Handbook (2020)

Information Science
College of Life Sciences
Kuwait University
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ABOUT THE DEPARTMENT

Information systems, technology, and computing are among the largest and fastest-growing fields in the world. Today’s labor market demands qualified professionals to manage information systems, networks, and software development projects. Since its inception, the Department of Information Science has a strong commitment to maintaining high-quality programs consistent with the overall mission of the University and the ever-changing demands of the profession through outcome-based learning programs based on recommendations of the Accreditation Board for Engineering and Technology (ABET). The Bachelor of Science program in Information Sciences obtained accreditation from ABET in General Computing. The ABET Self-evaluation report submitted by the Department was chosen among the 50 best reports worldwide for the year 2019.

The Information Science Department aims to provide a comprehensive and high-quality education graduates qualified professionals capable of realizing the desire of His Highness the Amir of the State of Kuwait and his vision “Kuwait 2035” which relies on the knowledge-based economy as well as meet the needs of the labor market locally, regionally and globally.

The Department of Information Science is characterized by highly qualified academic staff that aspire to qualify students to work in various areas of computing and information systems such as designing, developing, and managing information systems, software, websites, computer technologies, databases, networks, and cybersecurity. The Department also offers two graduate Master’s programs, the first in Computing Information Systems aimed at graduating highly professional students who are immersed in information systems and the latest developments in computing. The second in Information Technology, which attracts those interested in developing computing skills for non-specialists in the field.
DEPARTMENT OBJECTIVES

• Provide fundamental knowledge in information systems and technology through a strong foundation in programming, databases, information and communication technology, web development, information system design, information security, systems and networks, and technology project management.

• Organize various lectures and seminars in the field of information systems and technology. Additionally, students are exposed to field visits and external professional training to provide opportunities to observe the methods and performance of others through exchanging experiences.

• Create a dynamic academic environment that fosters creativity and innovation for students to develop their technical and leadership abilities to manage and develop new information system applications in a balanced mix of teaching, research, service, and a high level of awareness about professional ethics and the global community.

MISSION STATEMENT

The mission of the Department of Information Science is to graduate highly educated, well-rounded, and career-oriented professionals in computer information systems. Our outcome-based curriculum equips students with knowledge and skills enabling them to transform real-world data into knowledge using the latest concepts in information and communication technologies to develop applications that support decision making and serve the public and private organizations in the State of Kuwait.
UNDERGRADUATE PROGRAM EDUCATIONAL OBJECTIVES

I. Engage in productive careers with the knowledge of computing to develop, deliver, and manage information systems that support public and private organizations.

II. Excel in their work environment by communicating effectively, functioning effectively as a team, and practicing professional ethics with the sense of social responsibility.

III. Adapt to the challenges of the changing environment and the new technologies, and to continue professional development, broaden their professional knowledge, and/or pursue graduate studies.

STUDENT OUTCOMES

1. An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

2. An ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.

3. An ability to communicate effectively in a variety of professional contexts.

4. An ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

5. An ability to function effectively as a member or leader of a team engaged in activities appropriate to the program’s discipline.

6. An ability to support the delivery, use, and management of information systems within an information systems environment.
NATURE OF SPECIALIZATION

The Information Science curriculum offers students a strong foundation in principles, practice, and applications of information systems from a computing perspective. The curriculum focuses on the applications of modern methods and the latest information systems and computing concepts. Students are trained to develop, implement, and maintain information systems to successfully support the increasingly visible role of information systems in enterprise management and society. The emphasis is on the development, application, and administration of information systems rather than the engineering aspects of the computer to help organizations solve complex challenges smoothly and efficiently. Core technology areas include object-oriented programming, web programming, operating systems, computer networks, information security, system analysis and design, database management, and information system development.

The program of study also includes practical statistics, and discrete mathematics, and computer ethics. Additionally, students engage in internship programs and capstone projects where they acquire a range of applied technical and professional skills to develop, implement, and maintain information systems in a variety of organizations. The program also includes an "Environmental Electives" component, which provides students opportunities to focus on a specialized topic or area where information systems play a major role.
CAREER OPPORTUNITIES

The Department qualifies its graduates to work in various bodies and institutions in the public and private sectors, in addition to consulting offices, research centers, and regional and international organizations. We summarize some of the positions of the Department's graduates:

• Information systems developer/designer/architect
• Software designer/developer/tester
• Information and data analyst
• Databases administrator
• Systems analyst
• Information networks developers and administrators.
• Information security officer
• Web designer/developer
• Technology and information consultants
• Information technology project management specialist
• Automation support specialist
• Computer teacher
• Information systems governance specialist
• Information security manager
• Technical quality control specialist
• Academic researcher
FACULTY MEMBERS

