University Vice-Presidency

College of Computing and Informatics

STUDY PLAN PROJECT

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

October 2019
COLLEGE AT A GLANCE:

History:

A royal decree was issued by the custodian of the Two Holy Mosques, King Abdullah Bin Abdulaziz – Allah bless his soul –, on 10/8/2011 to launch the Saudi Electronic University (SEU) as a government educational institution. Based on the University's vision to align outputs with the labour market needs, the college of Computing and Informatics was established as one of the first colleges that have three departments: Information Technology, Computer Science, and Computing and Informatics to give graduates the knowledge and skill requirements necessary for the labour market by providing optimal academic environment that aims to prepare national specialist cadres in the field of computers. There is no doubt that Information Technology has become the main nucleus in the development process inside public and private organizations in the era of technology and information.

Mission:

Providing academic programs that qualify specialized and excellent workforce in the field of computer science and information technology in the Kingdom of Saudi Arabia, carry out scientific research, and to offer consulting services contribute to solving technical and informatics issues in the Saudi society.

Vision:

A pioneer college at local and regional levels in teaching computing and informatics using innovative e-learning methods.

Values

- Excellence and innovation.
- Institutional commitment to academic standards
- Total Quality Management (TQM).
- Excellence in Education through continuous evolution.
College of Computing and Informatics

- Industry and Academia Interaction for community welfare.
- Transparency and objectivity in the work

Objectives

The CCI aims at achieving the following:
- Development of a technically proficient workforce comprising of Saudi citizens capable of carrying out software development projects to the best of international standards.
- To keep pace with academic advances in international universities in the field of computation and informatics.
- To increase learners' experience by enabling them to solve academic and practical problems in their areas of specialization.
- To enable graduates to compete in the fields of computation and informatics.
- To support continuous development through partnerships with local and international companies.
- To connect programs through integrated courses designed and taught through advanced technology.
- To integrate academic programs by bridging the gap between theoretical advances and practical applications.
- To participate in offering consultation and training programs in the fields of computer science and IT within community service programs.

A. PROGRAM IDENTIFICATION AND GENERAL INFORMATION

1. Program title:
   Program of Science in Information Technology

2. Total credit hours needed for completion of the program:
   127 Credit Units.

3. Award granted on completion of the program:
   Bachelor of Science in Information Technology

4. Major tracks/pathways or specializations within the program:
   Not exist.

5. Professional occupations
   1- Software Developer
   2- Database administrator
   3- Network Administrator
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4- Web Administrator and Developer
5- Technical support specialist
6- Site programmer and developer
7- Information system administrator
8- IT specialist

6. **Name of program coordinator or chair:** Dr. Ahmad Abdullah Aljabr

   Email: a.aljabr@seu.edu.sa

**B. PROGRAM CONTEXT:**

1. **Rationales of the program:**

   The rationales of Bachelor program in Information Technology are summarized in the following points:

   1- Contributing to the national strategic communication and IT plan.
   2- The importance of information technology job for Saudi institutions and society.
   3- The increasing job market needs in the Kingdom of Saudi Arabia for specialized workforce in IT.
   4- The constant need in the labor market (public and private) to specialists in information technology.
   5- Few number of Saudi universities offer BSc programs in IT.
   6- The fulfilment of national high-quality projects, which aim to develop the IT in the Kingdom of Saudi Arabia.

   2. **Relevance of the program to the mission and goals of the institution:**

   The dependence of modern society and IT applications is growing manifold with every passing year. All nations are striving to equip their populations with latest tools and technologies in the domain of IT and software engineering. The program is designed to support the university mission of providing an excellent and qualified modern education for the kingdom and its population. The BSc in IT offers higher education based on the best applications and technologies of e-learning, to transfer and localize knowledge in the subject of IT.

   3. **Relationship to other programs:**

   a. **Courses required from other programs**

   - MATH001 Introduction to Mathematics
   - MATH150 Discrete Mathematics

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Program of Science in Information Technology

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- MATH251 Linear Algebra
- STAT101 Statistics
- MGT101 Principals of Management
- E-COM101 E-commerce
- ENG001 English Language Skills
- ENG103 Technical Writing
- COMM001 Communication Skills
- CI001 Academic Skills
- ISLM101 Islamic Culture 1
- ISLM102 Islamic Culture 2
- ISLM103 Islamic Culture 3
- ISLM104 Islamic Culture 4

b. Courses provided to other programs
- IT101 Introduction to IT and IS
- CS140 Computer Programing I
- CS141 Computer Programming II
- IT243 System Analysis and Design
- IT244 Introduction to Database
- IT201 Human Computer Interaction
- IT210 Computer Networks
- IT409 IT Security and Policies
- IT270 IT Project Management
- IT230 Web Technologies

4. Specific enrolment requirements: (IT skills, Language…): None.

C. MISSION, GOALS & OBJECTIVES AND LEARNING OUTCOMES:

1. Program Mission:

   Support the mission of the College of Computing and Informatics through offering a quality education to prepare a specialized workforce qualified scientifically and skilled to meet the needs of the labour market in the field of information technology.
2. Program learning outcomes

The program aims at building cadres able to:

1. Explain the concepts and technologies related to information technology.
2. Demonstrate the ability to use state of art tools in practice based on the obtained skills.
3. Recognize the evaluation and assessment of tasks performed as IT professionals.
4. Apply the concepts, methods, tools and technologies mastered during the academic program.
5. Analyze a problem, identify and define the computing requirements appropriate to its solution
6. Apply theories in modelling and designing IT systems using cutting edge technologies.
7. Apply analysis, design, implementation and testing principles of IT solutions to fit industrial requirements.
8. Function effectively on teamwork activities to accomplish a common goal.
9. Carry out projects in group structure and collaborate with group members.
10. Identify the needs for continues professional development and leadership skills with the ability to engage all groups members.
11. Carry out the assignments with quality of work in accordance with international standards.
12. Communicate effectively, both orally and in written form, using appropriate media.

D. PROGRAM STRUCTURE AND ORGANIZATION

1. Program Structure by kind of requirements:

University requirements: 34 Credit Hours

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Required or Elective</th>
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**College requirements: 36 Credit Hours**

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<td>IT110</td>
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<td>Principles of management</td>
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Specialization requirements: 57 Credits Hours

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<td>Human Computer Interaction</td>
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<td>Computer Networks</td>
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<td>Database Management Systems</td>
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Tracks requirements:
None.

2 - Program Structure by levels:

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<td>Network Management</td>
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### Elective Course in IT 1
- **Course Code**: IT4XX
- **Course Name**: Elective Course in IT 1
- **Credit Hours**: 3
- **Prerequisites**: *See Note 1*

### Elective Course in IT 2
- **Course Code**: IT4XX
- **Course Name**: Elective Course in IT 2
- **Credit Hours**: 3
- **Prerequisites**: *See Note 1*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
<th>Co-requisites</th>
</tr>
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<tbody>
<tr>
<td>ISLM 104</td>
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**Total**: 16

### Elective Group A – Data Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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</tr>
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<tbody>
<tr>
<td>IT446</td>
<td>Data Mining and Data Warehousing</td>
<td>3</td>
<td>IT344</td>
</tr>
<tr>
<td>IT445</td>
<td>Decision Support Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IT443</td>
<td>Distributed Database System</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IT444</td>
<td>Database Administration</td>
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</tr>
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</table>

### Elective Group B – Networks and Security

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT412</td>
<td>Introduction to Cyber Security and Digital Crime</td>
<td>3</td>
<td>IT340</td>
</tr>
<tr>
<td>IT413</td>
<td>Network Security</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IT415</td>
<td>Wireless Sensor Networks</td>
<td>3</td>
<td></td>
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<tr>
<td>IT411</td>
<td>Computer Forensics</td>
<td>3</td>
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</tbody>
</table>

### Elective Group C – Advanced Development

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT448</td>
<td>Mobile Application Development</td>
<td>3</td>
<td>IT230</td>
</tr>
<tr>
<td>IT442</td>
<td>Advanced Web Development</td>
<td>3</td>
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</tr>
<tr>
<td>IT447</td>
<td>Artificial Intelligence</td>
<td>3</td>
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</tr>
<tr>
<td>IT441</td>
<td>Multimedia System Development</td>
<td>3</td>
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</tr>
</tbody>
</table>

**Note 1**: With respect to the elective courses, the department shall decide what to offer in each semester. The students are required to select two courses from two groups. In the 7th semester they will study one course from each group they have opted for. In the 8th semester, they will study the second course from each group selected by them thereby completing the 4 elective courses.

