Program Handbook

Department of Computer Science

College of Computer Science and Information Tecnology

Academic Year 2021-2022

Jazan University

PROGRAM HANDBOOK

Bachelor in Computer science

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Dated: 02-02-2020

DEPARTMENT OF COMPUTER SCIENCE
COLLEGE OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY
JAZAN UNIVERSITY

TABLE OF CONTENTS

MESSAGE FROM THE DEAN OF THE COLLEGE

Production in the old economy was based on three main factors: land, labor and capital while the new economy depends solely on the technical knowledge, creativity, intelligence and information. And also intelligence embodied in the computer and technology programs across a wide range of products have become more important than capital, materials or labor. The United Nations estimates that knowledge economies now account for 7% of global GDP and growing at 10% per annum. It is worth mentioning that 50% of productivity growth in the EU is a direct result of the use and production of information and communication technology. And the economies of knowledge depend on the availability of information and communication technologies and the use of innovation and digitization. Our country's granular began to shift to the economy built on knowledge which will increase the national revenue. The quality and quantity of this transformation is accompanied by providing different programs as a College of Computer Science and Information Systems at the University of Jazan so as to achieve considerable IT knowledge base in the country. With this broad objective the college is working to make a quantum leap in teaching methods, curriculum review and enhancing student support to learn the latest technologies and the newest ways to build a generation capable of achieving the plans and methodologies for the transition to the knowledge economy for economic productivity and competitiveness. As a part of this mission, our college strives to provide knowledgeable, skilled and creative personal capable of incorporating new technologies in practice. The growing need to integrate information and communication technology and creative skills are being adopted through program curricula for progressive learning. By this way we are working with the ambition to achieve technical acceleration and rehabilitation of the students to be ready to meet the labor market demands.

Dr. Bassem Ibrahim Abu Mesmar
Dean (Faculty of Computer Science and Information Technology)

MESSAGE FROM THE HEAD OF THE DEPARTMENT

Welcome to the Department of Computer Science, College of Computer Science & Information Technology, Jazan University. Vision of the department is to be recognized for imparting quality education, conducting research, serve the industry and community for the betterment of the nation. Our Computer Science program committed to provide quality undergraduate education and focus not only on software design and programming, but also on empowering our graduates to be at the forefront of our Nations growth. We prepare students for current trends of the job market and enhance student skills through collaborative student centric teaching and learning programs. Majority of courses in our department have laboratory components which will deepen their understanding by allowing them to be exposed to theory and practice. The students exhibit their learning through mini projects and final year projects. Our graduates will be responsible for operating systems design, programming languages development, design and implementation of compilers, software modification, as well as technical consultancy and integration support. In order to provide real-time learning, the department is fully furnished with four laboratories equipped with the latest tools and technologies. Our Department has a team of highly experienced and motivated faculty members who are ready to impart quality education and train the young minds. Our graduates are highly recruited within government agencies, and private industry. On behalf of the faculty and staff of Computer Science department I am very happy to welcome you to our department and I wish you great success.

Dr. Mohammad Hameed Alhameed

Head (Department of Computer Science)

ABOUT THE COLLEGE

The College was established according to the approval of His Majesty the King, No. 7 / B / 24 232 dated 11/5/1425 H. It began under the umbrella of King Khalid University, the Dean of the College at that time was Dr. Abdullah Bin Yahya Al-Hussein. The College was separated from King Khalid University and joined Jazan University on 01/12/1427 H. First decision was issued by the appointment of first Dean of the college at the University of Jazan on 04/06/1429 H Dr. Omar Al Mushayt. The College began to admit students in the first semester of the academic year 1426 - 1427H. The number of students admitted in the first semester was 68 students. At the present time the number of students reached 1762, 160 of them being students at the female section. The College started with only two specializations, Information systems and Computer Sciences. The Department of Computer Networks was established at the beginning of the first semester of the academic year 1429/1430 H. The female students section was opened at the beginning of the first semester of the academic year 1431/1432 H with two departments, Information systems and Computer Science. A decision was issued for the appointment of Dr. Mohamed Bin Yahya AlSalem as the Dean of the College of Computer Sciences and Information Systems.

College Vision

To building a competitive environment in education, research, innovation and entrepreneurship in the field of Computer Science and Information Technology to serve the community.

College Mission

The mission of the College of CS & IT is to provide best practices of education, research, innovation and entrepreneurship in the field of Computer Science and Information Technology to contribute in building a vibrant society.

College Goals

1. Enhance infrastructure for supporting excellent computing education.
2. Endeavor governance and proper utilization of resources.
3. Establish state-of-the-art curricula to cover the scientific knowledge and professional needs of the students.
4. Emphasis on student-centric learning to seek better career in industry, business or government sector.
5. Empower faculty development and research activities.
6. Maintain relations with industry and other academic institutes for benchmarking and technology-sharing.
7. Improve community service and quality of life.

ACADEMIC REGULATIONS AND POLICIES

Admission and Registration

1. Upon primary online nomination, applicant will see three options:

    * (Accept and Confirm)

    Pressing this option means that the applicant is accepting the offered primary nomination and confirms it as final acceptance without any competition for other specialty in case seats are available.

    *(Accept and Upgrade)

    Pressing this option means that the applicant is accepting the offered primary nomination with and authorizes the university to upgrade their admission to another program if a seat becomes available.