Kassem Saleh  
Professor

Muhammad Sarfraz  
Professor

Paul Manuel  
Professor

Hanady Abdulsalam  
Associate Professor

Helal Al-Hammadi  
Associate Professor

Kalim Qureshi  
Associate Professor

Sana BuHamra  
Associate Professor

Abdullah Al Mutairi  
Assistant Professor

Aseel Al Monaies  
Assistant Professor

Bader Ali  
Assistant Professor

Bader Alkazi  
Assistant Professor

Dari Alhuwail  
Assistant Professor

Eiman Al-Shammari  
Assistant Professor

Fatima Boujarwah  
Assistant Professor

Loulwah Al-Sumait  
Assistant Professor

Naelah Al-Dabbous  
Assistant Professor

Omar Al-Ibrahim  
Assistant Professor

Ranya Al Awadhi  
Assistant Professor

Safaa Zaman  
Assistant Professor

Shaikha Alduaij  
Assistant Professor

Zainab Al-Jazzaf  
Assistant Professor

Zainab Al-Meraj  
Assistant Professor
STUDENT ADVISING

The Department, College, and University advise students at different levels on the following:

- Selecting their major
- Understanding the University rules and regulations
- Monitoring their academic progress
- Organizing semester courses
- Pursuing higher studies
- Placement activities

**University-level:** the advising is provided by the Advising Center under the Deanship of Student Affairs. The University provides an online electronic registration system where the rules and regulations of course registration and prerequisite requirements are explained and enforced.

**College-level:** the advising is achieved through the Office of Student Advising chaired by the Vice Dean for Students Affairs.

**Department-level:** there are several academic advisers, including an Environmental Electives (EE) adviser and a portfolio adviser who are coordinated by General Adviser. Academic adviser assists students in Information Science (ISC) and General Elective courses. The EE adviser guides students to choose appropriate EE domains and to identify the required 15-credit EE courses, while the Portfolio adviser supervises the student portfolio.
1. البرنامج التحضيري

- القسم الرفيع التدريبي
  - مجموع الرسوم التدريبي

- التخصص في (5) وحدة

2. مخطط التعلم العام (54) وحدة

- القسم الرفيع التدريبي
  - مجموع الرسوم التدريبي

- التخصص في (5) وحدة

- مجموع الرسوم التدريبي

3. المنطقات الم 특정ية للقسم (48) وحدة

- المنطقتين المرجعية
  - مجموع الرسوم التدريبي

- التخصص في (5) وحدة

- مجموع الرسوم التدريبي

4. ميزات تخصص علم المعلومات (21) وحدة

- الدورات الإعدادية
  - مجموع الرسوم التدريبي

- التخصص في (5) وحدة

- مجموع الرسوم التدريبي

5. ميزات ميزات الفصاحة (15) وحدة

- الدورات الإعدادية
  - مجموع الرسوم التدريبي

- التخصص في (5) وحدة

- مجموع الرسوم التدريبي

6. اختبارات جر (3) وحدات

- اختبار التخصص (3) وحدات

- اختبار جج (3) وحدات

الجمع الكلي للوحدات الدراسية اللازمة 126 – 130 وحدة.
# ENGLISH MAJOR SHEET

## Major sheet for B.S in Information Science

### I. Readiness Program

<table>
<thead>
<tr>
<th>Subject</th>
<th>CRN</th>
<th>CRD</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sci</td>
<td>091</td>
<td>0</td>
<td>Pre-Calculus <em>(or passing KU Entrance Exam)</em></td>
</tr>
<tr>
<td>ELU</td>
<td>096</td>
<td>0</td>
<td>Module 1</td>
</tr>
<tr>
<td>ELU</td>
<td>106</td>
<td>4</td>
<td>Module 2</td>
</tr>
</tbody>
</table>

### II. General Education Requirements (54 Credits)

- **Creative Expression Domain (6 Credits)**
  - Students select 2 courses (6 Credits) from the following:
    - AAD 100 3 Art Appreciation ****
    - AAD 110 3 The Art of Drawing ****
    - AAD 122 3 Painting ****
    - AAD 220 3 Photography ****
    - AAD 230 3 Basics of Graphic Design ****
    - AAD 240 3 Basics of Interior Design ****

- **Culture & Society Domain (12 Credits)**
  - CLS 130 3 Ethics & Practices
  - HIS 102 3 History of Arabic & Islamic Civilization [A]
  - ISC 105 3 Computers & Society
  - Students select 1 course (3 Credits) from the following:
    - AAD 203 3 Art & Architecture of the Modern World
    - CLS 120 3 Humans & Their Environment
    - CLS 220 3 Social & Economic Trends in the Gulf
    - CLS 221 3 Social Perspectives on Environmental Issues
    - FSC 103 3 Psychology in Everyday Life
    - FSC 251 3 Marriage & Family Relationships