### Elective Group A – Data Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT446</td>
<td>Data Mining and Data Warehousing</td>
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<tr>
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<td>IT443</td>
<td>Distributed Database System</td>
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<tr>
<td>IT444</td>
<td>Database Administration</td>
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### Elective Group B – Networks and Security

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<th>Course Name</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>IT412</td>
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<td></td>
</tr>
<tr>
<td>IT411</td>
<td>Computer Forensics</td>
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### Elective Group C – Advanced Development

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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</tr>
<tr>
<td>IT441</td>
<td>Multimedia System Development</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

3. **Field Experience (internship, cooperative program….)**:

   a. Brief description
A summer period of 8 weeks spent as a trainee in industry, business, or government agencies for the purpose of familiarizing the student with the real job environment and enabling him to apply and relate his academic knowledge to a real work environment.

b. Semester:

The summer period of 8 weeks

c. Time allocation and scheduling arrangement

After the third year

d. Number of credit hours

Three credit hour

e. Intended learning outcomes

- Familiarizing the student with the real job world
- Apply and relate his academic knowledge to a real work environment

f. Assessment procedures

By an evaluation form filled by the employer, and a written report submitted by the student.

4. Project or Research Requirements (if any)

a. Brief description

- IT490 Senior Project I

During this course the primary aim of students will be to choose a development project which they will work on during Senior Project 1 and Senior Project 2. To equip them with necessary skills and tools in research and analysis phases of this senior project, in the first four weeks, the students will be taught on how to review literature, conduct research and elicit requirements. These following details outline the desired objectives of this teaching.

This course will equip undergraduate Information Technologies students with the basic skills to conduct researches in the field of Information Technologies. The course aims to introduce the required techniques for conducting a research, implementing systems, writing technical reports and the skills for presenting the work for audiences. This course will particularly focus on topics, which are related
to the field of information technologies. The course will also provide guidance to the students in selecting their projects, understanding the research process as well as the tools needed to support implementing the system and writing its documentation. The course discusses other issues including research methods that are normally used in researches such as experiments, survey, interview and simulations, understanding the importance of literature review, preparing visual presentations and other ethical issues such as plagiarism.

- **IT491 Senior Project II**
  This a continuation of the graduation project started in IT490. The focus will be in this part on low-level design, implementation, testing and quality assurance as well as management of the project.

b. **Semester:**

   Semester 7 and 8.

c. **Number of credit hours**

   2 (IT490) + 4 (IT491), the total is 6 hours.

d. **Intended learning outcomes**

   On completion of this module, students should be able to:
   - select an area for study appropriate to the programme of study;
   - negotiate with a supervisor to define a problem to be solved;
   - identify and review relevant literature;
   - identify and implement an appropriate project methodology;
   - manage the project using appropriate tools and techniques;
   - deliver a solution as negotiated with the supervisor;
   - evaluate the solution;
   - give a presentation to an audience of peers and staff on aspects of the project;
   - write a report presenting the problem and its solution;
   - reflect upon the project experience.

e. **Assessment procedures**

   The assessment will include the evaluation of the following items
   - A complete written report by the student.
   - Student commitment based on the supervisor report.
   - Student’s oral presentation and demonstration.
5. Admission Requirements for the program:

None

6. Attendance and Completion Requirements:

The course load is divided as follows: 25% face-to-face lectures and 75% e-learning activities based on the University’s Distance Learning regulations.

To complete the program, a student has to successfully complete the 127 credit hours as specified in the above detailed study plan.

G. LEARNING FACILITIES AND EQUIPMENT:

1. Facilities required

The college has provided state of the art facilities to the students for imparting quality education. The campuses provide modern class rooms with electronic gadgets required for smooth execution of class hours. The students also avail the opportunities to interact with faculty during visiting hours who are required to be in their allocated office spaces which are also furnished with all facilities needed for blended learning environment including hardware and software which is needed.

2. Classrooms

It is mandatory for all classes to be held in properly designed classrooms during the face to face hour. Each class is equipped with electronic podium which has the facility to record the lecture as well as sound control apart from other features. Each classroom is connected with internet. Multimedia support is available in every class room. Each classroom is equipped besides these with general amenities like air-conditioning, sufficient lighting and proper sitting arrangements. All classrooms are regularly monitored to ensure that none of the assets is in bad or disorderly shape.

3. Equipment (including IT)

The most salient IT equipment includes:

1. State of the art latest computing machines and laptops for faculty members.
2. 24 hours uninterrupted high speed internet provision at all the campuses.
3. Provision of SEU portal accounts to all the students and faculty members.
4. Blackboard system as teaching software with accounts for all the teachers and students to manage their academic activities and conduct virtual sessions.
5. Attendance, grading, E-mail and other relevant softwares.
6. Access to Saudi Digital Library for all the students and faculty alike
Course Descriptions
1 - UNIVERSITY REQUIREMENTS
# ENG001 English Language Skills

<table>
<thead>
<tr>
<th>Course Name</th>
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<th>Department</th>
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<tbody>
<tr>
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<td>ENG001</td>
<td>College of Computing and Informatics</td>
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<table>
<thead>
<tr>
<th>Credit Hours</th>
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<td>University requirement</td>
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<table>
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<tr>
<th>Course Level</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>First or second Semester</td>
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</table>

## Course Description:

The 4 weekly hours of contact time with the English instructors aims to support, compliment and reinforce the student’s online learning. The contact hours serves as an essential support component such that students are guided throughout their English studies. In addition, a course textbook has been selected to support the students learning. The Q:Skills series from world famous Oxford University press has been chosen as the official textbook of the course which students purchase from a distributor. The textbook is an e-book which an adaptive book rather than the traditional textbook. The Q:Skills series is one of the leading EFL course textbooks available in the current marketplace. The Q:Skills series (Reading and Writing and Listening and Speaking). Clearly identified learning outcomes focus students on the goal of instruction, while thought-provoking unit questions provide a critical thinking framework. In this regard, the skills of reading, writing, are covered in the first two hours of face two while the listening and speaking book will be covered in the second portion of the face to face class. Therefore, all four skills are covered effectively. Thus, the overall goal of developing the students' ability to communicate as effectively as possible in the English language.

## Course learning outcomes:

Upon completion of this course, student should be able to:

1. Communicate effectively using basic English language skills.
2. Comprehend courses taught in the English language.
3. Undertake research protocol and access knowledge through search mainly print and electronic search engines available in the English language.
4. Learn about the culture of the English speaking world and be able to benefit from their experiences.

## Grading:

- [ ] Mid-Term Exams
- [ ] Quizzes
- [ ] Assignments
- [ ] Final Exam
- [ ] Project
- [ ] Lab Work

Program of Science in Information Technology

October 2019 17

### College of Computation and Informatics

<table>
<thead>
<tr>
<th>College</th>
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<td>CS001</td>
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<td></td>
<td></td>
<td>First or second semester</td>
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**Course Description:**

This course is an essential guide to computing concepts and provides the learner with a complete learning solution focusing on the most important, essential, and current concepts of information technology. Students are given a streamlined, concise, relevant approach to the fundamental issues surrounding the world of computing through a balance between theory and applied learning of these important topics.

**Course learning outcomes:** Upon completion of this course, student should be able to:

1. Explain the basic information related to the computer and its major components
2. Use the computer and information technology such as computer networks and operating systems.
3. Effectively use Microsoft’s core applications.
4. Communicate via the internet and access information using search engines.

**Grading:**

- ☒ Mid-Term Exams
- ☒ Quizzes
- ☒ Assignments
- ☒ Final Exam
- ☐ Project
- ☐ Lab Work

<table>
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<tr>
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**لغة التدريس:**
- العربية
- الإنجليزية

**المتطلب الجامعي:**
- لا يوجد

**المتطلبات السابقة:**
- الفصل الأول أو الثاني من السنة الأولى

**وصف المقرر:**
- تعريف طبيعة الاتصال وعناصره وأنواعه وخصائصه وأهدافه وكفاءة الاتصال ومعيقاته وأدواته، العلاقة بين الاتصال اللغوي والاتصال غير اللغوي.
- مفهوم الذات، والإفصاح عن الذات.
- مهارة الإقناع، المقابلات الشخصية، القدرات الشخصية التي تسعى إليها القطاعات.
- مهارة كتابة السيرة الذاتية.
- مهارة الإلقاء والعرض الفعال.

**تقييم المقرر:**
- المقرر الدراسي المؤلف من قبل الجامعة (مهارات الاتصال), الطبعة الأولى 2016.

**المراجع:**
- كتاب الدراسة: نهج، رمز المقرر 000

**المخرجات التعليمية:**
- بعد اجتياز المقرر يكون الطالب قادراً على:
  1. الاتصال الفعال مع مختلف البيئات والثقافات.
  2. استيعاب الاختلافات الثقافية في المجتمعات والبيئات المختلفة.
  3. استخدام طرق تطوير الذات وتسويقها محلياً وعالمياً.
  4. توظيف التكنولوجيا الحديثة في تطوير كفاءة عملية الاتصال.

