated by applications. Primes and divisibility; the Euclidean algorithm; linear congruencies and the Chinese Remainder Theorem; Fermat's Little Theorem; continued fractions and Farey sequences. Applications to cryptology, computer arithmetic, random number generators and primality testing. Possible additional applications to computer science, physics, communication, music. *Prerequisite:* MTH 213.

MTH 314 Combinatorics (3-0-3); annually. Techniques for counting configurations of objects. Recurrence relations; principle of inclusion-exclusion; graphs, trees and circuits. Additional topics chosen from Polya's Theorem, generating functions and network flows. *Prerequisite:* MTH 213.

MTH 321 Modern Algebra I (3-0-3); annually. Study of group theory and introduction to rings.

Groups, subgroups, normal subgroups, quotient groups, homomorphisms. Permutation groups, matrix groups, symmetry groups. Definition and examples of rings. *Prerequisite:* MTH 213 and MTH 221 or consent of instructor.

MTH 322 Modern Algebra II (3-0-3); annually. Elementary properties of rings, integral domains, ideals, homomorphisms, quotient rings and fields. Rings of polynomials and factorization of polynomials over a field; unique factorization domains; Einstein's irreducibility criterion; field extensions; the isomorphism extension theorem; the primitive element theorem; geometric constructions by ruler and compass; introduction and illustrations of Galois theory. *Prerequisite:* MTH 321.

MTH 341 Numerical Computing (3-0-3); annually. An introduction to the numerical algorithms fundamental to scientific computer work. Includes elementary discussion of error; root finding; approximation of functions; numerical integration and differentiation; solving initial value problems in ordinary differential equations. The algorithmic approach and the efficient use of the computer are emphasized. *Prerequisite:* CMP 120 and MTH 204.

MTH 351 Methods of Applied Mathematics I (3-0-3); annually. Fourier series. The Fourier transform, inverse Fourier transform. The Laplace transform. The inversion integral for the Laplace transform (complex contour integration). Applications of Laplace transform to linear ordinary, partial differential and integral equations. The z-transform. The inversion integral for the z-transform. Applications of z-transform to difference equations and linear networks. *Prerequisite:* MTH 205.

MTH 352 Methods of Applied Mathematics II (3-0-3); annually. Review of basic complex variable analysis; asymptotic expansions; ordinary linear differential equations; Sturm-Liouville theory; eigenfunction expansions; integral transforms; special functions; integral equations; introduction to partial differential equations; elementary theory of nonlinear differential equa-

tions. *Prerequisite:* MTH 351.

MTH 411 Advanced Calculus II (3-0-3); annually. Theory of sequences and series of numbers and functions; power series. Topological structure of R^n ; continuity, differentiation, and integration of real functions of several variables; chain rule; Taylor's theorem; Fubini's theorem; differentiation of integrals involving a parameter. *Prerequisite:* MTH 311.

MTH 412 Complex Variables (3-0-3); annually. A first study of functions of a complex variable. Algebra of complex numbers, elementary functions with their mapping properties; analytic functions; power series; integration, Cauchy's Theorem, Laurent series and residue calculus; elementary conformal mappings and boundary value problems.

MTH 421 Applied Matrix Theory (3-0-3); annually. Review of the theory of linear systems. Eigenvalues and eigenvectors. The Jordan canonical form. Bilinear and quadratic forms. Matrix analysis of differential equations. Variational principles and perturbation theory: the Courant min-max theorem, Weyl's inequalities Gershgorin's theorem, perturbations of the spectrum, vector norms and related matrix norms, the condition number of a matrix. *Prerequisite:* MTH 221.

MTH 425 Graph Theory (3-0-3); annually. Graphs and subgraphs. Connected and disconnected graphs. Matrices, trees and girth. Planar and nonplanar graphs. Graph embeddings. Connectivity and edge connectivity. Hamiltonian graphs. Matchings, factorization and coverings. Networks. Applications to science and engineering. *Prerequisite:* MTH 221.

MTH 426 Differential Geometry (3-0-3); annually. Theory of curves and surfaces in Euclidean space. Frenet formulas, curvature and torsion, arc length; first and second fundamental forms, Gaussian curvature, equations of Gauss and Codazzi, differential forms, Cartan's equations; global theorems. *Prerequisite:* MTH 411.