    *(Withdraw)

    Pressing this option means that the applicant does not accept the offered primary nomination. This is considered a final withdrawal and a withdrawal form can then be printed online.

2. Not confirming primary nomination within the allowed time means that the applicant does not wish to join Jazan University. This will cause the applicant to lose their right to admission and as will as their access to their online account.

3. At the end of acceptance process applicant's state online is changed to (primarily accepted) or (finally accepted) and receives college, specialty, and student number online.

4. An applicant can withdraw after receiving student number by printing a Withdrawal form (a Clearance form) online. In this case the current admission will be terminated and the applicant will be eligible for admission after two academic years.

5. Accepted students should complete the final acceptance procedure by making reservation for issuing University Student card following these steps:

    - sign in to the online account.

    - access the University Student Card page (using student number or national id number)

    - select a date for issuing student card

    - print out student card issue date slip

- print out notice of admission slip Having met these conditions, the final admission becomes confirmed.

STUDY REGULATIONS

Student Assessment

Student assessment is the process of judgment of students' skills and knowledge at course and program levels. Effective assessment helps to improve student's learning. Towards meeting the objectives of teaching and learning and improving the quality of teaching and learning it's vital to ensure effective assessment procedure throughout the program. The college of Computer Science and Information Technology at Jazan University is therefore confidently assessing all students' activities at program and course levels. In Computer Science program faculty use a range of assessment measures including Case studies, Mini Projects, Assignments, Internal-exams, Lab exams and Final written examinations in order to obtain a clear picture of what students have learned; utilizing this variety of methods also avoids the potential weaknesses and give the chance for further improvement.

Student Assessment Schemes

The following assessment schemes are being guided by the current reviewed curriculum.

Scheme-1: For the courses with Lab

1	Internal Exam-1	10%
2	Assignments / Mini-project	20%
3	Internal Exam-2	10%
4	Final Lab Exam	20%
5	Final Written Exam	40%

Scheme-2: For the courses with Lab (Programming)

1	Internal Exam	10%
2	Assignments	10%
3	Mini Project	20%
4	Final Lab Exam	20%
5	Final Written Exam	40%

Scheme-3: For the courses without Lab

1	Internal Exam-1	10%
2	Assignments	20%
3	Internal Exam-2	10%
4	Paper / Case studies Presentation	20%
5	Final Written Exam	40%

Grade Point Average (GPA) Calculation

1. Faculty Board approves total marks for course recommended by Department Board between 40% and 50% of the total mark of the course, and the student classwork mark is determined by one of two ways:
   a. oral and practical exams, research, and curricular activities, or a selection of this n addition to one written test, or
   b. A minimum of two written exams.
2. Faculty Board approves Department Board recommendation to include oral/practical parts in final exam.
3. Department Board allows student to complete a prerequisite course on recommendation of teaching faculty.
4. General grade for GPA upon graduation is as follows:
   - (Excellent) GPA no less than 4.50 (or 3.5 out of 4.0)
   - (Very Good) GPA 3.75-4.49 (or 2.5-3.49 out of 4.0)
   - (Good) GPA 2.75-3.74 (or 1.75-2.74 out of 4.0)
   - (Pass)GPA 2.00-2.74 (or 1.00-1.74 out of 4.0)
5. Honours are granted according to GPA on conditions that:
   - Student has not failed courses in Jazan University or elsewhere.
   - Student completed graduation requirement within time frame.
   - Student completed 60% of graduation requirements in Jazan University

Absence from Classes

1. Regular student is denied attending final exam if attended less than 75% of lectures and practical/clinical lessons during semester. Course work marks are added to denied student academic record and appear as (DN). Denial is approved by Faculty Board before start of final exams.

2. Faculty Board cancels denial for acceptable reasons made in application by student who attended at least 50%.

ACADEMIC ADVISING

- Assign lecturer as academic advisor to a group of students.
- Announce reminder about the meeting between advisor and advisee
- Monitor student attendance record.
- The academic advisor is expected to deal with student's academic, career, and personal problems.
- The academic advisor helps his/her students examine the course offerings in their major and understand their graduation requirements.
- The academic advisor helps the student explore the career fields within his/her major, and obtain related career information and survey job opportunities.
- The academic advisor serves as a link between the student and the administration by counseling the student on matters of failure, on the procedures for dropping and adding courses, course scheduling, and academic progress.
- The academic advisor must alarm students of the exclusion procedure well in advance, and of any subsequent changes that might be enforced during the course of their studies.

TRANSFER POLICIES

Transfer from another University

1. Transfer to Jazan University is allowed by acceptance of Dean of Faculty to which transfer is required according and the rules:
   - Applicant was enrolled in an approved college/university.

- Applicant was not dismissed for academic or disciplinary reasons from college/university of origin.

- Applicant meets requirements set by Faculty Board and has GPA no less than 3.00 out of 5.00.

- Application is made during time set for transfer during academic calendar.

- Applicant should have at least 60% of units left to study in Jazan University.

2. Applicant will be denied admission in case it was revealed that he/she was dismissed for academic or disciplinary reasons from university of origin.

3. A student is transferred in any given semester from one university to another according to announced procedures and dates in the target university and within general transfer regulations.