- **Language & Communication Domain (15 Credits)**
  - CLS 100 3 Arabic Language [A]
  - CLS 103 3 Arabic Writing & Presentation Skills [A]
  - ELU 126 3 Academic Writing & Research Skills
  - ELU 146 3 Academic Oral Skills
  - Students select 1 course (3 Credits) from the following:
    - CLS 131 3 Introduction to Communications & Media
    - CLS 230 3 Fundamentals of Interpersonal Communication
    - CLS 253 3 Technical Writing
    - CSL 211 3 Introduction to Linguistics
    - FSC 273 3 Child & Media

- **Leadership Competency Domain (6 Credits)**
  - Students select 2 courses (6 Credits) from the following:
    - CLS 132 3 Women in the Workplace
    - CLS 135 3 Leadership Development
    - CLS 139 3 Introduction to Environmental Technology Management
    - CLS 161 3 Introduction to Entrepreneurship
    - CLS 260 3 Career Perspective

- **Science, Health, and Technology Domain (15 Credits)**
  - CLS 107 3 College Algebra
  - CLS 108 3 Applied Calculus
  - CLS 109 3 Statistics
  - ISL 100 3 Fundamentals of Personal Computers
  - Students select 1 course (3 Credits) from the following:
    - CLS 101 3 Introduction to Environmental Sciences
    - CLS 104 3 Biology
    - CLS 105 3 Chemistry

### III. ISC Core Requirements (48 Credits)

<table>
<thead>
<tr>
<th>Subject</th>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CLS</td>
<td>110</td>
<td>3</td>
<td>Personal Fitness &amp; First Aid</td>
</tr>
<tr>
<td>CLS</td>
<td>125</td>
<td>3</td>
<td>Chemistry &amp; Our World</td>
</tr>
<tr>
<td>CSL</td>
<td>131</td>
<td>3</td>
<td>Introduction to Communication Disorders</td>
</tr>
<tr>
<td>FSC</td>
<td>102</td>
<td>3</td>
<td>Foundations of Family Sciences</td>
</tr>
<tr>
<td>FSC</td>
<td>104</td>
<td>3</td>
<td>The Human Body</td>
</tr>
<tr>
<td>FSC</td>
<td>105</td>
<td>3</td>
<td>Personal Nutrition &amp; Women's Health Issues</td>
</tr>
<tr>
<td>FSC</td>
<td>110</td>
<td>3</td>
<td>Introduction to Human Nutrition &amp; Food Science</td>
</tr>
<tr>
<td>ISC</td>
<td>101</td>
<td>3</td>
<td>Introduction to Information Systems</td>
</tr>
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### IV. Info. System Major Requirements (21 Credits)

#### Required (18 Credits)

<table>
<thead>
<tr>
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<tr>
<td>ISC</td>
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<td>IS Development</td>
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Five Information Systems Environment Electives (15 Credits)***

#### Electives (select 3 Credits)

<table>
<thead>
<tr>
<th>Subject</th>
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<th>Title</th>
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<tbody>
<tr>
<td>ISC</td>
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<td>Introduction to Management IS</td>
</tr>
<tr>
<td>ISC</td>
<td>423</td>
<td>3</td>
<td>Internet Databases</td>
</tr>
<tr>
<td>ISC</td>
<td>440</td>
<td>3</td>
<td>Web Programming II</td>
</tr>
<tr>
<td>ISC</td>
<td>470</td>
<td>3</td>
<td>Multimedia Design &amp; Scripting</td>
</tr>
<tr>
<td>ISC</td>
<td>471</td>
<td>3</td>
<td>Interactive 3D Graphics Modeling</td>
</tr>
<tr>
<td>ISC</td>
<td>472</td>
<td>3</td>
<td>Introduction to VRML</td>
</tr>
<tr>
<td>ISC</td>
<td>475</td>
<td>3</td>
<td>Geographical Information Systems</td>
</tr>
<tr>
<td>ISC</td>
<td>482</td>
<td>3</td>
<td>Web Management</td>
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</table>

### V. Support Major Area (0 Credits)

<table>
<thead>
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<th>Subject</th>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ISC</td>
<td>088</td>
<td>0</td>
<td>Portfolio Review</td>
</tr>
</tbody>
</table>

### VI. Free Electives (3 Credits)

Students select 1 course (3 Credits) offered in the College or University

#### Requirement for graduation: 126-130 Credits
### Creative Expression Domain (6 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAD 100 (1600-101)</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>AAD 110 (1600-102)</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>AAD 112 (1600-106)</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>AAD 220 (1600-108)</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>AAD 230 (1610-286)</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>AAD 240 (1600-110)</td>
<td>ELU 106 or Equiv.</td>
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</table>

### Leadership Competency Domain (6 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
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<tbody>
<tr>
<td>CLS 132</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 135</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 139</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 161</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 260</td>
<td>ELU 106 or Equiv.</td>
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</table>