MTH 431 Dynamical Systems (3-0-3); annually. Second order differential equations in phase

plane. Linear systems and exponential operators, canonical forms. Stability of equilibria. Lyapunov functions. The existence of periodic solutions. Applications to various fields. *Prerequisite:* MTH 221 and MTH 205.

MTH 432 Partial Differential Equations (3-0-3); annually. Theory of partial differential equations and boundary value problems with applications to the physical sciences and engineering. Detailed analysis of the wave equation, the heat equation and Laplace's equation using Fourier series and other tools. *Prerequisite:* MTH 351 and MTH 352.

MTH 441 Numerical Linear Algebra (3-0-3); annually. Direct and iterative methods for solving general and special systems of linear equations. Includes LU decomposition; Choleski decomposition; nested dissection; Jacobi; Gauss-Seidel; successive overrelaxation; Alternating directions; and conjugate gradient iterative methods. *Prerequisite:* MTH 221 and MTH 341.

MTH 442 Numerical Solutions of Ordinary Differential Equations (3-0-3); annually. Theory of numerical techniques for linear and nonlinear initial and boundary-value and eigenvalue problems. The discussion of the numerical techniques will focus on consistency, accuracy, stability, stiffness, numerical efficiency, etc. Stiff equations and multiple time scales. Computer assignments will be given. *Prerequisite:* MTH 441.

MTH 443 Numerical Solutions of Partial Differential Equations (3-0-3); annually. Computationally efficient schemes for solving PDE numerically; stability and convergence of difference schemes, method of lines; fast direct and iterative methods for elliptic equations. *Prerequisite:* MTH 442.

MTH 450 Special Functions (3-0-3); annually. Infinite products, gamma and beta functions, asymptotic series, the hypergeometric function, generalized hypergeometric functions, Bessel functions, generating functions; polynomials of legendre, Hermite, Laguerre, and Jacobi; elliptic functions, theta functions, Jacobian elliptic func-

tions. *Prerequisite:* MTH 311.

MTH 451 Principles of Applied Mathematics (3-0-3); annually. Mathematical modeling of boundary value problems of partial differential equations. Formulation of Dirichlet and Neumann problems. Green's function. Asymptotic analysis of solutions. Perturbation techniques. Introduction to integral equations. Volterra and Fredholm equations. Solutions by Neumann series. Connection with eigenvalue problems. *Prerequisite:* MTH 351.

MTH 452 Hilbert Space Methods in Applied Mathematics (3-0-3); annually. Foundations of the abstract theory of linear operators in Hilbert spaces, Banach spaces and topological linear spaces. Application of abstract theory in constructing computational techniques (method of Rayleigh-Ritz) in eigenvalue problems associated with linear differential and integral equations arising in physical applications. *Prerequisite:* MTH 311.

MTH 453 Green's Function Structures and Methods for Application (3-0-3); annually. Continuation of MTH 452. Theory of distributions (Dirac Delta function) and Green's functions. Applications in the solution of boundary value problems for linear partial differential equations arising in physical applications. Integral equations in several independent variables. Method of characteristics in solving partial differential equations. *Prerequisite:* MTH 452.

MTH 460 Mathematical Logic (3-0-3); annually. The formal study of truth and provability. Propositional calculus; predicate calculus. Godel's completeness theorem, applications to formal number theory and incompleteness. Additional topics chosen from areas such as undecidability or nonstandard analysis. *Prerequisite:* MTH 321.

MTH 462 Topics in Mathematics (3-0-3); annually. Topics of current interest in mathematics not covered in existing courses. May be repeated under a different subtitle. *Prerequisite:* third or fourth year (junior or senior) standing and permission of instructor.

MTH 470 Modeling and Simulation (3-0-3); annually. Basic principles of modeling and simulation, description and treatment of deterministic and random processes, computational methods and applications with emphasis on the use of microcomputers. The course will include a major project. *Prerequisite:* MTH 204.

MTH 481 Calculus of Variations and Control Theory (3-0-3); annually. An introduction to the classical theory of calculus of variations. Necessary and sufficient conditions for optimality. The Pontryagin maximum principle. Dynamic programming in continuous-time and Hamilton-Jacobi theory. Introduction to control theory. The linear regulator problem. *Prerequisite:* MTH 204.