4. Courses completed in university of origin and valued by Department Board and are approved by Faculty Board and added to applicant's academic record and accounted for in GPA.

Internal Transfer

1. Internal transfer in Jazan University is granted upon approval of Deans of both Faculties.

2. Internal transfer is allowed only once.

3. Applicant should have GPA not less than 2.00 out of 5.00.

4. Applicant should not have exceeded 4 semesters in Faculty of origin.

5. Applicant should fulfil requirements for Faculty to which internal transfer is required.

6. Applicant finished courses are added to academic record including grades and GPA.

STUDENT RIGHTS AND DUTIES

Student Rights

According to rules and regulations, the student is entitled to:

- Amicable learning environment and quality education in view of Jazan University vision 2020.

- University ID card to use on and outside campus.

- Graduation Certificate.

- Care, safety, social security, and health care.

- Use of facilities and services including accommodation, library, activities centre, restaurants, and parking.

- Security and privacy of information and academic record.

- Access to academic and administrative departments.

- Free thinking within Islamic teachings and traditions.

- Academic counselling with professional academic adviser.

- Information of study plans, curricula, and time tables.

- Easy access to course registration and learning resources.

- Clear exam regulations, time tables, and model answers.

- Access to all student facilities, events, and activities.

- Promptness of teaching staff in class and office hours.

- Special need student facilities and care.

- Membership of student committees.

- Access to incentives and rewards.

- Notification of substandard academic performance.

- Justice with disciplinary committee actions.

- Right to defend in disciplinary hearings.

Student Duties

- Comply with University rules and regulations.

- Avoid misconduct on and off the campus.

- Attendance of lectures and activities.

- Show student ID card upon demand.

- Adhere to proper traditional uniform on campus.

- Avoid cheating and plagiarism.

- Protect University property, equipment, and facilities.

- Proper use of University computing and internet.

- Abstain from unauthorized activities and associations.

- Refrain from issuing unauthorized leaflets and brochures.

- Refrain from unauthorized fund raising.

- Kind treatment of faculty, staff, and employees.

- Keep and maintain official email address.

- Follow up University announcement and information.

- Sincerity in pursuing learning activities.

- Keep time frame for academic services.

- Bring no dangerous material and weapons on campus

REQUESTS, COMPLAINTS, AND APPEALS

Requests

1. A requests is made in writing to the unit concerned.
2. A requests is examined by the relevant committee.
3. Decision is made by the Faculty Board.
4. Applicant is notified of the decision in writing.

Complaints

1. Complaints are made in writing to Dean or Vice-Dean.
2. Complaints are transferred to Academic Department.
3. Complaints are reviewed by an academic committee and decision is raised to the Dean.
4. The Dean makes decision about sanction according to committee recommendation.
5. Malicious complaints are transferred to the University Permanent Student Affairs Committee of the University Vice-President for Academic Affairs to decide on proper action towards malicious complaints.
6. Decision about complaint becomes final when seen by University Board and the Board Meeting Minutes is approved by University President.

Appeals
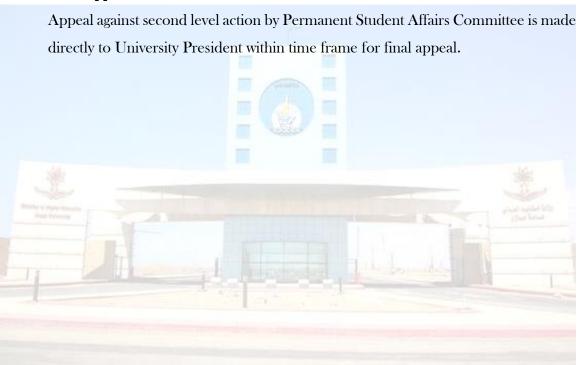
Levels of Appeal

Student is entitled to appeal against disciplinary actions as follows:

1. **First Appeal**

   Appeal against a Faculty Unit is made to the Dean who forwards to the Student Affairs Committee for review and recommendation. The Dean makes a decision/disciplinary action.

2. **Final Appeal**

   Appeal against second level action by Permanent Student Affairs Committee is made directly to University President within time frame for final appeal.

CO-CURRICULAR ACTIVITIES

STUDENT CLUB

Most important and memorable experiences of a person's life is his student's life and extracurricular activities during that period makes valuable part in their personality development.

Student Club activities helps students to develop their social and interpersonal skills by getting involved in extracurricular activities organized by the club. This helps students to improve their teamwork skills, and ability to build meaningful relationship with their surrounding peoples. Responsibility, good judgment and endurance can also be developed during such activities.

Student Club organized

- **Seminar** on "Procedures to apply for scholarship programmes Abroad- A gateway to vision 2030"

✦ **Seminar** on "Introduction to game development with unity".

✦ **Workshop** on "Designing effective power point slides for graduation project presentations".

EXTRA-CURRICULAR ACTIVITIES

COMMUNITY SERVICES

Jazan University vision, mission and objectives clearly define the commitment towards the fulfillment of the community needs.

College of Computer Science & Information Technology forms advisory board to get the opinion of community to improve the quality of programs at college. Encourage and develop the spirit of entrepreneurship in the students to maximize the return of the community service role through seminars and leaflets in coordination with the relevant committees in the Department. Set practical programs to enhance the relation between the Department and the local society and to pursue its implementation.