### Culture & Society Domain (12 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
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<tbody>
<tr>
<td>CLS 130</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>HIS 102</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>ISC 105</td>
<td>ELU 106 or Equiv.</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
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<tbody>
<tr>
<td>CLS 107</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 108</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 109</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>ISC 100</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td><strong>Students select 1 course (3 Credits)</strong></td>
<td></td>
</tr>
<tr>
<td>AAD 203</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 120</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 220</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 221</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>FSC 103</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>FSC 261</td>
<td>ELU 106 or Equiv.</td>
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</tbody>
</table>

### Science, Health, and Technology Domain (15 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLS 131</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>FSC 102</td>
<td>ELU 106 or Equiv.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
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</thead>
<tbody>
<tr>
<td>FSC 104</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>FSC 105</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>FSC 110</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>ISC 101</td>
<td>ELU 106 or Equiv.</td>
</tr>
</tbody>
</table>

### Language & Communication Domain (15 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLS 100</td>
<td>ELU 106 or Equiv.</td>
</tr>
<tr>
<td>CLS 103</td>
<td>FSC 104</td>
</tr>
<tr>
<td>ELU 126</td>
<td>FSC 105</td>
</tr>
<tr>
<td>ELU 146</td>
<td>ISC 101</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Perquisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSC 273</td>
<td>ELU 106 or Equiv.</td>
</tr>
</tbody>
</table>

- [2] If this course is selected as a general elective, another course must be selected from the Department electives.
COURSE DESCRIPTIONS

A. General Education Courses

CLS 100  Arabic Language  (3-0-3)
This course examines the structure of Modern Standard Arabic. Emphasis is placed on the study of the rules of sentence formation in Arabic, as well as the patterns of coordination, complementation, predications, and modification. Students focus on enhancing their proficiency in Arabic and developing basic skills in listening, reading, speaking and writing in Modern Standard Arabic.

CLS 101  Introduction to Environmental Sciences  (3-0-3)
In this course the student will learn that environmental science is an integrative, multidisciplinary approach to understanding and resolving environmental problems. A problem-solving framework is used to define the subject through the use of a series of case studies designed to reflect the diversity of contemporary environmental issues.
Prerequisite: ELU 106

CLS 103  Arabic Writing and Presentation Skills  (3-0-3)
This course falls into two major parts: writing and presentation skills. In writing, the course develops students' academic writing skills including reports, articles and writing coherent paragraphs and short essays. In presentation, the course develops students' speaking skills through class discussions and oral presentations. Technological skills are incorporated through internet-based research and computer-assisted presentation tasks.

CLS 104  Biology  (2-3-3)
This course examines fundamentals of biology, bio-molecules, cell & cell organelles, biological membrane structure and function, cellular metabolism, photosynthesis, ATP, cellular respiration, DNA structure and genetic code, cell division, Mendelian genetics, and organization of cells into tissues.
Prerequisite: ELU 106

CLS 105 Chemistry (2-3-3)
This course introduces students to basic chemistry concepts and calculations. Topics include basic principles of measurement and the scientific method; chemical equilibrium; atomic structure and periodicity; bonding models.
Prerequisite: ELU 106

CLS 107 College Algebra (3-0-3)
This course examines fundamentals of algebra and its application to the real world situations, polynomials, rational expressions, complex numbers, systems of linear equations, elementary matrices and their applications.
Prerequisite: ELU 106

CLS 108 Applied Calculus (3-0-3)
This course reviews areas of basic mathematics such as trigonometry, analytical geometry in two dimensions, linear equations, functions and their graphs, derivatives and its geometric interpretation, simple integration and its application. (Problems will be focused on the following areas: Food nutrition, information technology, environmental sciences, etc.).
Prerequisite: ELU 106

CLS 109 Statistics (3-2-3)
This course introduces data sampling, organizing, and summarizing. Measures of central tendency and spread. Correlation and Regression. Probability and sampling distributions. Statistical inference with application from many fields.
Prerequisite: ELU 106

CLS 110 Personal Fitness and First Aid (3-0-3)
This course is provides students with the information they need to make responsible health decisions about nutrition, fitness, and first aid situations. It examines current practices and trends in physical fitness
programs. An overall view of the basic fundamentals of First Aid is presented with an emphasis on decision making in crisis situations.

*Prerequisite: ELU 106*

**CLS 120  Humans and Their Environment**  (3-0-3)
This course provides broad-based coverage of a topic critical to the future of the world, humans, and their effect on the environment. The environment, actions which alter the environment, and actions designed to protect the environment are inherently interdisciplinary. It emphasizes how alterations in human activity can reduce the impact we have on the environment.

*Prerequisite: ELU 106*

**CLS 125  Chemistry & Our World**  (3-0-3)
This course is intended to develop an understanding of basic chemistry principles and to show the application of chemistry to everyday life. Utilization of the scientific method on practical applications are used to illustrate both the potential benefits and the limitations of chemistry.

*Prerequisite: ELU 106*

**CLS 130  Ethics and Practices**  (3-0-3)
This course examines the ethical duties of professional practice in such fields as architecture, business, environmental sciences, nutrition, etc. Focus is placed on case studies which evoke conflicts between personal convictions and public responsibilities.