MTH 482 Linear Programming (3-0-3); annually. Methods and applications of optimizing a linear function subject to linear constraints. Theory of the simplex method and duality; parametric linear programs; sensitivity analysis; modeling and computer implementation. *Prerequisite:* MTH 221.

MTH 483 Discrete Optimization (3-0-3); annually. Theory and applications of discrete optimization algorithms. Transportation problems and network flow problems; integer programming; computer implementation. *Prerequisite:* MTH 482.

MTH 484 Optimization by Vector Space Methods (3-0-3); annually. Introduction to normed, Banach and Hilbert spaces; applications of the projection theorem and the Hahn-Banach theorem to problems of minimum norm, mathematical programming, and optimal control; the Kuhn-Tucker theorem and Pontryagin's maximum principle; introduction to iterative methods. *Prerequisite:* MTH 311.

MTH 491 Independent Study (1-6); annually. Involves investigation under faculty supervision beyond what is offered in existing courses. *Prerequisite:* third or fourth year (junior or senior) standing and consent of instructor.

MTH 495 Seminar in Mathematics (3-0-3); annually. Investigation of and an oral report on a mathematical topic under the direction of a faculty member. Within the first four weeks of the semester enrolled, the student must submit an outline of the proposed work to the Mathematics Advisory Committee for approval. *Prerequisite:* third or fourth year (junior or senior) standing and consent of instructor.

Mechanical Engineering

MCE 231 Manufacturing Techniques (3); annually. Manufacturing processes: casting, forming turning, drilling, milling, etc. Joining processes and equipment. Surface technology. Introduction to quality assurance and inspection. Introduction to CIM. *Co-requisite:* NGN 231.

MCE 235 Computational Techniques (3); annually. Use of computational techniques for solving engineering problems with the aid of a digital computer. Problems will be drawn from all fields of interest to mechanical engineers. The computational techniques include: solution of linear and transcendental simultaneous equations, solutions of ordinary and partial differential equations, numerical integration and differentiation, matrix and vector manipulation, roots of polynomials, least-squares approximation and interpolation. *Prerequisite:* MTH 104.

MCE 241 Thermodynamics I (3); annually. First and second laws of thermodynamics standard cycles. Steam properties, processes and cycles. *Prerequisite:* PHY 102.

MCE 311 Engineering Measurements (1); annually. Introduction to techniques of engineering measurements. Data acquisition and processing systems. Calibration of instruments, response time and error analysis. Measurements of basic physical quantities (force, stress, strain, temperature, pressure, velocity, flow rate, heat flux,

surface irregularities, frequency). *Prerequisite:* PHY 102.

MCE 316 Mechanisms (3); annually. Introduction to mechanisms and their design philosophy. Application of graphical, analytical and computer aided techniques for analysis of displacement, velocity and acceleration of linkages. Force analysis in mechanisms. *Prerequisite:* NGN 222.

MCE 321 Mechanical Design I (3); annually. Working stresses. Design of fasteners, power screws, friction belts, wire ropes, shafts, couplings and welded connections. Dynamic loading and fatigue. Stress concentration. *Prerequisite:* NGN 223.

MCE 322 Mechanical Design II (3); annually. Power transmission equipment: shafts, bearings and gears. Brakes and clutches. Role of computers in the design process. *Prerequisite:* MCE 321.

MCE 344 Heat Transfer I (3); annually. Steady-state conduction in various geometries. Transient conduction. Forced and natural convection. Analysis of heat exchangers. Radiation. *Prerequisite:* NGN 241.

MCE 418 Modeling and Control of Engineering Systems (3). Introduction. Mechanical systems. Mathematical models. analytical solutions of system input-output equations. Numerical methods. simulation of dynamic systems. Electrical systems. Thermal systems. Fluid systems. mixed systems. System transfer functions. Frequency analysis. System Stability. Control Systems. Discrete-time systems. Digital Control Systems.

MCE 423 Mechanical Vibrations (3); annually. Systems with single and multiple degrees of freedom. Damped and undamped free vibrations. Forced vibrations. Eigenvalues and eigenvectors of multiple degrees of freedom system. *Prerequisite:* MTH 205 and NGN 222.

MCE 435 Mechanical Failure Analysis (3). Dislocation theory and strengthening mechanism, mechanical behavior of engineering materials, ductile and brittle fractures, fracture mecha-

nisms, fatigue, creep, modes of mechanical microstructure characteristics, visco-elasticity and mechanical behavior of polymeric materials, case histories in failure analysis, practical case studies. *Prerequisite:* MCE 321.