**الواجبات:**
- الاختبارات القصيرة
- التصحيح
- المشروع
- الاختبار النهائي
- التقرير

**التقييم:**
- الاختبارات الدورية
- الاختبارات القصيرة
- الاختبارات النهائية

**المراجع:**
- كتاب الدراسة: نهج، رمز المقرر 000

**المخرجات التعليمية:**
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**التقييم:**
- الاختبارات الدورية
- الاختبارات القصيرة
- الاختبارات النهائية

**المراجع:**
- كتاب الدراسة: نهج، رمز المقرر 000
وصف المقرر:
يهدف هذا المقرر إلى مساعدة الطالب على إدارة ذاته وقدراته وإمكاناته بصورة تقوم إلى النجاح والتفوق والإبداع واكتساب عدد من الاستراتيجيات والأساليب البحثية وأدوات التعلم والتفكير بصورة إيجابية سليمة واستخدام سلسلة من الأدوات الحقيقية والإستراتيجية الفاعلة، التي تساعد على تحصيل المعرفة، وتنظيمها وسرعة استدعائها واعداد البحوث العلمية وعرضها. كما يهدف المقرر إلى تعزيز أدوات واستراتيجيات التعلم الذاتي وأنماطه وطرقه وكذلك أدوات واستراتيجيات التعلم في بيئة التعلم الإلكترونية.

المخرجات التعليمية: بعد اجتياز المقرر يكون الطالب قادرًا على أن:
1. تعريف المفاهيم الأساسية المتعلقة بالمهارات الأكاديمية.
2. استخدام مهارات التعلم في دراسته الجامعية بإتقان.
3. تطبيق المهارات الأساسية للبحث العلمي.
4. توظيف التفكير السليم في المواقف الأكاديمية والحياتية المختلفة.

التقييم:
التقنب: الاختبارات القصيرة | الاختبارات الدورية | مشروع | الاختبار النهائي
الفgetJSONات: | "| "| "
| "| "| "| "
| "| "| "| "
| "| "| "| "
| "| "| "| "

المقرر الدراسي المؤلف من قبل الجامعة (المهارات الأكاديمية الجامعية)، الطبعة الأولى 2019.

المراجع:

<table>
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<tr>
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<th>Course Name</th>
<th>Credit Hours</th>
<th>Teaching Language</th>
<th>Track</th>
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</thead>
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<td>English</td>
<td>University requirement</td>
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Department | Course Code: |
<table>
<thead>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>MATH001</td>
</tr>
</tbody>
</table>
### Course Description:
This course will address the outcomes of introductory and intermediate algebra. Topics include: basic algebraic properties, integers, simplifying and factoring polynomials, solving and graphing linear equations and inequalities, solving systems of equations in two and three variables, functions, rational expressions, quadratic and rational equations and inequalities, absolute value, graphing systems of equations and inequalities, and other selected topics. Applications will be emphasized, and numeric, algebraic, and graphical modes will be used.

### Course learning outcomes:
Upon completion of this course, student should be able to:

1. Demonstrate an understanding of basic mathematical concepts
2. Solve equation problems and algebraic expressions
3. Apply mathematical thinking skills
4. Develop and maintain problem solving skills

### Grading:

<table>
<thead>
<tr>
<th>Mid-Term Exams</th>
<th>Quizzes</th>
<th>Assignments</th>
<th>Final Exam</th>
<th>Project</th>
<th>Lab Work</th>
</tr>
</thead>
</table>

### Text Book:
وصف المقرر

يعد مقرر الثقافة الإسلامية من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث تتم دراسته في أحد المستويات الدراسية للطالب حسب رؤية الكلية التي تبعها لطالب، ويقوم بتدرسه أحد أعضاء قسم الدراسات الإسلامية.

يتناول المقرر في وحداته موضوعات تشمل:
- تعريف الثقافة ومصطلحاتها
- الثقافة الإسلامية، نشأتها، ومنهجها
- مصادر علم الثقافة الإسلامية
- موضوعات علم الثقافة الإسلامية
- ركائز الثقافة الإسلامية
- أركان الإيمان الستة
- أركان الإيمان الستة
- مكونات الثقافات الكبرى
- الثقافة الإسلامية والثقافات الأخرى
- التحديات التي تواجه الثقافة الإسلامية
- تابع التحديات التي تواجه الثقافة الإسلامية

المخرجات التعليمية

- أن يقارن الطالب بين تعريفات الثقافة، والمصطلحات ذات الصلة.
- أن يشرح الطالب خصائص الثقافة الإسلامية التي تميزت بها عن غيرها.
- أن يشرح الطالب أهم المصادر التي تُستمد منها ثقافتنا الإسلامية.
- أن يصف الطلاب موضوعات علم الثقافة بحسب الأتراج.
- أن يخصص الطلاب أبرز الراكز التي تقوم عليها الثقافة الإسلامية.
- أن يقص الطلاب الثقافات الكبرى نقدًا موضوعياً.
- أن يناقش الطلاب أهم التحديات التي تواجه الثقافة الإسلامية وكيفية مواجهتها.

التقييم

التقييم

المقرر الدراسي

الكتاب الدراسي

المراجع

المعامل

الاختبارات القصيرة

الاختبارات الدورية

الاختبار النهائي

الواجبات

المقرر الدراسي المؤلف من قبل الجامعة (الثقافة الإسلامية).

المراجع

قسم العلوم الإنسانية

كلية العلوم والدراسات النظرية

القسم

اسم المقرر

ثقافة إسلامية

رقم المقرر

2002

اللغة العربية

نوع المطلب

اللغة الإنجليزية

ساعات الأتراج

2

اللغة العربية

نية التدريس

مكتب جامعة

ريف المقرر

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اللغة الإنجليزية

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وصف المقرر

 يعد مقرر الأخلاق والأخلاق في الإسلام من متطلبات الجامعة الإجبارية لأيدي من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث يتم دراسته في أحد المستويات الدراسية للطالب حسب رؤية الكلية التي يتبع لها الطالب، ويقوم بتدريسه أحد أعضاء قسم الدراسات الإسلامية.

يتناول المقرر في وحداته عدة مصطلحات تشمل:
- تعريف الأخلاق وأيامها ومكانتها في الإسلام وأهمية دراستها.
- أسلوب الأخلاق السليمة.
- خصائص الأخلاق في الإسلام.
- الخلق عند غير المسلمين.
- وسائل اكتساب الأخلاق.
- المسؤولية الأخلاقية.
- صور من الحياة النبي صلى الله عليه وسلم.
- النعمة والاستشارة ومكافحة الفساد.
- مفاهيم أخلاقيات المهنة.
- دور الأخلاق في العمل والأنشطة.
- الأخلاق الجامعة للمهنة.
- بعض مواثيق المهن المعاصرة.

المخرجات التعليمية

1. أن يوضح الطالب معنى الأخلاق ومكانتها في الإسلام.
2. أن يذكر الطالب أسلوب الأخلاق الإسلامية.
3. أن يصف الطالب أسلوب الحياة النبي صلى الله عليه وسلم.
4. أن يستنبط الطالب خصائص الأخلاق في الإسلام.
5. أن يصف الطالب وسائل اكتساب الأخلاق الحميدة.
6. أن يقارن الطالب بين الأخلاق، والنزاهة، وكيفية الفساد.
7. أن يميز الطالب الأخلاق المتعلقة بالمهم.

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اللغة العربية

لغة التدريس
وصف المقرر

يعد مقرر النظام الاقتصادي في الإسلام وقضاياه من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث يتم دراسته في أحد المستويات الدراسية للطالب حسب رؤية الكلية التي يتبع لها الطالب، ويقوم بتدريسه أحد أعضاء قسم الدراسات الإسلامية.

يتناول المقرر في وحداته الموضوعات التالية:

- مفهوم القضايا الاقتصادية وأهمية دراستها (مداخل للمقرر).
- التأمين: تعريفه وأركانه وخصائصه وحكمه.
- بورصة الأوراق المالية: تعريفها وأقسامها ودورها واعدةها وحكمها الشرعي.
- غسيل الأموال: مفهومه وصورة وحكمه وأثاره.
- الخصخصة: مفهومها وأشكالها واعدةها وضوابطها وحكمها.
- صكوك الإجارة: تعريفها وخصائصها واعدةها وحكمها.
- العولمة الاقتصادية: معاها وإحداثها وإدارتها وأثارها الاقتصادية وسياسات منظمات العولمة الاقتصادية.
- المعاملات المصرفية الإلكترونية: البيع الإلكتروني والإلزامي الإلكتروني والأوراق التجارية الإلكترونية والتحويل المصرفية الإلكتروني ومخاطر المعاملات الإلكترونية.
- التكامل الاقتصادي: مفهومه وعواصمه ومراحله ومتطلباته.
- التضخم الاقتصادي: مفهومه وأنواعه وأسباسه وآثاره وسائل التغلب عليه.