*Prerequisite: ELU 106*

**CLS 131  Introduction to Communication and Media**  (3-0-3)
This course provides an integrated, interdisciplinary approach to human communication. Overview of interpersonal, mass, integrated marketing and interactive/digital communication.

*Prerequisite: ELU 106*

**CLS 132  Women in the Workplace**  (3-0-3)
This course examines the similarities and differences in the work experiences of men and women within organizations. Topics include
gender role attitudes, occupational segregation, gender and leadership, and workforce diversity.

*Prerequisite: ELU 106*

**CLS 135  Leadership Development (3-0-3)**
This course is designed to challenge students to expand their understanding of their own leadership potential. Topics include leadership styles, and case-studies of leadership in different organizational and managerial situations. Students learn about effective leadership and citizenship in multicultural environments with an emphasis on communication, ethics, management, and vision.

*Prerequisite: ELU 106*

**CLS 139  Introduction to Environmental Technology Management (3-0-3)**
This course introduces the basic concepts of technology management and project management. Topics to be covered will include: principles of management, analysis of management functions, basic managerial functions and tools as applied to technology management, key factors determining successful management of technology, the decision making process, the tools of productivity.

*Prerequisite: ELU 106*

**CLS 161  Introduction to Entrepreneurship (3-0-3)**
This course introduces students to the principles of entrepreneurship. Topics include influence of entrepreneurship on business culture, survey of cultural aspects of entrepreneurship in multiple settings, and success stories are presented through case studies.

*Prerequisite: ELU 106*

**CLS 220  Social and Economic Trends in the Gulf (3-0-3)**
This course explores the many facets of social and economic trends that are emerging in modern Gulf societies. It raises the students' awareness of the dynamics of globalism and its impact local and regional communities. It identifies socioeconomic trends and analyzes their causes and implications for the Gulf region as a whole and Kuwait in particular.

*Prerequisite: ELU 106*
CLS 221  Social Perspective on Environmental Issues  (3-0-3)
This is an interdisciplinary course involving a number of social and behavioral sciences. It is designed to help students learn that environmental problems are fundamentally social problems and that environmental concerns and priorities of people differ with culture; the perception of a problem and the means for its resolution involves the interplay between social, economic, and biophysical concepts.

Prerequisite: ELU 106

CLS 230  Fundamentals of Interpersonal Communication  (3-0-3)
This course emphasizes interpersonal communication including cultural, gender-related, relational, and individual factors which influence communication patterns. It also considers nonverbal behavior, and listening. Attention is paid to both conceptual understanding and development of interpersonal communication skills.

Prerequisite: ELU 106

CLS 253  Technical Writing  (3)
This course is an advanced writing course designed to improve the technical writing skills students may need once they enter the job market. The focus of this course is on the finer point of technical writing. Cohesion, coherence, accuracy and fluency. Two types of writing are practiced in this course: recommendation reports and summaries of articles or abstracts. Using the format of the recommendation report, students focus on the analysis, presentation and interpretation of data. Using up-to-date articles from periodical literature related to science and engineering, students identify and extract main ideas, reorganize these ideas logically, and produce a written summary or abstract of the article.

Prerequisites: An accumulated total number of 50 credit hours, ELU 126

CLS 260  Career Perspectives  (3-0-3)
This course introduces students to the process of career planning and development through self-assessment, exploration of business options, and early planning. The course provides weekly individualized feedback to
students on spoken and written communication skills and on the substance of career-related projects.

Prerequisite: ELU 106

CSL 131  Introduction to Communication Disorders  (3-0-3)
This course discusses disorders of spoken communication, their functional effect on quality of life for individuals with communication disorders. It also introduces intervention techniques for specific disorders of speech, language/hearing in context of social, cultural, linguistic diversity.

Prerequisite: ELU 106

CSL 211  Introduction to Linguistics  (3-0-3)
This is an introductory course on the scientific study of natural language including the basic concepts of phonology, syntax, semantics, and pragmatics with emphasis on Arabic. Besides, applied aspects of linguistic principles will be discussed.

Prerequisite: ELU 106

FSC 102  Foundations of Family Sciences  (3-0-3)
This course includes individual study of a topic in family sciences such as family systems theory, child development, current research topics, family communication, etc.

Prerequisite: ELU 106

FSC 103  Psychology in Everyday Life  (3-0-3)
This course integrates traditional principles of psychology as a way of helping students to know themselves, their culture, and their society. It combines elements of sociology and philosophy with a psychological base to provide a more holistic approach to the study of life experience.

Prerequisite: ELU 106

FSC 104  The Human Body  (3-0-3)
This course explores the structures and functions of body organs. Gross and microscopic anatomy will be related to normal physiology of the body.