MCE 439 CIM in Industrial Systems (3). Introduction to the development of control systems. Developments in manufacturing systems. Programming principles of NC and CNC systems. Manufacturing cells. Flexible manufacturing systems. Control of flexible manufacturing systems. *Prerequisite:* MCE 231.

MCE 445 Energy Systems (3); annually. Gas turbine power plants. Steam power plants. Power plant components: boilers, condensers, evaporators, turbines, etc. Energy balance and performance of power plants. *Prerequisite:* MCE 241.

MCE 446 Refrigeration and Air Conditioning (3); annually. Basic refrigeration concepts. Refrigeration fluids, loads, cycles, equipment and applications. Air conditioning systems. Psychometric charts. Air duct design. *Prerequisite:* MCE 445.

MCE 447 Internal Combustion Engines (3). Internal versus external combustion engines. Automotive engines: air standard cycles, fuels and combustion, combustion in spark ignition and compression ignition engines, actual gas cycles, supercharging, knocking, fuel rating. Gas turbine engines: actual cycles, optimum operation, application to turbo-fan, turbo-prop, and turbojet engines. Non-conventional engines. *Prerequisite:* MCE 241.

MCE 448 Heat Transfer II (3). Advanced conduction: Basic equation and boundary conditions, analytical and numerical solutions of transient 1-D conduction and steady 2-D conduction. Convection: Basic relations of convection, analytical solutions of some simple flows (forced and natural convection). Heat transfer in condensing and boiling processes. Finite difference analysis of heat transfer problems. Radiation: energy exchange by radiation, advanced topics in radiation. *Prerequisite:* MCE 344.

MCE 449 Renewable Energy Systems (3). Solar radiation. Collectors and concentrators. Solar heating for domestic and industrial uses. Passive heating and cooling of buildings. Solar refrigeration. Solar desalination. Solar pumping. Solar electricity (PV-central receiver systems). Solar ponds. Wind energy. Statistical description of wind. Weibul distribution. Maximum power obtainable from the wind. Horizontal and vertical-axis wind turbines. Ocean tides. Ocean waves OTEC. Biomass and biogas. Geothermal energy. Economic evaluation of renewable energy systems and comparison with conventional and/or alternative power generating systems. *Prerequisite:* MCE 344.

MCE 464 Introduction to Robotics (3). Overview of robotics. Robot coordinate systems. Direct and inverse kinematics. Introduction to manipulator dynamics. Robot sensors and control strategies. Introduction to force control and compliance. Requirement of digital control of robots. *Prerequisite:* fourth year (senior) standing.

MCE 473 Applied Finite Element Analysis (3). Introduction to the finite element method, application in various engineering field problems, familiarization with commercially available finite element packages, hands-on experience. *Prerequisite:* fourth year (senior) standing.

MCE 476 Design Optimization (3). Outline of classical design methods. Introduction to the formulation of optimization Problems. Mathematical optimization. Optimal design methods. Practical design considerations. Term project. *Prerequisite:* fourth year (senior) standing.

MCE 477 Composite Materials (3). Advanced composite materials and applications. Stress-strain relationship for an orthotropic lamina. Laminate analysis. Static strength of laminates. Delamination, matrix cracking, and durability. Introduction to analysis of plates. Analysis of laminated beams. Design examples. Computer programs. *Prerequisite:* NGN 231.

MCE 492 Advanced Fluid Mechanics (3). Compressible flow: fundamental concepts, isentropic compressible flow with area change, normal

shock waves, performance of nozzles, frictional flow in constant-area ducts (Fanno flow), flow in constant-area ducts with heat transfer (Rayleigh Flow). Potential flow: stream function, velocity potential, and solution of simple flows. Viscous flow: differential formulations, solution of simple flows, introduction to the numerical solution of 2-D viscous flows. Use of commercial CFD software. *Prerequisite:* NGN 241.

MCE 493 Turbomachines (3). Classification of turbomachines, dimensional analysis, specific speed, prototype and model testing, basic laws. Incompressible flow turbomachines: centrifugal and axial flow pumps, Euler's theory, characteristics and laboratory testing, cavitation in pumps, hydraulic turbines, and system matching. Compressible flow turbomachines: centrifugal compressors and fans, impeller and diffuser design optimum design of compressor inlet, choking in a compressor stage axial flow compressors and turbines, reaction ratio, stage loading, stage efficiency, radial flow turbines. *Prerequisite or Co-requisite:* MCE 492.