Appreciation certificates are awarded for faculty members who are involved in community services.

Alumni unit is established and working for last one year. Unit is updating the records of the alumni to track their contribution towards the community.
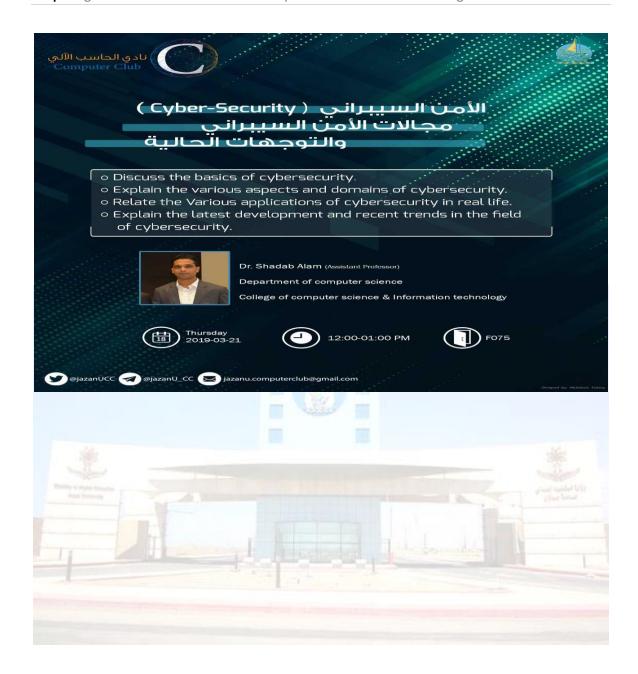
Community Services Organized

- Workshop on "Information System Security" organized for security staff working at remote areas of Jazan Province on Jan 24, 2019.

- **Workshop** on "Cyber Security, domains of cybersecurity and current trends" .

COLLEGE FACILITIES

LIST OF FACILITIES FOR EDUCATIONAL PROCESS

Technologies and IT facilities used in Teaching & Learning

Sr. No.	Teaching Strategies	Learning Method
1	Visual & Verbal Lectures	White Boards, Projectors, Smart Boards
2	Active Class participation as Group	Discussion Room & Blackboard community Web forums
3	Field training, Observational Analyses, Interviewing techniques	Summer Training
6	Techniques of Conducting a Survey with Focus Group and Report Writing	Mini Projects
7	Practical Work	General Purpose Labs& Special Labs
8	Groups Presentation on Cutting edge Technologies	Seminars & Workshops
9	Technical Reports writing and proving the ideas through debates	Graduation project

CLASSROOMS: All classrooms are equipped with network and wireless internet connection, and multimedia projectors which are used to deliver class lectures and perform in class demos and presentations.

Class Room 1

Class Room 2

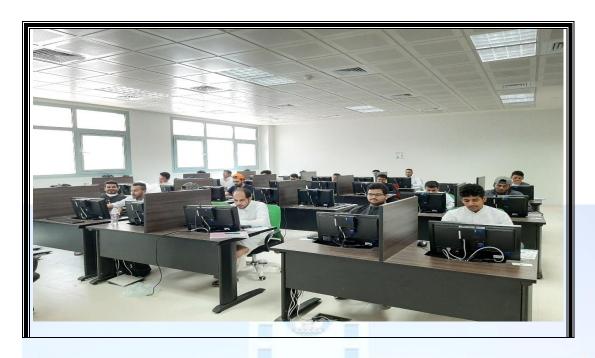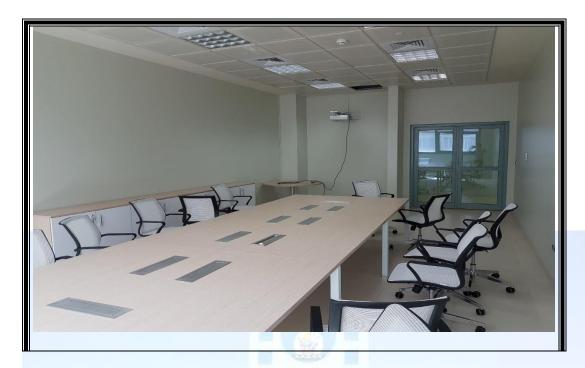**GENERAL LABS:** All labs are equipped with modern computing facilities and multimedia projectors in addition to hardware and software of specific areas of research.
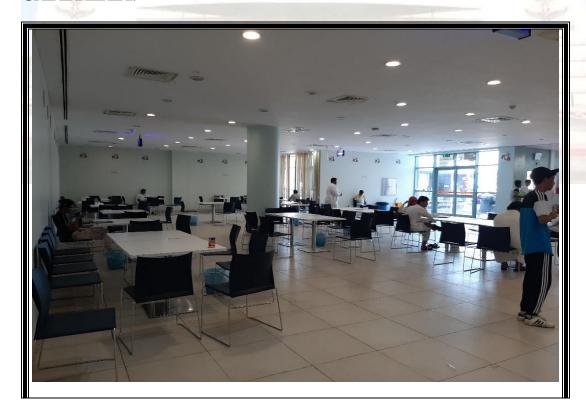

AUDITORIUM:

DEPARTMENT MEETING ROOM:

CAFETERIA:

CORRIDOR:

HISTORY OF THE COMPUTER SCIENCE DEPARTMENT

College of Computer Science and Information Systems was established by the consent of the Royal Decree No. 7 / b / 24 232 as on 11/5/1425 H. At first it was under the patronage of King Khalid University, Abha, later in the year 1428 was under the guardianship of King Abdul Aziz University. A Royal Decree issued for the establishment of Jazan University on 12/01/1427. Several significant events have marked the university's growth. The first decision to appoint the Dean of the College was issued in 04/06/1429 AH. In 2006, the Computer Science Department was established. The Computer Science Department at Jazan University, Faculty of Computer Science and Information Systems integrates the study of important theoretical foundations in Computer Science with the study of powerful scientific methodologies that are central to the field, providing excellent preparation for under graduate (B.S.) study in computer science. In addition to offering a full program of core computer science courses, Computer Science Department offers a wide range of courses in areas relevant to advance curriculum, including Cloud Computing, Mobile Computing, Neural Computing, Computer Graphics and Visualization, and Software Engineering. The Computer Science Department is an active participant in student and staff research in collaboration with University scientific research unit and National Level King Abdulla City for Science and Technology (KACST). Currently, the department houses more than 15 specialized computer laboratories including GIS Lab, Computer Vision, Distributed systems and Advance AI Lab containing machines running the Linux, Red Hot Unix and Windows version 7 and 8 operating systems. Several on-going research projects within the department offer students and staff the opportunity to work with faculty on real problems both during the academic year and over the summer. Below are some brief highlights of the 2006s to 2014s:

- In 2006, the Computer science department was established. The first curriculum plan for BS Computer Science was developed with 146 credit hours. At that time, the total number of computer laboratory was 6.

- In 2008, the second edition of curriculum plan was developed with the same 146 credit hours. Another 5 new computer laboratories were established with three specialized labs namely Computer Vision lab, GIS Lab and advance AI lab.

- In 2010, a new research seminar series was started for students and staff members and three research grants / research funds from the University Deanship of Scientific Research.

- In 2011, the college of Computer Science and Information Systems and Department of Computer Science signed a contract / memorandum of understanding (MOM) between Oracle Corporation, USA and another contract for CICSO networking between CISCO Corporation, USA with the Department of Computer Science.

- In 2012 Second semester, the edition 2 curriculum plan was reviewed by the College Quality Assurance Unit and the CRC, department of computer science. After getting feedback and comments from them, the new curriculum committee was formed by the department in consultation with college Quality Assurance Unit with permission from the College Dean.

- In 2013 first semester, the Department of Computer Science CRC term prepared a new curriculum edition 3 with 154 credit hours. The new curriculum was prepared on par with ABET, ACM and IEEE standards.

- In 2013 second semester, the edition 3 curriculum was reviewed by the department staff, exit students, alumni and industry people and got feedback and comments from them. From 2014 onwards, the department of computer science both male and female campuses was synchronized with each other and prepared the same course specifications, program specifications, same reading materials, uniform midterm and final practical and final theory examinations.

- In 2014 first semester, the updated curriculum was sent to the office of the Vice President of Academic Affairs, Jazan University for final approval. At the same time, the Department of Computer Science has formed a new committee for ABET Accreditation Pre-SSR preparation. At the end of December 2014, UMKC, USA Computer Science department Professor Dr. Choudhury visited our college and helped us to prepare the Pre-SSR for the department of Computer Science.

- In 2018 first semester, the name of the college changed from College of Computer Science and Information Systems to College of Computer Science and Information Technology.

- In 2018 second semester, the new curriculum with 160 credits hour's proposal send to the president office after the review's from different experts. In new curriculum, papers were chosen as per the market requirements.

Heads of Department of Computer Science

Chronology of Heads of the Department

S.No.	Name of the HOD	From	To
1	Mr. Mohammad Saad Mamoun	September 2006	January 2012
2	Dr. Faris Abuali	February 2012	January 2013
3	Mr. Abdu Jabbari	February 2013	November 2014
4	Mr. Ibrahim Khormi	December 2014	November 2018
5	Dr. Mousa Mohammed Khubrani	December 2018	
6	Dr. Mohammed Hameed AlHameed		
7	Dr. Yahya Muhammed Alqahtani		Till Date

B.S. COMPUTER SCIENCE PROGRAM

Demand for computing professionals with scientific background has grown in the past decade as a result of increased demand for sophisticated computing environments, applications, and scientific research inside and outside of academia.

The Department of Computer Science offers a five-year academic program that provides a balanced mix of strong theory, application and practice. It incorporates the scientific foundations of computing with advanced applications which demand sophisticated knowledge of computing systems, programming and problem-solving tools and techniques.

This program builds on 15 credits of university-required course work in Islamic studies, Arabic language and communication skills, as well as a full academic year Preparatory Program shared by Science, Medical, and Engineering. It also shares 64 credits of college-required basic computing coursework with other computing programs in the college. In addition to the university and college requirements, departments require the following.

1. Completion of 60 credits listed by department as required.

2. Completion of at least 6 credits selected from department's elective course list.

Required and elective courses of program is listed under Program Courses section.