Prerequisite: ELU 106
FSC 105  Personal Nutrition & Women's Health Issues  (3-0-3)
This course examines historical and current health issues affecting women. Topics include applied nutrition, selection of an adequate diet, dietary standards, tables of food composition, and dietary problems.
Prerequisite: ELU 106

FSC 110  Introduction to Human Nutrition and Food Science  (3-0-3)
This course will introduce the macro and micro nutrients in the diet, food sources of nutrients and their fate in the human body. Nutrition related health problems, socioeconomic factors affecting dietary habits, basics of good nutrition and healthy life style will be discussed. The role of nutritionists and food scientist and technologist in health institutions, the food industry and foodservice.
Prerequisite: ELU 106

FSC 261  Marriage & Family Relationships  (3-0-3)
This course explores the foundations of stable and positive family relationships in light of a married couple's expectations of family life. It examines psychology of family relations: definition and importance, the legal, social and emotional ties that support family systems. Various family system theories are examined in the light of the Kuwaiti family experience.
Prerequisite: ELU 106

FSC 273  Child and Media  (3-0-3)
This course examines questions of child's relationship to texts and materials in media such as books, films, broadcast and recorded programs, CD-ROMs, computer programs, video games, Internet texts, and various toys and associated commodities. The course takes the approach that audiences are not necessarily victims, nor are they passive forces.
Prerequisite: ELU 106
B. Information Science

ISC 100  Fundamentals of Personal Computers  (3-2-3)
In this course, students will be exposed to all computer components: Hardware and software. Examination of current information technology application software packages with practical experience of current, popular and commercially available microcomputer application packages for word processing, spreadsheets, and presentations. Students will use such packages to enhance their professional presentation skills.
Prerequisite: ELU 106

ISC 101  Introduction to Information Systems  (3-0-3)
This course will introduce students to a set of techniques and concepts that will be encountered throughout their information education. Topics to be covered will include: information concepts and structures (terminologies, components, and operation of computer systems), history and usage of information systems, the networking and the Internet, database organization and access, programming and development, operating systems, numbering systems, information security, Social, legal, and management information issues.
Prerequisite: ELU 106

ISC 105  Computers and Society  (3-0-3)
The focus of this course is on the impact of information technology on the local and global cultures. The course provides the students with the effect of current and emerging technologies on daily lives, social relations, work, and government. Topics covered include: ethical and legal issues (data privacy, intellectual property rights, computer misuse, and freedom of speech on the internet), society and cultural changes, the use of technology to support education, business, communications, and government.
Prerequisite: ELU 106

ISC 115  Computing Foundations  (3-2-3)
The course describes the concepts of programming and problem solving. Topics include the design and analysis of algorithms, number
representation, Boolean algebra and computing logic, sets and relations, functions, recursion, sequences and arrays, lists and operation on lists, and simple combinatory.

**Prerequisite:** CLS 107 and CLS 108

**ISC 210  Computational Methods**  (3-2-3)
This course focuses on principles of computation theory as means of numerical computation of problems. Different numerical methods are described with. A software package such as Maple, MuPAD or Mathematical is employed in programming problems.

**Prerequisite:** ISC 115

**ISC 240  Programming and Problem Solving**  (3-3-4)
This course is an introduction to problem solving using a computer programming language. A programming language that is high-level, widely used, and modern is covered in this course. Topics include data types, objects, conditional and iterative control, files, and input/output instructions.

**Prerequisites:** ISC 101 and ISC 115

**ISC 241  Data Structures**  (3-3-4)
The focus of this course is centered on the object-oriented programming style. The course covers the principles and the major concepts involved in object-oriented programming and the characteristics of object-oriented programming languages. Topics include data structures, sorting and searching algorithms, and basic software development techniques. This course is a continuation of ISC 240.

**Prerequisites:** ISC 101 and ISC 115

**ISC 321  Database Systems I**  (3-2-3)
The course will explore the practices, issues and theoretical foundations of organizing, analyzing, and managing information and information content for the purpose of designing effective and useful databases. It will introduce students to the fundamentals and principles of database systems, operations of relational models, maintenance, and database
design. Topics include database language SQL, constraints in SQL, system aspects of SQL, object-oriented query languages. Students will be able to design a database using a modern DBMS through SQL programming project.

Prerequisite: ISC 241

ISC 331 IS Theory and Practice (3-0-3)
This course exposes students to the basics of the Information Systems management tools. It will explore the practices, issues and theoretical foundations of organizing, and planning information and information content for the purpose of providing intellectual access to information resources and decision support. Topics include: Information systems vision, relationship between organizational structure and information systems, Decision Support Systems, information system strategies, the different roles in an information system (information, IT, users, developers, and managers), fundamentals of human-computer interface.

Prerequisite: ISC 240

ISC 340 Web Programming (3-3-4)
This course introduces the fundamental concepts and tools for programming Web sites. Topics include the basics of HTML, page creation, forms, Dynamic HTML, SGML and XML.