MCE 495 Selected Topics in Mechanical Engineering (3). Selected topics that meet student interests and reflect recent trends in the field of energy systems.

MCE 499 Design Project (4); annually. A project concerned with the design, manufacture and testing of a complete system of current interest to mechanical engineering is conducted under the supervision of a faculty member over a period of two consecutive semesters. Students may work individually or in small groups, and emphasis is placed on original work. Students will undertake literature searches on their problem, devise analytical, computational and/or experimental solutions, and design and build their own test-rig with the supervisor acting as their consultant. They are required to present their findings at the end of the project in the form of a seminar and in a formal written report. They are also required to present a seminar on their progress every semester. *Prerequisite:* fourth year (senior) standing within three semesters of graduation.

Multimedia

Descriptions for Multimedia courses that are to be taught in the 1998-99 academic year are listed below. Additional course titles are also listed and the curriculum for these courses will be provided in subsequent catalogs as the curriculum develops.

MUM 201 Multimedia Studio I (4); annually. Students will study desktop graphic design processes for a variety of media, including presentations, electronic publications, CD ROMs and the internet. *Prerequisite:* DES 112.

MUM 202 Multimedia Studio II (4); annually. Students continue studying graphic design processes employing simulation, animation and interactive approaches using a variety of databases. *Prerequisite:* MUM 201.

MUM 210 Sound and Video Basics (3); annually. This practical course familiarizes students with the basics of sound and video recording. Students learn to operate sound and video equipment such as field recorders, 4-track studio recorders, mixing boards, equalizer and microphones. The emphasis is on hands-on practice in planning and producing videotaped footage for documentary and advertising purposes. *Corequisite:* MUM 202.

MUM 211 Documentary Production (3).

MUM 212 Reporting the News (3).

MUM 301 Multimedia Studio III (4).

MUM 302 Multimedia Studio IV (4).

MUM 311 Interview Production (3).

MUM 312 Advertising Workshop (3).

MUM 400 Final Project Research (3).

MUM 401 Multimedia Studio V (4).

MUM 402 Final Project Studio (4).

MUM 410 Interactive Media (3).

MUM 411 The Media Industry (3).

MUM 412 Regional Media (3).

MUM 413 Media Marketing (3).

Philosophy

PHI 201 Introduction to Philosophy (3); each semester. This course introduces students to basic doctrines and concepts in philosophy. The focus is on the analytical reading of selections from Western philosophers whose writings have had a major impact on the development of philosophical discourse. Furthermore, the course deals with the relationship of philosophy to other disciplines, such as history, theology, politics, ethics, science and literature. It also outlines the major and perennial issues in the study of philosophy.

PHI 202 Introduction to Islamic Philosophy (3); annually. This course is an introductory survey of the works of major philosophers in Islam, such as Al-Ghazali, Ibn Rushd, the Sufis, and a few others. Emphasis will be placed on the analysis of their religious and philosophical doctrines.

Photography

PHO 200 Photography Basics (3); annually. Introduction to basic photo skills and to some of the issues associated with the practice and the history of photography. The course covers camera operation, black and white film developing, contrast control, depth of field, focal length and print finishing.

PHO 201 Intermediate Photography (3); annually. This course is a follow-up to Photography Basics. It is intended to further develop technical skills and personal vision. Landscape-nature photography and portraiture will be the focus. Portfolio preparation and medium format cameras will also be covered. *Prerequisite:* PHO 200.

PHO 300 Photography for Communication (3); annually. This course explores photographic manipulation. Through computer programs such as Adobe Photo-Shop and Darkroom image manipulation, students explore the ramifications of working with image and text juxtapositioning and superimposing. The course is designed to further develop creative vision. Advanced printing skills and portfolio preparation will also be covered. Various applications of photography will be introduced and explored such as Advertising, Documentary, Studio and Fashion. *Prerequisite:* PHO 200.

PHO 310 Photo-Journalism (3). This course explores the history and practice of Photo-Journalism. Students are expected to have sound black and white technical skills as the course focuses on developing personal awareness and vision within the medium of photography. Through a series of slides, lectures and small photographic assignments, the course will explore the tradition of Photo-Journalism. Students will investigate subject matter through the development of the photographic essay. *Prerequisite:* PHO 200.