المخرجات التعليمية

1. أن يحدد الطالب الأنظمة الاقتصادية
2. أن يعرف الطالب بورصة الأوراق المالية
3. أن يذكر الطالب عنى التأمين وحكمه وانواعه
4. أن يوضح الطالب عنى غسيل الأموال وآثاره وحكمه
5. أن يطلع الطالب على ماهية الخصخصة وصكوك الإجارة واعدةها وحكمها
6. أن يستنتج الطالب أنواع المعاملات المصرفية الإلكترونية وميقاتها
7. أن يعرف الطالب عنى التكامل الاقتصادي وأهمية وأسباب التضخم الاقتصادي وآثاره

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| المقرر الدراسي المكلف من قبل الجامعة (الثقافة الإسلامية). |

### المخرجات التعليمية

1. التعرف على مفهوم المجتمع من منظور إسلامي
2. التعرف على حقوق الإنسان في الإسلام
3. التعرف على أهمية بناء المجتمع في الإسلام
4. التعرف على الزوج و أحكامه في الإسلام
5. التعرف على عناية الإنسان بالمرأة في الإسلام
6. أن يوضح الطالب مفهوم تحديد النسل
7. أن يفرق الطالب بين تحديد النسل وتنظيم النسل
8. أن يوضح الطالب مفهوم المجتمع الإسلامي
9. أن يفرق الطالب بين ما هو متوافق مع الإسلام وما هو مخالف له في المواثيق الدولية لحقوق الإنسان
10. أن يوضح الطالب قوانين الاعتدال في الإرسال
11. أن يفرق الطالب بين الزواج الصريح والزواج الفاسد
12. أن يدرك الطالب حكمة التشريع الإسلامي في المسائل التي تتشابه أو تختلف فيها المرأة عن الرجل
13. أن يوضح الذين وسائل تحديد النسل
14. أن يدرك الطالب الفرق بين تحديد النسل وتنظيم النسل

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**وصف المقرر**

يعد مقرر النظام الاجتماعي وحقوق الإنسان في الإسلام من متطلبات الجامعة الإجبارية لجميع طلاب وطالبات الجامعة السعودية الإلكترونية، حيث يتم دراسته في أحد السنوات الدراسية للطالب حسب رؤية الكلية التي يتبع لها الطالب، ويقوم بتدرسه أحد أعضاء قسم الدراسات الإسلامية.

يتناول المقرر في وحداته عدة موضوعات تشمل:

- مفهوم المجتمع: تعريفه، الإنسان في الإسلام، أسس بناء المجتمع، عناية الإنسان بالمجتمع، تقوية الروابط الاجتماعية.
- الآية في الإسلام: تعريفها، أهميتها، أسس بناء الأسرة، الزواج، وفقرات الزوج، حقوق الأم، الأولاد والأقارب، مكانة المرأة وحقوقها في الإسلام.
- الشبهات حول النظام الأسري في الإسلام والرد عليها: تعدد الزوجات، الحجاب، حاكم المرأة، وحقوق المرأة.

### المراجع

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<th>College</th>
<th>Science and Theoretical Studies</th>
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<tr>
<td><strong>Course Name</strong></td>
<td>Discrete Mathematics</td>
<td><strong>Course Code:</strong> MATH150</td>
</tr>
<tr>
<td><strong>Credit Hours</strong></td>
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<td><strong>Contact Hours</strong> 3</td>
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<tr>
<td><strong>Teaching Language</strong></td>
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<tr>
<td><strong>Track</strong></td>
<td>☑ College Req.</td>
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<td><strong>Prerequisite</strong> Pass First Common Year</td>
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**Course Description:**
This course introduces students to fundamental algebraic, logical and combinatorial concepts in mathematics. Topics include Boolean Logic, Predicate Logic, sets, mapping, relations, elementary counting principles, algorithm & proof techniques, graphs, and recursions.

**Course learning outcomes:** Upon completion of this course, student should be able to:
1. Solve Boolean Logic and Predicate Logic problems.
2. Solve basic counting problems including permutations and combinations.
3. Apply the concept of recurrence to algorithms and counting problems.
4. Apply the concept of growth functions to compute the complexity of simple algorithms.
5. Identify specific types of graphs & trees and Apply several classic algorithms related to applications in graphs and trees.

**Grading:**
| ☑ Mid-Term Exams 25 | ☑ Coursework 25 | ☑ Final Exam 50 |

**Text Book:**

**Reference Book (s):**
Course Name: Technical Writing  
Course Code: ENG103

Credit Hours: 3 credit Hours  
Contact Hours: 3

Teaching Language: ☑ English  ☐ Arabic


Course Level: 3  
Prerequisite: Pass First Common Year

Course Description:
This course offers a general overview on principles and procedure of technical writing; attention to analyzing audience and purpose, organizing information, designing graphic aids, and writing such specialized forms as abstracts, instructions, and proposals. Students systematize and organize knowledge in ways that will help them in all of their courses. The course also emphasizes the elements of good writing style, appropriate grammar and mechanics, clarify of language and logical and cohesive development.

course learning outcomes: Upon completion of this course, student should be able to:
1. Identify the elements that affect writers' and users' perception of written documents.
2. Implement theories of document design.
3. Demonstrate the recursive nature of writing process.
4. Develop strategies for written and/or oral communication that foster mutual respect and responsibility.
5. Produce ethically responsible professional documents.
6. Develop effective arguments in professional documents using discursive and visual information.
7. Produce professional documents using various technologies

Grading: ☑ Mid-Term Exams 25  ☑ Coursework 25  ☑ Final Exam 50


Reference Book (s):
# CS140

**Course Code:** CS140  
**Course Name:** Computer Programming, I  
**Contact Hours:** 3  
**Credit Hours:** 3 credit Hours  
**Teaching Language:**  
- [ ] Arabic  
- [x] English  
**Track:**  
- [x] College Req.  
- [ ] Dep. Req.  
- [ ] Dep. Spec  
- [ ] Dep. Elective  
**Course Level:** 3  
**Prerequisite:** Pass First Common Year  

## Course Description:
This course is to introduce the students to the principles of computer analysis of problems, design of algorithms, programming and testing using the Java programming language. Topics include problem analysis, basics of Programming, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging.

## Course learning outcomes:
Upon completion of this course, student should be able to:
1. Explain the basic principles of programming, concept of language. Universal constructs of programming languages.
2. Design algorithms using pseudo-code, flowcharts, and structured charts.
3. Demonstrate Integrated Development Environment (IDE) for the editing, building, debugging, and testing of programs.
4. Develop a program based on specification using programming language elements including syntax, data types, conditional statement, control structures, procedures and arrays.

## Grading:
<table>
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<th>Grade Components</th>
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</table>

## Text Book:
### Course Description:

This course is an introductory course in information technology and information systems technology. The purpose of this course is to familiarize students with application of IT systems in various professional spectrums in the form of Information systems. Topics include basic hardware, software, data and overview of use of information technology in organizations. This course also provides an understanding of information systems and outlines the concepts of how IS can provide for competitive advantage. The course will also discuss about the management challenges facing organization today and how it affects business and society.

### Course Learning Outcomes:

Upon completion of this course, student should be able to:

1. Explain the significance of information technology and its applications in professional life.
2. Classify the business areas to which computers may be applied.
3. Illustrate how business requirements drive the information and knowledge needs of an organization for competitive advantage.
4. Demonstrate the use of emerging technology drivers such as Electronic Business, Data Mining and Networking solutions.
5. State the basic concepts of computer hardware and software.
6. Interpret the management challenges faced by information systems being implemented in organizations today, and how they affect business and society.

### Grading:

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<th>Component</th>
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</table>

### Text Book:


### Reference Book(s):

None
# Course Description:
This course offers a comprehensive understanding of the structure of computational systems. This course deals with the nature of computer hardware. The course will cover the structure of current computer systems at the level of functional organization, representation of data and programs, the design of the memory hierarchy, and the design of the I/O system. This course also will introduce basic assembly language.

# Course learning outcomes:
Upon completion of this course, student should be able to:
1. Describe the structure of computer systems.
2. Demonstrate various machine language concepts.
3. Develop assembly language programs.
4. Interpret the effects of good programming for efficient machine processing.
5. Analyse the relationship between computer system structure and performance.

# Grading:

<table>
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<th>Final Exam</th>
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<tr>
<td>Weight (%)</td>
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<td>25</td>
<td>50</td>
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</table>

# Text Book:

# Reference Book(s):
## Course Description:
This course is the logical extension of Computer programming 1. In this course, students will be taught to work on complex data structures and algorithms. Major focus of this course is to prepare the transition from conventional functional programming to more relevant object oriented programming. Topic includes Concepts of object oriented (OO) programming: data abstraction, encapsulation, inheritance, and polymorphism. Also includes key data structures including stacks, queues, linked lists, binary trees, recursion and examples using some fundamental algorithms of computer science. Java programming languages will be used.

## Course learning outcomes:
Upon completion of this course, student should be able to:

1. Outline concepts such as inheritance, polymorphism and reusability with special emphasis on object-oriented programming.
2. Apply recursion concept in programming.
3. Design and implement programs using object-oriented programming concepts such as encapsulation, inheritance, polymorphism, abstract classes and methods.
4. Demonstrate dynamic data structures such us linked lists, stacks and queues, and binary trees.