Prerequisite: ISC 241

ISC 350 Networks & Telecommunication (3-2-3)
This course focuses on the concepts, principles and terminology of data networks and the Internet. Topics include: Telecommunication concepts and practices, Basics of digital and analog data communication, basics of TCP/IP protocol, and the world wide web structure and operation.

Prerequisites: CLS 109, ISC 210, and ISC 241

ISC 353 Information Security Systems (3-0-3)
This course introduces the fundamentals of computer and information security. The course covers the security issue in different contexts like the standalone PC, the network, and the Internet. Topics include the basics of encryption, firewalls concepts and practices, and the different types of
viruses and worms and methods of their detection and destruction.

Prerequisite: ISC 350

**ISC 357 Operating Systems and File System Organization**  (3-2-3)
The main aim of this course is to acquire a systematic knowledge of operating systems and to develop a critical understanding of their purpose, the main concepts, techniques and methods. Topics covered include: processes and threads, scheduling, memory management, file systems, and storage. File organizations and access methods from the operating system, programming language, and information systems design perspectives are also introduced.

*Prerequisites: ISC 210 and ISC 241*

**ISC 363 Computer Organization**  (3-0-3)
This course introduces the building block components of a computer system and their organization. Topics covered are of logic circuits, microprocessor components, microcode, machine language, assembly language, and a survey of different modern processor architectures.

*Prerequisites: ISC 210 and ISC 240*

**ISC 380 Introduction to Management Information Systems**  (3-0-3)
This is an introductory course to the relationship between organizations and information systems. The course focuses on the analysis, design, implementation, and management of information systems in an organizational setting. An overview is given of the different roles played to achieve effective information utilization, the role of IT and the role of organization decision makers and staff. The course also gives a survey of advanced systems development technologies for systems design and implementation.

*Prerequisite: An accumulated total number of 60 credit hours.*

**ISC 423 Internet Databases**  (3-0-3)
This course describes how databases are employed for the design and implementation of functional Web solutions. Topics in this course a survey of the different e-business solution that require databases with real-life case studies, techniques for storing and organizing information in the
database, and connectivity to other web components.

*Prerequisite: ISC 321

**ISC 440  Web Programming II (3-2-3)**

This course focuses on the advanced programming skills and tools needed for high efficiency applications on the Internet. Topics in this course include advanced JAVA programming including Serves and JAVA Beans. Client-Server model is also covered in principle and as a programming tool.

*Prerequisites: ISC 340 and ISC 350

**ISC 470  Multimedia Design & Scripting (3-2-3)**

This course is focused on real-life multimedia production and authoring tools. Macromedia Director and Macromedia Flash will be used for students design projects, along with other sound, animation, and video tools. Topics covered in this course include: multimedia production process, multimedia authoring tools, and interactivity in multimedia systems, Lingo programming techniques, working with sound and video, animation techniques, and multimedia and the web.

*Prerequisites: Department Approval and an accumulated total number of 70 credit hours

**ISC 471  Interactive 3D Graphics Modeling (3-2-3)**

The course presents the Fundamentals of 3D modeling, passive or interactive animations, surfacing, and special effects. It provides an understanding of the processes involved in the creation of 3D animation from modeling to rendering, including basics of surfing, lighting, animation, and techniques for modeling objects as polygonal meshes or smooth surfaces, and as rendering such as hidden-surface removal, shading, illumination, and shadows. The course will also introduce the basics of 3D formats for the web.

*Prerequisites: Department Approval and an accumulated total number of 70 credit hours

**ISC 472  Introduction to VRML (3-2-3)**

This course will provide students with the concepts of web-based 3D graphics and to give them sufficient knowledge and experience using 3D
principles. Topics include VRML programming language, VRML object creation, interactive to VRML objects, and embedding VRML objects into web sites.

*Prerequisites: Department Approval and an accumulated total number of 70 credit hours.*

**ISC 475  Geographical Information Systems (3-0-3)**
This course describes the geographical information systems (GISs). It provides the students with hands on experience using GIS applications through the use of GeoMedia. GeoMedia is a powerful geographical information system that provides both standard and advanced data management features for geographical data storage, manipulation and display. It can be used on a wide variety of computer platforms, and with its GUI feature it makes the data management easier to perform.

*Prerequisite: ISC 321*

**ISC 480  IS Development (3-2-3)**
This course presents the principles and theories of information systems design. It provides an understanding of the system development and modification process. Topics include: System life cycle, Communication and interpersonal skills, Group dynamics, Risk and feasibility analysis, Project management, Specification of the inputs, outputs, processes, files organization of revised and new systems, Quality metrics, Determination of requirements, System development including development steps, tools & issues.

*Prerequisite: ISC 321*

**ISC 482  Web Management (3-0-3)**
The objective of this course is to introduce students to the management and development tools for web projects. Emphasize on efficient management and usage of web related hardware and software in organizations is also stressed. As a course project students will create a commercial Web site where students can practice learned concepts about the design and development of professional Web sites.