Physics

PHY 001 Preparatory Physics (5-0-0); every semester. A preparatory course designed to teach concepts of physics in mechanics, wave behavior, thermodynamics, electricity and magnetism, light and optics and selected topics in modern physics. The course will give students an opportunity to review algebra and trigonometry in problem-solving. An introduction to vector analysis and calculus will also be presented via problem-solving.

PHY 100 Conceptual Physics (3-0-3); annually. An introductory course for non-science and non-engineering majors designed to give the student an understanding of the basic concepts of physics, models and the scientific method of reasoning based on experimentation. The course presents a conceptual view of physics, straight-

forwardly descriptive and without complex mathematics. The course covers selected topics in kinematics, dynamics, motion in two directions, momentum, energy, electricity and magnetism, waves and light and modern physics.

PHY 101 General Physics I (3-3-4); every semester. A calculus-based introductory course for scientists and engineers covering the fundamental principles, laws and concepts of physics. The course will cover mechanics, mechanical waves and thermodynamics. Laboratory includes experiments illustrating the principles, laws and concepts discussed in the course. *Prerequisite:* PHY 001 or placement.

PHY 102 General Physics II (3-3-4); every semester. A continuation of General Physics PHY 101. Topics to be covered are electricity and magnetism, light and optics, and selected topics in modern physics. Laboratory includes experiments illustrating the principles, laws and concepts discussed in the course. *Prerequisite:* PHY 101.

PHY 103 Astronomy (3-0-3); every semester. This course presents a broad view of descriptive astronomy without complex mathematics. The course consists of: charting the heavens, studying the celestial coordinates and the motion of heavenly bodies, and studying the tools of astronomers. It also includes studying our planetary system, stars and stellar evolution, galaxies and cosmology.

PHY 104 Physics for Architects (4); annually. A general physics course, based on algebra and elementary calculus, with selected emphases appropriate to the background and needs of architecture students. Mechanics: kinematics, momentum, acceleration, friction, heat transfer. Optics: reflection, refraction, dispersion, interference, geometrical optics. Sound: general principles of acoustic phenomena, including the propagation, transmission, amplification and attenuation of sound energy. Structure of wave-forms: amplitudes and frequencies. Taught in the Department of Physics. *Prerequisite:* MTH 111 or consent of the instructor.

PHY 105 Physics for Business Students (3);

annually. Pure and applied research, examples (astrophysics, special and general relativity, examples of technological developments), technology transfer, scientific patent development and interpretation, general techniques of technology protection.

PHY 201 Electricity and Magnetism (4); annually. This course is an introduction to the basic principles of electricity and magnetism including the contributions of Gauss, Ampere, Maxwell, etc. It also covers electromagnetic propagation, antenna design, RF design techniques, microwaves, radio wave transmission and reception, etc.

PHY 202 Modern Physics I (3); annually. This covers a wide range of highly relevant topics such as: quantum mechanics, solid state physics, laser physics, spectroscopy, superconductivity, nuclear physics, special relativity and general relativity. It is recommended that students taking this course have a sound mathematical ability.

PHY 203 Modern Physics II (3); annually. Continuation of PHY 201 Modern Physics I. *Prerequisite:* PHY 201.

government, public administration, the nature of foreign policy, relations between states, the international system and international organizations.

POL 202 International Relations (3); annually. This course examines the basic factors and considerations which determine or influence relations among governments and states, such as the United Nations Charter, foreign policy, national economic and political power, and military and trade conflicts.

POL 203 Islamic Political Philosophy (3); annually. This course surveys Islamic political thought from the time of Prophet Mohammad until the early years of the twentieth century. Emphasis will be placed on the establishment and growth of institutions in the Islamic state and on Ibn Khaldun's views on history and the state.

POL 204 International Political Economy (3); annually. This course examines the effect of economic conditions of major world powers on foreign policy directions and decisions. Emphasis will be placed on such concepts as imperialism, global economic systems and international market considerations.