Reason of program establishment

Economic reasons

1) Development of software industries in the Kingdom of Saudi Arabia.
2) Serving the commercial, business, software, hardware and industries.
3) Supplying highly qualified software engineer's / computer programmers for research and development laboratories.
4) Shortage of qualified Software Engineers and Software Programmers /Developers.
5) Predictable demand for Software Engineers due to economic growth in and around the kingdom.

6) Solving the information technology related problems which pertain to the immediate needs of the country.

7) Creating a chance for the students to pursue their higher studies in various domains of computer science.

Social/Cultural reasons

1) To provide greater opportunity for Saudi peoples to become software engineers and participate in the growth of the Kingdom.

2) Safety awareness on computer hardware and software industries in and around the kingdom of Saudi Arabia.

3) Safety awareness on computer manufacturing industries.

4) To provide greater prospect for Saudis to become software engineers and contribute in the growth of the kingdom.

5) To provide a good platform for the students who will function in their profession with social awareness and responsibility.

6) Understand the ethical, legal, and professional responsibilities in the field of IT which has a direct impact in the society.

Technological developments

1) To develop software engineers who can serve the Kingdom by solving the ongoing real time problems in the country.

2) To create research and developments centers in various fields of computer science.

3) To help the students to choose their path in research by means of pursuing higher studies.

4) To create a software development hub where the outsourcing of work for various concerns can be carried out.

5) Graduates will be software professionals, innovators or entrepreneurs engaged in technology development with the state of the art technologies.

6) Preparing professionals empowered with the knowledge, skills, values and confidence to take a leadership role in the development of the kingdom in the field of computer science.

Graduate employment outcomes

Graduates of this program beginning Computer Specialists may pursue the following career paths but not limited to:

- Software application developer
- Computer system analyst
- Software system developer
- Web developer
- Computer Support Specialist
- System Programmer etc.

Students graduated from the college are either 100% employed or went for higher studies.

Program Vision

To build a competitive environment in education, research, innovation and entrepreneurship in the field of Computer Science to serve the community.

Program Mission

Bachelor in Computer Science program is to provide best practices of education, research, innovation and entrepreneurship in the field of Computer Science to contribute in building a vibrant society.

Program Goals

1. To impart innovative teaching to enrich students with sound computing knowledge by utilizing state of the art infrastructure.
2. To prepare students for the job market by strengthening their problem solving and professional skills.
3. To train students by providing an environment for lifelong learning and entrepreneurship.
4. To support faculty and students in multidisciplinary research.
5. To inculcate students with professional ethics and social responsibilities to contribute in society's economic growth.

Program Educational Objectives

1. Student will be provided essential concepts of Mathematics, Science and computing to successfully design, analyze and configure computer networks according to given specification.

2. Students will be facilitated with independent, critical and creative thinking to improve the culture to research and innovation.

3. Students will be incorporated with motivation for engagement in lifelong professional development.

4. Students will be encouraged for personality and interpersonal skills development to achieve leadership and entrepreneurship traits.

5. Students will be enabled to identify the technological needs of the society and utilize those technologies for the betterment of the society in Jazan province.

6. Students will be delivered a specialized network training programs to make them job ready in their chosen field.

7. Students will have the opportunity to involve in scientific research and innovative thinking with professional and ethical considerations in networking field.

Program Graduate Attributes

These are the following attributes expected from the graduates of the BS Computer Science Program:

1. Sound computing knowledge
2. Critical thinking and problem solving
3. Strong work ethics and continuous professional development
4. Leadership and teamwork
5. Effective verbal, non-verbal and digital communication

Program Outcomes

5. Program learning Outcomes*

Knowledge and Understanding

K1   **Describe** the sound knowledge of principles of Computing, Science and Mathematics required in the field of Computer Science.

K2   **Relate** recent trends and current research in the field of Computer Science.

Skills

S1   **Analyze** complex computing problems to apply principles of computing and other relevant disciplines to identify solutions.

S2   **Evaluate** problem-solving strategies to propose a large number of solutions and come up with the best possible solution.

S3   **Design** and **implement** computing-based solutions to meet a given set of computing requirements in the context of the program's discipline.

S4   **Apply** computer science theory and software development fundamentals to produce computing-based solutions.

S5   **Communicate** effectively in a variety of professional contexts for technical and non-technical audiences.

Values

V1   **Recognize** professional and social responsibilities to make informed judgments in computing practices based on legal and ethical principles.

V2   **Demonstrate** the ability to function effectively as a member or leader of a team engaged in activities appropriate to the field of Computer Science.

V3   **Identify** the need for and an ability to engage in continuing professional development and entrepreneurship.

Program Assessment

Department of Computer Science is committed to meaningful and sustainable assessment of its bachelor's program. Department of Computer Science developed a formal assessment plan that involves a variety of direct and indirect assessments of courses, program outcomes, and overall student and faculty experiences. The plan specifies which assessments to perform

and identifies data sources, frequency and stakeholders of each assessment. A robust assessment process is in place to ensure consistent results. Program Assessment Unit is responsible for administering the assessments according to plan and delivering results to their respective stakeholders. Departments, administrators, and faculty members are free to concentrate on evaluation and improvement. Electronic academic systems are in-place to help facilitate performance assessment and independent review.