*Prerequisite: ISC 340*
ISC 495  Internship  (3-credits)
Opportunity for students to gain practical experience of the workplace relevant to their major with employers in the public or private sectors. Internships are intended to match the academic background and strengths of students, their interests and future career ambitions.
Prerequisites: Department Approval and an accumulated total number of 90 credit hours

ISC 499  Capstone Project  (3-0-3)
This course constitutes a capstone design experience in information and computer systems. Typically it would require the student to build on the aggregated knowledge gained in previous years of study. Students will have hand-on experience in designs of real life projects involving software and/or hardware.
Prerequisites: Department Approval and an accumulated total number of 100 credit hours

ISC 088  Portfolio Review  (0-credits)
The course is a non-credit pass/fail course required of all students. The purpose of this course is to ensure that all students have submitted a portfolio for approval by the department prior to graduation. It may be presented in an electronic format or hard copy. The portfolio may consist of written reflections, problem solving tasks, event participation, and written scholarly works.
Corequisite: ISC 499
Prerequisites: Department Approval and an accumulated total number of 100 credit hours.
PREREQUISITE CHART FOR BS PROGRAM

ELU 106: Entry Level English Course – Level 2 or Equivalent

**Semester 1**
- GE*
- GE*

**Semester 2**
- GE*
- CLS 100[1]
- HIS 102[2]

**Semester 3**
- GE*
- GE*
- IS-EE**

**Semester 4**
- CLS 109
- IS-EE**

**Semester 5**
- IS-EE**

**Semester 6**
- IS-EE**
- GE*

**Semester 7**
- FE

**Semester 8**
- IS-E***
- GE*

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[1] Taught in Arabic Language
[2] If this course is chosen as General elective, another course must be selected from the department electives. See Table 3
[3] All 15 credits must be selected from one area
[4] Required course for ISC students
[5] 56 credits minimum
[6] 60 credits minimum
[7] 70 credits minimum
[8] 90 credits minimum
[9] 100 credits minimum
[10] Dept Approval

---

Required Course
# 8-SEMESTER CURRICULUM PLAN

## Department of Information Science

**Bachelor of Science in Information Sciences**

(Recommended Sequence - After the Readiness Program)

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>LE-LB-CR</th>
<th>Prerequisite</th>
<th>Category</th>
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<td>Semester 1</td>
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<tr>
<td>ELU126</td>
<td>Academic Writing &amp; Research skills</td>
<td>3-0-3</td>
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<td>GE – Language &amp; Communication Domain</td>
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<td>ISC100</td>
<td>Fundamentals of Personal Computers</td>
<td>2-3-3</td>
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<td>CLS107</td>
<td>College Algebra</td>
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<td>Semester 2</td>
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<td>ELU146</td>
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<td>ISC101</td>
<td>Introduction to Information System</td>
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<td>CLS108</td>
<td>Applied Calculus</td>
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<td>CLS100</td>
<td>Arabic Language</td>
<td>3-0-3</td>
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<td>HIS102</td>
<td>History of Arabic &amp; Islamic Civilization</td>
<td>3-0-3</td>
<td>ISC Core</td>
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## Sophomore Year (Second Year)

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<tr>
<td>ISC105</td>
<td>Computers &amp; Society</td>
<td>3-0-3</td>
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<td>ISC115</td>
<td>Computing Foundations</td>
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<td>CLS107 &amp; CLS108</td>
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<td>CLS103</td>
<td>Arabic Writing &amp; Presentation Skills</td>
<td>3-0-3</td>
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<tr>
<td>ISC210</td>
<td>Computational Methods</td>
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<td>ISC240</td>
<td>Programming &amp; Problem Solving</td>
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<td>Statistics</td>
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<td>Ethics and Practices</td>
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<td>CLS253</td>
<td>Technical Writing</td>
<td>3-0-3</td>
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<td>ISC241</td>
<td>Data Structures</td>
<td>3-3-4</td>
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<td>ISC Core</td>
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<td>ISC331</td>
<td>15 Theory &amp; Practice</td>
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<td>ISC240</td>
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<td>ISC363</td>
<td>Computer Organization</td>
<td>3-0-3</td>
<td>ISC210 &amp; ISC240</td>
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<td>ISC321</td>
<td>Database Systems I</td>
<td>2-3-3</td>
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<td>Web Programming I</td>
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<td>Networks &amp; Telecommunication</td>
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<td>ISC235</td>
<td>Information Security Systems</td>
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<td>ISC357</td>
<td>OS &amp; File System Organization</td>
<td>2-3-3</td>
<td>ISC210 &amp; ISC241</td>
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<td>ISC480</td>
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### INFORMATION SYSTEMS ENVIRONMENT ELECTIVES

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12 وحدة من المقررات التالية

- مقرر إلزامي (3 وحدات)