Political Science

(See Politics)

Politics

POL 201 Introduction to Political Studies (3); annually. This course is designed to introduce students to the science of politics. It aims at explaining the nature of government and politics and exposing basic ideas, concepts, doctrines, principles and schools of thought that help in the understanding of the structures and processes of political units. The course will cover numerous topics, including the nature and scope of political studies, the nature of the state, the forms of

Psychology

PSY 101 General Psychology (3); each semester. This course includes a general survey of Psychology. Topics include research methods, the nature of psychological phenomena, physiological bases of behavior, life-span development, altered states of consciousness, sensation, perception, learning, conditioning, memory, language, thinking, motivation, emotion, personality, individual differences, conflict and stress, abnormal behavior, therapeutic techniques and social psychology.

PSY 102 Social Psychology (3); each semester. This course focuses on the impact of group dynamics on individual behavior. Topics to be discussed include the nature and methodology of social psychology research and various major

theoretical concepts, including childhood development and socialization, causality attribution, attitude formation, anti-social behavior, interpersonal attraction and intimacy, and the social effects and function of groups. Particular emphasis will be placed on the application of social psychology concepts in the workplace.

Sociology

SOC 101 Introduction to Sociology (3); each semester. This course is designed to acquaint students with the fundamentals of sociology. It covers major topics and issues in contemporary sociology such as culture and society, socialization, social interaction, social structure, groups and organizations, social inequality, gender and the family, social institutions, and population and the environment. The course encourages students to think about sociology in a very broad sense by providing them with the latest conceptual and theoretical paradigms in the field of sociology. In addition, the course covers the process of globalization and integration of human societies throughout the world.

SOC 201 Globalization (3); annually. The process of globalization is well underway on all levels of the world's society. It is a new stage in world history, with profound socio-political impacts on all cultures. This course attempts to explore the economies of globalization, technological advancement, the role of the information revolution, the regionalization of the world and the internalization of cities. This course also reviews the opportunities and the challenges of this process with a special emphasis on the impact of globalization on UAE society, particularly in relation to oil, new technologies and its integration into the world market.

SOC 202 Communication and Society (3); annually. This course surveys the theories of communication and mass communication.

SOC 203 Arab Culture and Society (3); annually. This course examines, after a brief historical

background, the main features of the contemporary Arab world: its geography, population, natural resources, culture and social structure. It emphasizes the complexity, diversity and internal dynamics of society and investigates the process, agents and problems of social, political and economic development. The course includes such topics as orientalism, religion, identity, minorities, social values, women and the family, urbanization, regional migration and brain drain.

SOC 204 The Socio-Economics of Arab States (3); annually. This is an introductory course to the Arab states and societies. It includes the historical roots of Arab states, and the impact of the West on the Arab world. It also deals with the process of modernization. The course gives a theoretical introduction to the formation of states in the Arab world and concentrates on contemporary Arab socio-economic issues affecting social structure. It gives detailed attention to major institutions in the Gulf, the Mashreq and the Maghreb regions of the Arab world.

SOC 205 UAE Society (3); annually. This is a general course that provides basic information concerning contemporary social life in the UAE. The UAE, like most Arab Gulf societies, is one of a kind in terms of its demographic nature, social change, and the acute gap between the traditional and the modern structure of society. This course attempts to understand this phenomenon. It reviews the developments of the last 25 years since the establishment of the UAE, and examines some of the important social issues such as the family, migration, population, women, youth and the development of civil society. These issues are studied in the context of social change and under the impact of oil wealth. It raises critical questions of changing values, norms and identity.

SOC 210 Architecture and Society (3). (This course description will be provided as the curriculum develops).

Statistics

STA 201 Introduction to Statistics (3-0-3); every semester. Descriptive statistics; probability distributions, estimation; hypothesis testing; non-parametric tests; normal, chi-squared, t- and F- distributions; mean and variance tests; regression and correlation; and the use of statistical computer software.

STA 360 Engineering Statistics (3-0-3); every semester. Calculus-based survey of statistical techniques used in engineering. Data collection and organization, basic probability distributions, sampling, confidence intervals, hypothesis testing, process control, simple regression techniques, design of experiments. Emphasis on examples and applications to engineering, including product reliability, robust design and quality control. *Prerequisite:* MTH 203.

STA 361 Probability and Statistics I (3-0-3); annually. Introduction to descriptive statistics, random variables and probability distributions. Topics include descriptive statistics, data collection, graphical methods, measures of location, measures of dispersion; sample spaces, probability rules, conditional probability, Bayes' theorem; discrete and continuous random variables, probability distributions, mathematical expectation, Tchebyshev's theorem; common discrete and continuous probability distributions with applications. *Prerequisite:* MTH 103.