DEGREE PLAN

Common Degree Plan

University Level Common Plan

All students admitted to the Jazan University take the following courses during their graduation program. College of Computer Science and information Technology delivery plan of University level given. At University level 7 courses with 15 credits hours delivered to the students are mentioned semester wise.

First Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
101CSC-3	Introduction to Computer	None	3
101SLM-2	Islamic Culture I	None	2

Second Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
102SLM-2	Islamic Culture II	None	2

Third Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
101ARB-2	Arabic Language Skills	None	2
103SLM -2	Islamic Culture III	None	2

Fourth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
102ARB-2	Arabic Writing	None	2

College level common degree plan

Students admitted to the College of Computer Science and Information Technology, take the following courses whether they want to get their graduation in Computer Science, Network Engineering or Information Technology. These are the common courses for all

the students taking admission under any department in the college of College of Computer Science and Information Technology. Total 19 courses with 64 credits hours are delivered to the students at college level.

First Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
103ENGL-6	Intensive English Course 1	None	6
100MATH-3	Mathematics	None	3

Second Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
011COMP-3	Programming 1	None	3
104ENGL-6	Intensive English Course 2	103ENGL-6	6
102MATH-3	Matrix Algebra	100MATH-3	3

Third Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
112COMP-3	Programming 2	011COMP-3	3
111INFS-3	Introduction to Information System	None	3
201PHYS-4	Principles of Physics	None	4

Fourth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
201MATH-3	Differentiation & Integration	100MATH-3	3
206MATH-3	Discrete Mathematics	102MATH-3	3

Fifth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
213CNET-3	Computer Organization & Architecture	None	3
213COMP-3	Object Oriented Programming	112COMP-3	3
221INFS-3	Database Systems 1	111INFS-3	3

Sixth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
231COMP-3	Operating System	None	3
241INFS-3	Internet Technology	None	3

Seventh Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
331CNET-3	Computer Networks	None	3

Eighth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
334INFS-3	Software Engineering	None	3
336INFS-3	Human Computer Interaction	None	3

Tenth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
452INFS-3	Computer Ethics & Society	None	3

Program Degree Plan

In program degree plan students of Computer Science study 18 required courses with 54 credits hours and 2 elective courses with 6 credits hours in level 7 and 9. Including summer training and final graduation project students under program degree plan covers total 22 courses with 66 credits hours.

Fourth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
151COMP-3	Computational Geometry	None	3
114COMP-3	Programming of Statistics & Probabilities	None	3

Fifth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
252COMP-3	Data Modeling & Simulation	None	3
221COMP-3	Algorithms & Data Structures 1	None	3

Sixth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
111CNET-3	Digital Logic	None	3
222COMP-3	Algorithms & Data Structures 2	221COMP-3	3
241COMP-3	Artificial Intelligence	None	3

Seventh Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
315CNET-3	Microprocessor & Assembly Language	213CNET-3	3
323COMP-3	Analysis & Design of Algorithms	222COMP-3	3
**3COMP-3	Elective 1	None	3
324COMP-3	Computer Data Security & Privacy	None	3

Eighth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
336COMP-3	Computer Graphics	None	3
332COMP-3	Advanced Operating Systems	None	3
390COMP-3	Summer Training	None	3
323INFS-3	Data Warehousing & Data Mining	221INFS-3	3

Ninth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
426CNET-3	Mobile Computing	None	3
**4COMP-3	Elective 2	None	3
433INFS-3	Software Project Management	None	3
443INFS-3	Multimedia Applications	None	3

Tenth Semester

Course Code	Course Title	* Pre-Requisite Courses	Credit Hours
433COMP-3	Theory of Compilers	None	3
442COMP-3	Artificial Neural Networks	241COMP-3	3
495COMP-3	Final Project	None	3

Program Study Plan

* **Prerequisite** – list course code numbers that are required prior to taking this course.

Level	Course Code	Course Title	Required or Elective	* Pre-Requisite Courses	Credit Hours	University, College or Department
Level 1	101CSC-3	Introduction to Computer	R	None	3	University
	103ENGL-6	Intensive English Course 1	R	None	6	College
	100MATH-3	Mathematics	R	None	3	College
	101SLM-2	Islamic Culture I	R	None	2	University
Level 2	011COMP-3	Programming 1	R	None	3	College
	104ENGL-6	Intensive English Course 2	R	103ENGL-6	6	College
	102MATH-3	Matrix Algebra	R	100MATH-3	3	College
	102SLM-2	Islamic Culture II	R	None	2	University
Level 3	101ARB-2	Arabic Language Skills	R	None	2	University
	112COMP-3	Programming 2	R	011COMP-3	3	College
	111INFS-3	Introduction to Information System	R	None	3	College
	201PHYS-4	Principles of Physics	R	None	4	College
	103SLM -2	Islamic Culture III	R	None	2	University
Level 4	102ARB-2	Arabic Writing	R	None	2	University
	151COMP-3	Computational Geometry	R	None	3	Department
	114COMP-3	Programming of Statistics & Probabilities	R	None	3	Department
	201MATH-3	Differentiation & Integration	R	100MATH-3	3	College
	206MATH-3	Discrete Mathematics	R	102MATH-3	3	College
	104SLM-2	Islamic Culture IV	R	None	2	University
Level 5	213CNET-3	Computer Organization & Architecture	R	None	3	College
	213COMP-3	Object Oriented Programming	R	112COMP-3	3	College
	252COMP-3	Data Modeling & Simulation	R	None	3	Department
	221COMP-3	Algorithms & Data Structures 1	R	None	3	Department
	221INFS-3	Database Systems 1	R	111INFS-3	3	College
Level 6	111CNET-3	Digital Logic	R	None	3	Department
	231COMP-3	Operating System	R	None	3	College
	222COMP-3	Algorithms & Data Structures 2	R	221COMP-3	3	Department
	241COMP-3	Artificial Intelligence	R	None	3	Department