## Grading:

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<th>Category</th>
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<tr>
<td>Mid-Term Exams</td>
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<td>Final Exam</td>
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## Text Book:
Course Description:
This course introduces the student to statistics with business applications. The course covers both descriptive and inferential statistics. Topics included are: measures of central tendency; measures of dispersion; graphical displays of data; linear regression; basic probability concepts; binomial and normal probability distributions; confidence intervals; and hypothesis testing of mean, proportion for one or two populations. The course also covers ANOVA and hypothesis tests for Goodness of Fit. These topics will be covered using a basic knowledge of algebra and Microsoft Excel.

course learning outcomes:
1. Define Statistics by examine the function, role and skill of Statistical uses.
2. State, reproduce and describe the issues and practices of Statistics that how they use the statistical data in Business.
3. Explain the issues and practices of Statistics that how they use the statistical data in Business. Compute and interpret descriptive measures of a data set.
4. Apply the concepts of statistics to a business situations.
5. Analyze the concepts of normal probability distributions.
6. Use the concepts of discrete and normal probability distributions.
7. Formulate testing of hypotheses in constructing and interpreting confidence intervals.
8. Analyze data sets using linear regression and correlation.
10. Interpret results obtained from data analyzed using software packages.
11. Evaluate the data using business software packages and interpret the results.
12. Assess the numerical efficiency of Statistics in Business and research.

Grading:

<table>
<thead>
<tr>
<th>Mid-Term Exams</th>
<th>Coursework</th>
<th>Final Exam</th>
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Text Book:
### Course Description:
Software engineering as an academic discipline is responsible for educating the IT practitioners in skills required to develop, operate and maintain software in systematic, orderly and successful manner. This course covers the fundamentals of software engineering, including understanding system requirements, finding appropriate engineering compromises, effective methods of design, coding, and testing, team software development, and the application of engineering tools.

### Course learning outcomes:
Upon completion of this course, student should be able to:
1. Explain different software processes and how to choose between them.
2. Design in the large, including principled choice of a software architecture, the use of modules and interfaces to enable separate development, and design patterns.
3. Elicit requirements from a client and specify them.
4. Demonstrate various quality assurance techniques, including unit testing, functional testing, and automated analysis tools.
5. Apply good coding practices, including documentation, contracts, regression tests and daily builds.

### Grading:
- Mid-Term Exams: 25
- Coursework: 25
- Final Exam: 50

### Text Book:
Course Description:
The aim of this course is to familiarize students with principles, architecture and working of a standard operating system. After completing this course, students will appreciate the significance of operating system on program efficiency, synchronization, multi-tasking and other related topics. Topics include: Computer and operating system structures, Process and thread management, Process synchronization and communication, Memory management, Virtual memory, File system, I/O subsystem and device management and Selected examples in networking, protection and security.

course learning outcomes: Upon completion of this course, student should be able to:
1. Describe the OS mechanism for process management, timing, memory, I/O, file and concurrency management.
2. Identify the services of modern operating systems and use system calls.
3. Identify the POSIX that use the basic OS mechanism.
4. Recognize the impact of the interaction between design decisions and operating system features on the performance and robustness of the programs.
5. Assess the performance of the programs through well designed measurements using OS timings features.

Grading:  
Mid-Term Exams 25  Coursework 25  Final Exam 50


Reference Book(s):
## Course Description:
This course combines management theory and practices, placing emphasis on the development and application of competencies required for effective leadership, including planning, motivating, organizational control, change management, and decision-making, using current domestic and global business issues in the context of ethical, team centered organizations. The course includes practice in conflict resolution and mediation, fostering improvement of working relationships, through the use of activities that integrate emotional intelligence and communication skills that help create a productive work environment.

### course learning outcomes:
Upon completion of this course, student should be able to:

1. Identify and explain the concept of management, functions, roles and skills of a manager.
2. Demonstrate an understanding of the structure of an organization in reference to its business policies.
3. Recognize the functions of planning, organizing and controlling and how they interrelate.
4. Apply knowledge and techniques of strategic planning and decision making.
5. Carry out organization’s role in ethics, diversity, and social responsibility.
6. Apply knowledge and function effectively on teamwork activities, management skills to create a development plan.
7. Develop information technology skills for fast and effective means of communication to address business issues.

### Grading:

<table>
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<th>Component</th>
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<tbody>
<tr>
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<td>Coursework</td>
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<td>Final Exam</td>
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</tbody>
</table>

### Text Book:
College: Science and Theoretical Studies

Department: MATH251

Course Name: Linear Algebra

Credit Hours: 3 credit Hours

Contact Hours: 3

Teaching Language: ☑ English


Course Level: 4

Prerequisite: Math150

Course Description:
Topics include systems of linear equations, their applications, and solutions. Matrices, vectors, elementary operations on vectors, linear independence, spanning sets, and bases. Eigenvalues, eigen-vectors, and eigenspaces will be discussed. Example applications will be given, especially, in IT systems.

course learning outcomes: Upon completion of this course, student should be able to:
1. Use computational techniques and algebraic skills
2. Solve the system of linear equations using determinants and matrices
3. Apply the properties of eigen vectors and eigen values of matrices
4. Identify linear transformations of finite dimensional vector spaces
5. Classify special forms of matrices

Grading: ☑ Mid-Term Exams 25 ☑ Coursework 25 ☑ Final Exam 50

Text Book:

Reference Book (s):
### Course Description:

A summer period of 8 weeks spent as a trainee in industry, business, or government agencies for the purpose of familiarizing the student with the real job world and enabling him to apply and relate his academic knowledge to a real work environment.

### Learning Outcomes:

Upon completion of this course, student should be able to:
1. Record the functions and their execution as carried out in the field organization.
2. Recall the theoretical concepts and apply during the field experience.
3. Develop IT skills by working alongside experienced professional in business environment.
4. Analyze the effectiveness of learned knowledge while applying it in industry.
5. Demonstrate the skills and excellence gained at campus while working in technical domain.
6. Present the aspects of practical work to an audience of peers and staff in the form of final report.

### Grading:

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</table>

**Text Book:** Interactive text book will be provided

**Reference Book (s):**
3 - Specialization requirements
### Course Description:
This course introduces the fundamental principles of problem analysis and software design to the students of college. In this regard the focus is on object-oriented approaches for modelling software requirements and leading to software design. The course is designed to integrate theoretical concepts of system analysis and design with practical examples and case studies so as to teach both the theory and the practice of this subject. In this course students will understand about practical techniques of software requirements, analysis, design, architecture and associate concepts. The object-oriented software industry over the last few years has gone through the process of standardizing visual modeling notations. The students will get familiarity with UML, Unified Modeling language, a modeling language for specifying, visualizing, constructing, and documenting, is the product of this effort. UML unifies the notations that currently exist in the industry.

### course learning outcomes: Upon completion of this course, student should be able to:
1. Describe the role of analysis and design in software development.
2. Recognize software requirements and analysis to properly assess the problem faced by the client and suggest an appropriate solution.
3. Design a system by applying principles and methodology of object oriented design (i.e. UML).
4. Use most common analysis and design techniques with comfort.
5. Demonstrate the role of software quality assurance and software testing for successful software development.

### Grading:

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### Text Book:
# Introduction to Database

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## Course Description:

The course familiarises students with significance of maintaining a computer based database using DBMS and its potential advantages to the organization. The students at the completion of this course will be able to understand the principal database concepts and develop a simple database for a small organization using standard DBMS. In this course, students should study the following topics: Basic concepts in database systems and architectures; Entity-Relationship model, Data models (including basics of Relational model & SQL), Database Design (Database dependencies and Normalization), Database implementation.

## Course Learning Outcomes:

Upon completion of this course, student should be able to:

1. Explain database concepts, systems, and architectures.
2. Create entity-relationship model, relational model, and write SQL queries.
3. Design a database starting from the conceptual design to the implementation of database schemas.
4. Apply principles and concepts of information integrity, security and confidentiality.

## Grading:

| ☑ Mid-Term Exams | 25 | ☑ Coursework | 25 | ☑ Final Exam | 50 |

## Text Book:


## Reference Book (s):
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<td>Credit Hours</td>
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**Course Description:**
This course provides an introduction to the field of Human Computer Interaction (HCI). Therefore, the course provides an overview about the fundamental components of an interactive system which include the human, the computer system itself and the nature of the interaction. It presents also different interaction models, frameworks and styles. Moreover, it includes the interaction design process and highlights the range of design rules that can help to increase the usability of software products. In addition, it includes the evaluation techniques under two broad headings: expert analysis and user participation. Furthermore, it discusses how to design a system to be universally accessible, regardless of age, gender cultural background or ability.