STA 362 Probability and Statistics II (3-0-3); annually. Introduction to statistical inference. Topics include joint, conditional and marginal distributions; covariance; functions of random variables, moment generating functions, sampling distributions, central limit theorem; point and interval estimation; hypothesis testing; contingency tables and goodness of fit test. *Prerequisite:* MTH 104 and STA 361.

STA 461 Stochastic Processes (3-0-3); annually. The formulation, analysis and interpretation of probabilistic models. Selected topics in probability theory. Conditioning, Markov chains and

Poisson processes. Additional topics chosen from renewal theory, queuing theory, Gaussian processes, Brownian motion, and elementary stochastic differential equations. *Prerequisite:* MTH 203 and STA 362.

STA 462 Time Series Analysis (3-0-3); annually. Transfer function models; stationary, nonstationary processes; moving average, autoregressive models; spectral analysis; estimation of mean, autocorrelation, spectrum; seasonal time series. *Prerequisite:* MTH 362.

STA 463 Mathematical Statistics (3-0-3); annually. A rigorous introduction to mathematical statistics. Univariate and multivariate probability distributions; conditional and marginal distributions; theory of estimation and hypothesis testing; limiting distributions and the central limit theorem; sufficient statistics and the exponential class of probability density functions. *Prerequisite:* MTH 203 and STA 362.

STA 465 Multivariate Statistics (3-0-3); annually. Multivariate normal distribution, Hotelling's T-square, Multivariate analysis of variance, principal components Factor analysis, Discriminant analysis, Discrimination and classification, Cluster analysis. The course has a computer lab component. *Prerequisite:* STA 361 and STA 362.

Translation

TRA 101 Introduction to Translation (3); every semester. This course aims to introduce students to basic theoretical concepts and techniques of translation and to help them develop elementary skills. Initiation to translation will be achieved by comparing translated texts. Arabic and English will be considered both as source and target languages.

TRA 102 Practical Issues in Translation (3); every semester. This course addresses, in some detail, the problems associated with various

aspects of translation. Some of the topics addressed include the definition of translation, its role in society, its various types and techniques, types of dictionaries and thesauruses, antonyms, idioms and fixed expressions, and proverbs. A functional review of translation into and from Arabic is also presented.

TRA 201 Theoretical and Practical Issues in Translation (3); every semester. This course addresses, in some detail, the problems and issues associated with the different types of translation. Some of the topics addressed are what translation is; its role, its various types and techniques; types of dictionaries, lexica, thesauruses, dictionaries of synonyms, antonyms, idiomatic expressions and proverbs; and a functional review of translation into and from Arabic.

TRA 203 Translation Practicum (3); every semester. This course involves students in translation exercises from English to Arabic and Arabic to English. Probing examination of model translations by accomplished translators will be undertaken through studying both the original and the translated texts.

TRA 301 Advanced Translation (3); annually. This course provides a close examination of major translation theories, both traditional and linguistic. It also examines the application of these theories to the practice of translation, both literary and technical, in Arabic and in English.

TRA 305 Cross-Cultural Issues in Translation (3); every semester. This course deals with the role of culture in translation. Some of the topics addressed are meaning equivalence, translation strategies and how culture affects meaning.

TRA 403 Special Topics in Translation (3); annually. This course examines translation practices based on modern linguistic theories beyond grammatical analysis. Notions of thematic structure, naturalness, acceptability and information flow in a text will be explored. It may also

look at how modern linguistic theory (LFG) has been used in Machine Translation.

TRA 405 Tutorial in Translation (3); every semester. This course is offered on demand. The instructor and the student agree on the topic requirements of the course.

Full-time Faculty

1998-1999 Academic Year

Abualrub, Taher, Ph.D., University of Iowa, 1998; Assistant Professor of Mathematics.

Abukhaled, Marwan, Ph.D., Texas Tech University, 1995; Assistant Professor of Mathematics.

Abu-Muhanna, Yusef, Ph.D., SUNY Albany, 1979; Associate Professor of Mathematics.

Abu-Sardaneh, Ezziddin, Ph.D., University of Leeds, 1988; Associate Professor of Engineering.

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STUDENT RESPONSIBILITY FOR CATALOG INFORMATION

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