**course learning outcomes:** Upon completion of this course, student should be able to:

1. Define the interaction design process, and describe different types of design rules that support the usability. (1.1)
2. Apply content management and representation needs on various computer, and handheld platforms. (1.4)
3. Demonstrate theoretical concepts for analyzing observed problems in interfaces, models and frameworks from the field of HCI. (2.2)
4. Explain and apply important concepts related to various interface artefacts and their appropriate application. (2.3)
5. Use appropriate evaluation techniques in HCI (3.3).
6. Interpret universal design in accordance with international standards. (4.1)

**Grading:**
- ☒ Mid-Term Exams 25
- ☒ Coursework 25
- ☒ Final Exam 50

**Text Book:**

**Reference Book(s):**
Course Name: Computer Networks
Course Code: IT210
Credit Hours: 3 credit Hours
Contact Hours: (3-0-1)
Teaching Language: ☑ English
Course Level: 5
Prerequisite: IT241

Course Description:
Fundamental concepts in the design and implementation of computer communication networks and their protocols. This course provides students with hands on experience in most state of the art networking tools, technologies, standards and protocols. This includes layered network architectures, applications, transport, congestion, routing, data link protocols, local area networks. An emphasis will be placed on the protocols used in the Internet.

course learning outcomes: Upon completion of this course, student should be able to:
1- Explain networking principles, models and technologies. (1.1)
2- Outline the physical layer & associated hardware and software integration. (1.1)
3- Recognize the layered approach for networking. (1.3)
4- Analyze & design Local and Wide Area Networks. (2.3)
5- Demonstrate protocol configuration, network-addressing schemes and analyze packet transmission. (3.2)
6- Illustrate network protocols including Transport Control Protocol / Internet Protocol. (4.1)

Grading: ☑ Mid-Term Exams 25 ☑ Coursework 25 ☑ Final Exam 50

Text Book: Data Communications and Networking, 5/e by Behrouz A. Forouzan, ISBN: 0073376221
Copyright year: 2013 (McGraw-Hill)
### Course Description:
After the course of database, this course is intended to make the students practically proficient with using standard state of the art database management systems for development of organizational databases. In this course, students would study the following topics: DBMS architecture and administration; centralized and client-server approaches, system catalogue and data dictionary, transaction management; concepts, characteristics, and processing, recovery techniques, concurrency control techniques, DB security, object-oriented databases.

**Course learning outcomes:** Upon completion of this course, student should be able to:
1. Recognize database file organization and indexing (1.1)
2. Apply the concepts of transaction management, concurrency and recovery of a database. (2.3)
3. Develop a standard database using DBMS. (3.2)
4. Analyze and optimize algorithms for query processing (4.1)

### Grading:
- **Mid-Term Exams**: 25
- **Coursework**: 25
- **Final Exam**: 50

### Text Book:
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### Course Description:
In this course students will be familiarized with web application development including both client side as well as server side development and database connectivity. Topics such as Introduction to the Internet, World Wide Web, World Wide Web Consortium (W3C), standard mark-up language and services of the Internet. Topics include creating web pages, search engines, FTP, and other related topics. Students will get descriptions of client side and servicer side programming. Upon completion, students should be able to deploy a hand-coded web site created with mark-up language, and effectively use and understand the function of search engines.

### Course Learning Outcomes:
Upon completion of this course, student should be able to:
1. Identify the elements and attributes of web pages. (1.1)
2. Design and manipulate web databases. (1.4)
3. Create web pages using XHTML and Cascading Styles sheets. (2.2)
4. Develop dynamic web pages using JavaScript (2.3)
5. Build web applications using PHP or similar languages. (3.2)
6. Write XML documents & XML Schema. (4.2)

### Grading:
- ☑ Mid-Term Exams 25
- ☑ Coursework 25
- ☑ Final Exam 50

### Text Book:

### Reference Book(s):
  Publisher: Jones & Bartlett Learning ISBN-13: 9781284070682

- Object-Oriented Design with Applications 3/E(2007) by Grady Booch, Robert A. Maksimchuk, Michael W. Engle, Bobbi J. Young, Jim Conallen, Kelli A. Houston
  Publisher: Addison-Wesley Professional

- Internet and World Wide Web: How to Program 5/E(2011) by (Harvey & Paul) Deitel & Associates; Harvey Deitel; Abbey Deitel
  Publisher: Pearson
### Course Description:
This course is mainly designed to prepare students with the knowledge to be IT project managers with project management skills needed to better manage IT projects. Built along the IT project management lifecycle, this course covers detailed topics of the basic concepts of IT project management, including initiating, planning, controlling, executing, and closing projects. The course also shows how IT projects should be managed, from inception to post implementation review. This course will help improve management skills and abilities to define the project scope, create a workable project plan, and manage within the budget and schedule.

### Course Learning Outcomes:
Upon completion of this course, students should be able to:
1. Explain the job roles of an IT project manager. (1.1)
2. Demonstrate the project management lifecycle. (1.2)
3. Evaluate project team management and analyze project performance. (1.4)
4. Recognize the key issues during the IT project management procedures and describe the best practices in IT project management procedures. (2.1)
5. Assess the tasks in the project initiation phase including identifying business requirements, stakeholders, and project team responsibilities.
6. Apply the strategies for managing change and for assuring quality. (3.3)
7. Develop a comprehensive project plan for estimation, scheduling, communication, resource management, procurement, risk and quality. (4.1)

### Grading:
- **Mid-Term Exams**: 25
- **Coursework**: 25
- **Final Exam**: 50

### Text Book:

### Reference Book (s):
2. The electronic textbook for reading is an online eBook: [http://www.epmbook.com/](http://www.epmbook.com/)
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**Course Description:**

This course addresses how to manage complex high speed computer networks running a high-volume mix of data, voice, and video protocols. This course prepares the graduating students to assume positions of network administrators in medium to large organizations. We study performance-tuning options and monitoring techniques. The course covers both large local-area networks and Internet service-provider networks. Special focus will be on network management applications with focus on performance optimization, fault management, and security management. Also, hardware-oriented management protocols such as SNMP, tools for managing software applications, and policy-based routing protocols such as BGP will be covered. Will also cover Advanced IP configuration using iproute2 package, how to tune networks for real-time traffic such as RTP and VOIP, and network-management tools such as OpenNMS and GroundWork. There will be a programming project involving development of a network-monitoring tool, preferably using Java.

**course learning outcomes:** Upon completion of this course, student should be able to:

1. Describe network management issues, standards and architecture. (1.1)
2. Recognize conceptual and practical knowledge of different versions of Simple Network Management Protocol (SNMP). (1.4)
3. Evaluate different SNMP tools, network statistics tools, and protocol analyzer for network management. (2.3)
4. Demonstrate broadband networking services and technologies. (3.3)
5. Differentiate between various wired and wireless broadband network access techniques. (4.1)

**Grading:**

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**Text Book:**


**Reference Book (s):**

Network Management Systems Essentials (Mcgraw-Hill) by Divakara K. Udupa
Course Description: Enterprise systems are a category of information systems which have been heavily adopted in practice since the 1990s. Enterprise systems are usually based on packaged software products, they drive for cross-functional integration and require organization-wide resources for their implementation. This course is designed to provide a comprehensive insight into theoretical foundations, concepts, tools and current practice of enterprise systems. The course will familiarize students with basic concepts of Enterprise systems. The students will gain good experience and knowledge of working with major types of enterprise systems such as ERP systems, CRM systems, Enterprise portals etc. They will learn about major modules, integration issues, data communication and other related topics.

course learning outcomes: Upon completion of this course, student should be able to:

1. Analyze and redesign business processes within small, medium and large corporate enterprise. (1.4)
2. Design secure and flexible information and communication architectures that support the changing needs of the business. (2.2)
3. Develop IT systems within small, medium and large corporate enterprises. (2.3)
4. Develop robust business IS solutions that integrate new and existing business processes, structures, applications, within a global context. (3.1)
5. Manage resources and finance of corporate enterprise IT systems. (4.2)

### Course Description:
In information technology, systems integration is the process of linking together different computing systems and software applications physically or functionally to act as a coordinated whole. Variety of techniques related to integration will be covered such as computer networking, enterprise application integration, business process management and manual programming. Various methods of integration including Vertical Integration, Horizontal Integration, Star Integration and Common Data Format Integration (using Enterprise application integration, EAI) will be covered.

### Course learning outcomes:
Upon completion of this course, student should be able to:

1. Explain the system requirements and architecture. (1.1)
2. Apply a systems perspective when making integration and test decisions. (2.3)
3. Illustrate the hard and soft constraints within the organization when transitioning from one model to another. (3.3)
4. Demonstrate various procedures and guidelines implemented in the organizations to ensure successful integration and transition. (4.1)
5. Define documentation and manage interfaces during system development. (4.2)

### Grading:

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### Text Book:


### Reference Book(s):

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Course Description:
This course will equip undergraduate Information Technologies students with the basic skills to conduct researches in the field of Information Technologies. The course aims to introduce the required techniques for conducting a research, implementing systems, writing technical reports and the skills for presenting the work for audiences. This course will particularly focus on topics which are related to the field of information technologies. The course will also provide guidance to the students in selecting their projects, understanding the research process as well as the tools needed to support implementing the system and writing its documentation. The course discusses other issues including research methods that are normally used in researches such as experiments, survey, interview and simulations, understanding the importance of literature review, preparing visual presentations and other ethical issues such as plagiarism.

Course learning outcomes: Upon completion of this course, student should be able to:
1. Suggest and evaluate proposed solutions to find the optimal one. (1.3)
2. Identify the problem and resulting requirements for the proposed system (2.1)
3. Demonstrate requirements using UML and other associate tools (2.2)
4. Carry out systematic research and prepare comprehensive literature survey. (3.1)
5. Develop accurate bibliographies and tables of references (4.1)
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**Course Description:** All Elective Courses descriptions are given in separate section after these descriptions.

**Course learning outcomes:** Upon completion of this course, student should be able to:

**Grading:**

- Mid-Term Exams: 25
- Coursework: 25
- Final Exam: 50

**Text Book:**

**Reference Book (s):**
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**Course Description:** All Elective Courses descriptions are given in separate section after these descriptions.

**Course learning outcomes:** Upon completion of this course, student should be able to:

| Grading: | ☑️ Mid-Term Exams | 25 | □ Coursework | 25 | ☑️ Final Exam | 50 |
| Text Book: | | | |
| Reference Book (s): | | | |
### Course Description:
This a continuation of the graduation project started in IS 490. The focus will be in this part on low-level design, implementation, testing and quality assurance as well as management of the project. The outcome of this project must be a significant information system, employing knowledge gained from courses through the curriculum. Students must deliver the code, a final report and must do a presentation of their work as well as a demo.

### Course Learning Outcomes:
Upon completion of this course, student should be able to:
1. Evaluate the developed solution (1.3)
2. Identify and design an appropriate project methodology (2.2)
3. Manage the project using appropriate tools and techniques (3.1)
4. Develop a solution using cutting edge technologies (3.2)
5. Appraise the project experience (3.3)
6. Write a report presenting the problem and its solution (4.1)
7. Present the aspects of the project to an audience of peers and staff. (4.2)

### Grading:
- [ ] Mid-Term Exams
- [x] Coursework 100
- [ ] Final Exam

### Text Book:

### Reference Book (s):
### Course Description:
All Elective Courses descriptions are given in separate section after these descriptions.

### Course Learning Outcomes:
Upon completion of this course, student should be able to:

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### Reference Book(s):

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Program of Science in Information Technology  October 2019  54
**Course Description:** All Elective Courses descriptions are given in separate section after these descriptions.

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**Course learning outcomes:** Upon completion of this course, student should be able to:

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**Grading:**
- ☒ Mid-Term Exams 25
- ☒ Coursework 25
- ☒ Final Exam 50

**Text Book:**

**Reference Book (s):**

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**College** | College of Computing and Informatics  
**Department** | IT  
**Course Name** | Professional Issues in IT  
**Course Code:** | IT407  
**Credit Hours** | 3 credit Hours  
**Contact Hours** | 3  
**Teaching Language** | ☒ English  
**Track** |  
- ❑ College Req.  
- ☒ Dep. Req.  
- □ Dep. Spec  
- □ Dep. Elective  
**Course Level** | 8  
**Prerequisite** | IT270  
**Course Description:**
This course provides an introduction to the field of professional issues which relates to social and ethical issues in computing. This course will cover the major social and ethical issues in computing, including the history of computing, impact of computers on society, and the computer professional codes of ethics.
course learning outcomes: Upon completion of this course, student should be able to:

1. Recognize the responsibilities and duties of a computer professional.
2. Recognize the importance of Intellectual Property, Patents and Referencing Systems.
3. Use the code of ethics in computing within the process of decision making.
5. Apply international labor standards for effective human resource management.
6. Illustrate social and ethical issues in computing as a computer professional.

Grading:

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Course Name: IT Security and Policies  
Course Code: IT409  
Credit Hours: 3 credit Hours  
Contact Hours: (3-0-1)  
Teaching Language: ☑ English  
Course Level: 8  
Prerequisite: IT340

Course Description:
This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.

course learning outcomes: Upon completion of this course, student should be able to:

1. Use effective, proper, and state-of-the-art security tools and technologies.
2. Develop security policies and put in place an effective security architecture that comprises modern hardware and software technologies and protocols.
3. Recognize networking and security, security issues, trends, and security resources.
4. Analyze problems related to the field of Security and Information Assurance.
5. Analyze and apply the most appropriate solutions to problems related to the field of Security and Information Assurance.
6. Recognize processes to implement and enforce policy.

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4 – ELECTIVE COURSES
DESCRIPTION
## Course Description

Data Mining and data warehousing are two of the most valuable knowledge areas emerging in recent times. This course will familiarize the students with the techniques most commonly employed in the analysis of large volumes of data, in the extraction of knowledge from this data, and in making decisions based on the knowledge acquired. Students will also gain knowledge about the problems related to data mining that are not yet resolved satisfactorily at present and, therefore, are open research areas so that students can potentially work on those and find niche in this area of expertise. Major areas of data mining covered in this course include Data mining architectures, Data Integration, Data Warehousing, Data classification, Regression, Clustering, Correlation and several others. Students will learn how to manage heterogeneous data in a data warehouse, OLAP techniques etc.

## Course Learning Outcomes

Upon completion of this course, student should be able to:

1. Explain different data mining tasks, problems and the algorithms most appropriate for addressing them. (1.1)
2. Apply and evaluate data mining algorithms with respect to problems they are specifically designed for. (2.3)
3. Carry out recent data mining techniques and applications. (3.2)
4. Apply a wide range of clustering, estimation, prediction, and classification algorithms. (4.1)

## Grading

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<td>Coursework</td>
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## Text Book


## Reference Book(s)

Data Mining: Concepts and Techniques, 3rd Edition, Jiawei Han, Micheline Kamber and Jian Pei, 2011, ISBN: 978-0-12-381479-1
<table>
<thead>
<tr>
<th>Course Name</th>
<th>Decision Support Systems</th>
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**Course Description:** Decision support systems are playing key role in today’s organizations in taking effective and useful decisions while insulating organizations from effects of wrong decisions. The course is devoted to introduce decision support systems; show their relationship to other computer-based information systems, demonstrate DSS development approaches, and show students how to utilize DSS capacities to support different types of decisions. The topics covered in the course include but not limited to Introduction to decision support systems; DSS components; Decision making and DSS; DSS software and hardware; developing DSS; DSS models.

**Course learning outcomes:** Upon completion of this course, student should be able to:
1. Describe the structure of Decision Support Systems (DSS) and their services.
2. Analyze various industrial applications of DSS and their limitations.
3. Use some DSS and demonstrate the database working with DSS and statistical models.
4. Resolve the issues involved in the management and development of DSS.

**Grading:**

- ☒ Mid-Term Exams 25
- Coursework 25
- ☒ Final Exam 50


**Reference Book (s):**
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**Course Description:** With increase in volume, complexity and heterogeneity in the data of real time systems and large organizations, it is becoming difficult and unviable for organization to maintain a centralized database. The need of distributed database with efficient data storage and retrieval mechanisms coupled with data security is most obvious in today’s IT based economy. This course covers not only the basic technology required for distributed databases, but also some of the emerging technology of database integration, data cleaning, schema matching/mapping and peer-to-peer technology for highly distributed databases. The students will be able to understand the architecture of distributed databases with complete schemas, fragmentation policies and query optimization. Other topics include serializability, transaction processing, concurrency control and data security.

**course learning outcomes:** Upon completion of this course, student should be able to:

1. Explain and apply techniques used for data fragmentation, replication, and allocation during the distributed database design process.
2. Apply simple strategies for executing a distributed query to select the strategy that minimizes the amount of data transfer.
3. Learn how to use two-phase commit procedure for distributed transactions involving multiple nodes.
4. Describe and apply various distributed concurrency control techniques based on the copy and voting methods.

**Grading:**  
- ☑ Mid-Term Exams 25  
- ☐ Coursework 25  
- ☑ Final Exam 50


**Reference Book (s):**
Course Name: Database Administration

Course Code: IT444

Credit Hours: 3

Contact Hours: 3

Teaching Language: English

Track: Elective

Course Level: 8

Prerequisite: IT344

Course Description: The fundamental responsibility to store, organize and retrieve data from database in an efficient and accurate manner for the smooth operations of any organization rests mainly with its database administrator. The database administrator implements the architecture and embeds data with that schema for the organizational needs. This course familiarizes the students with tasks and responsibilities associated with database administration alongside tools and technologies available to execute these tasks. The Database Administrator course will develop the student’s knowledge of relational database design system performance, backup & recovery, and database security.

course learning outcomes: Upon completion of this course, student should be able to:

1. Analyse and model requirements and constraints for the purposes of installing, configuring, and tuning a DBMS
2. Design and implement plans for installing, configuring, and tuning a DBMS, and security, back-up and recovery measures
3. Describe and analyse performance requirements and define appropriate database structures for a given database system
4. Document salient database structures and rules as well as Perform basic administrative functions

Grading:

- Mid-Term Exams: 25
- Coursework: 25
- Final Exam: 50

Text Book:

Reference Book (s):
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<th>Introduction to Cyber Security and Digital Crime</th>
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**Course Description:** With computers, smartphone and hand held devices now almost everywhere, the computing and online presence has become extremely pervasive. Whereas, this has empowered mankind in processing their needs and actions with unimaginable speed, this has also opened doors to continuous threat on online breaches of data and loss of confidential information. This increase the sense of insecurity amongst the users of online applications. The course informs the students about various kind of digital crimes that can be purported against people and methods of cyber security to protect against those. The topics covered include (but not limited to) topics covered in this course include: basic security terminology and professional terms, network basics, tracert, nslookup, ipconfig, ping, DNS, DoS attacks, overview of malware, rules for avoiding viruses and vulnerabilities.

**Course Learning Outcomes:** Upon completion of this course, student should be able to:
1. Explain important principles, and theories used throughout the field of Cybersecurity.
2. Apply knowledge in the field of Cybersecurity to analyse real world problems.
3. Learn and understand national and international policy and legal considerations related to cybersecurity and cyberspace such as privacy, intellectual property, cybercrime etc.

**Grading:**
- ☑ Mid-Term Exams 25
- ☑ Coursework 25
- ☑ Final Exam 50


**Reference Book (s):**
### Course Description:
Every aspect of our society, from business and financial transactions, education and research, medicine, to power grid and other societal infrastructures, is tightly coupled with the functioning of the Internet and its constituent networks. This coupling where has provided immense benefits to mankind with enhanced efficiency, productivity and reliability, it has also empowered a single malicious mind with a tool to cause enormous harms to operations of a networked organization. This class will teach advanced underlying principles of building secure and trustworthy computer networks. This course will provide a deep understanding of how modern networks are designed, their weak points, and both traditional and future approaches to make them resilient. The topics include amongst others physical network security, router mechanisms for security, enterprise network security, IP security, data center operations protection and relevant protocols etc.

### Course Learning Outcomes:
Upon completion of this course, student should be able to:

1. Undertake routine tasks to secure a network (ACLs, VLANs, router authentication).
2. Understand the factors that place an internet based information system at risk.
3. Evaluate and critically analyse the procedures to secure a system against failure, theft, invasion and sabotage
4. Understand authentication protocols and processes as well as learn how to implement them.

### Grading:

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<td>Coursework</td>
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### Text Book:

### Reference Book (s):

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**College:** College of Computing and Informatics  
**Department:** IT  
**Course Name:** Computer Forensics  
**Course Code:** IT411
## Course Description:
Computer forensics are a very critical area of 21st century IT organizations because this knowledge provides tool to contain and combat various kinds of cybercrime. In today’s business world, where data is the ultimate wealth of the organizations, its protection and security becomes very important. Computer forensics as a knowledge equips the graduating students with tools and techniques to protect the security of their organization’s IT assets. This course focuses on the fundamental principles of computer forensics methodology and emerging investigation techniques related to the identification, collection and preservation of digital crime scene evidence. This course emphasizes student awareness in handling suspected digital evidence. Major topics include definition of computer forensics, privileged communication, computer forensics tools, file system management etc.

### Course Learning Outcomes:
Upon completion of this course, student should be able to:
1. Understands the common processes and procedures used to conduct criminal and noncriminal investigations of activities involving evidence with digital media, including the laws that apply to these processes.
2. Understand and learn about how to maintain the chain of evidence in criminal investigations.
3. Discuss the principles that underlie the forensic investigation process.

### Grading:
- **Mid-Term Exams**: 25
- **Coursework**: 25
- **Final Exam**: 50

### Text Book:

### Reference Book(s):

### College and Department:

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<table>
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<tr>
<th>Course Name</th>
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<td>Wireless Sensor Networks</td>
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<table>
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<th>Contact Hours</th>
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<td>3 credit Hours</td>
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Course Description: A wireless sensor network (WSN) generally consists of compact low power sensors, which collect information and pass the information via wireless networks to achieve a high level of desired monitoring and control in coordinated manners. With increased mobility comes greater danger of system malfunctions which can expose several vulnerabilities and dangers to our safety and wellbeing. This course exposes the students with fundamental concepts of wireless sensor networks and their applications. This course covers fundamentals of wireless network technology and distributed sensor networks. After completing this course, the students should be able to understand the principles of WSN and be able to design and maintain WSNs.

course learning outcomes: Upon completion of this course, student should be able to:

1. Learn modelling radio signal propagation issues and analyse their impact on communication system performance
2. Understand how the various signal processing and coding techniques combat channel uncertainties
3. Apply knowledge of wireless sensor networks to various application areas.

Grading: □ Mid-Term Exams 25 □ Coursework 25 □ Final Exam 50


Reference Book (s):
Course Description: The nature of data being employed by organizations for executing their business operations has become very heterogeneous. Today data is multi-dimensional including text, audio, visual and other types. The systems working with traditional database concepts are quickly becoming obsolete being replaced by multimedia systems capable of handling various kind of media. Multimedia data has become an indispensable part of our daily life and modern research projects. It's also one of the critical links in the ongoing unification of computing and communications. In this course, students will be introduced to principles and current technologies of multimedia systems, multimedia standards, and gain hands-on experience in this area. Issues in effectively representing, processing, and retrieving multimedia data such as sound and music, graphics, image and video, will be addressed. Major topics include multimedia application design, data processing and presentation, compression and decompression standards and content based multimedia retrieval, multimedia Development, Scanning process and Professional issues related to multimedia systems.

course learning outcomes: Upon completion of this course, student should be able to:
1. Explain the origin and evolution of modern multimedia.
2. Analyze the key components of multimedia technologies.
3. Develop multimedia related activities that incorporate a variety of digital media.
4. Use existing protocols, standards, and representation techniques in storage and transmission of multimedia information.

Grading:

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<th>Coursework</th>
<th>Final Exam</th>
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Reference Book(s):
## Course Description:
The evolution of computing and IT technologies in the domain of wireless computing has spawned a new horizon of opportunities in the form of mobile smartphone applications. These application provide users with flexibility, mobility and enhanced usability features. The future of IT applications can only be secured by developing their mobile and smartphone versions. This course is aimed at providing students with basic and fundamental knowledge concept of mobile computing. This includes the major techniques involved, and networks & systems issues for the design and implementation of mobile computing systems and applications. This course also provides an opportunity for students to understand the key components and technologies involved and to gain hands-on experiences in building mobile applications. Students will gain knowledge about mobile IP, mobility management, location estimation, location-aware computing, user experience and other topics.

## Course Learning Outcomes:
Upon completion of this course, student should be able to:

1. Explain mobile computing and classify types of mobile devices (1.1)
2. Identify and compare technologies that enable the development of applications for mobile devices. (2.1)
3. Design application interfaces for mobile devices using appropriate software. (4.1)
4. Develop mobile applications for multiple platforms. (3.2)

## Grading:

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## Text Book:
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<td>IT230</td>
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**Course Description:** This course is designed to provide an overview of artificial intelligence. The topics covered include: agents, search, planning, uncertainty, and learning. The goals of this course are to provide a fundamental knowledge of the field. The successful student will finish the course with specific modelling and analytical skills (e.g., search, logic, and probability), knowledge of many of the most important knowledge representation, reasoning, and machine learning schemes, and a general understanding of AI principles and practice.

**Course learning outcomes:** Upon completion of this course, student should be able to:
1. Understand the modern view of AI as the study of agents that receive precepts from the environment and perform actions.
2. Exhibit strong familiarity with a number of important AI techniques, including in particular search, knowledge representation, planning and constraint management.
3. To equip students with the knowledge and skills in logic programming using Prolog
4. Analyse and solve problems involving various forms of search algorithms, including the design of heuristic functions to improve the efficiency of such solutions

**Grading:** ☑ Mid-Term Exams 25 ☑ Coursework 25 ☑ Final Exam 50


**Reference Book (s):**
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<th>Course Name</th>
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**Course Description:** This course builds on the existing knowledge of students in the domain of web development and gives them further insight into web-related concepts and techniques. The students on completion of this course will be able to not only develop web pages but able to develop complete web applications as per the latest technologies. The students will be able to learn how to design complex web applications using cascading style sheets. The will also learn how to incorporate java scripts as well as to embed multimedia content such as audio and video. Students will learn how to operate and manage their web applications “live” and manage issues such as domain hosting and FTP etc.

**Course learning outcomes:** Upon completion of this course, student should be able to:
1. Understand and be able to implement advanced Web coding concepts.
2. Implement an extra layer of usability to a Web page using a current scripting language or tool.
3. Have the ability to create an accessible, modern HTML page that integrates current Web standards.

**Grading:**

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