	241INFS-3	Internet Technology	R	None	3	College
Level 7	331CNET-3	Computer Networks	R	None	3	College
	315CNET-3	Microprocessor & Assembly Language	R	213CNET-3	3	Department
	323COMP-3	Analysis & Design of Algorithms	R	222COMP-3	3	Department
	**3COMP-3	Elective 1	E	None	3	Department
	324COMP-3	Computer Data Security & Privacy	R	None	3	Department
Level 8	336COMP-3	Computer Graphics	R	None	3	Department
	332COMP-3	Advanced Operating Systems	R	None	3	Department
	390COMP-3	Summer Training	R	None	3	Department
	323INFS-3	Data Warehousing & Data Mining	R	221INFS-3	3	Department
	334INFS-3	Software Engineering	R	None	3	College
	336INFS-3	Human Computer Interaction	R	None	3	College
Level 9	426CNET-3	Mobile Computing	R	None	3	Department
	**4COMP-3	Elective 2	E	None	3	Department
	433INFS-3	Software Project Management	R	None	3	Department
	443INFS-3	Multimedia Applications	R	None	3	Department
Level 10	433COMP-3	Theory of Compilers	R	None	3	Department
	442COMP-3	Artificial Neural Networks	R	241COMP-3	3	Department
	495COMP-3	Final Project	R	None	3	Department
	452INFS-3	Computer Ethics & Society	R	None	3	College

ELECTIVE COURSES

Elective Courses offered in Level 7 & 9 only							
LEVEL - 7				**LEVEL - 9**			
No.	Course Code	Course Name	Credits	No.	Course Code	Course Name	Credits
1	334COMP-3	Operating System Pragmatics	3	1	452COMP-3	Advance Algorithm Design & Analysis	3
2	316COMP-3	Unix & Shell Unix and Programming	3	2	419COMP-3	Web Technology	3
3	353COMP-3	Graph Theory and Application	3	3	471COMP-3	Java Programming	3
4	315COMP-3	Visual Programming	3	4	435COMP-3	Real Time Systems	3
5	326COMP-3	Cryptographic Techniques	3	5	462COMP-3	Computer Vision	3
6	343COMP-3	Fuzzy Logic	3	6	444COMP-3	Genetic Algorithm	3
				7	418COMP-3	Game Programming	3

Program New Study Plan (2019 Onwards)

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	5	18	11.25
	Elective	-	-	
College Requirements	Required	11	35	21.88
	Elective			
Program Requirements	Required	31	89	55.63
	Elective	3	9	5.62
Capstone Course/Project	Project Phase-1	2	6	3.75
Field Experience/ Internship	Cooperative	1	3	1.87
Others				
Total		53	160	100

2. Program Study Plan

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
Level 1	SLM 101	Islamic Culture – 1	Required	None	2	Institute
	COMP 111	Introduction to Computing	Required	None	3	College
	ENG 101	English - 1	Required	None	6	Institute
Level 2	MATH 105	Calculus	Required	None	4	College
	ENG 102	English - 2	Required	ENG 101	6	Institute
	COMP 112	Programming – 1	Required	COMP 111	3	College
	ARB 102	Arabic Writing	Required	None	2	Institute
Level 3	ENG 103	English - 3	Required	ENG 102	6	Institute
	MATH 107	Discrete Mathematics	Required	MATH 105	3	College
	MATH 106	Matrix Algebra	Required	MATH 105	3	College
Level 4	COMP 213	Programming – 2	Required	COMP 112	3	College

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
	PHYS 204	Principles of Physics (1)	Required	None	4	College
	ITEC 211	Database Concepts and Design	Required	None	3	College
Level 5	SLM 102	Islamic Culture - 2	Required	None	2	Institute
	COMP 214	Object Oriented Programming	Required	COMP 213	3	College
	PHYS 205	Principles of Physics (2)	Required	PHYS 204	3	Department
	ITEC 212	Database Management System	Required	ITEC 211	3	Department
Level 6	COMP 231	Digital Design	Required	None	3	Department
	ITEC 251	Data Communication and Computer	Required	None	3	Department
	MATH 262	Statistics and Probability	Required	None	3	College
Level 7	COMP 321	Data Structures and Algorithms	Required	COMP 214	3	Department
	COMP315	Web Programming	Required	None	3	Department
	COMP 332	Computer Architecture	Required	COMP 231	3	Department
	MATH 326	Linear Algebra	Required	MATH 106	3	Department
Level 8	COMP 316	Principles of Programming languages	Required	None	3	Department
	ITEC 321	Human Computer Interaction	Required	None	3	Department
	COMP 324	Graph Theory and Applications	Required	None	3	Department
	COMP 333	Operating Systems	Required	None	3	Department
Level 9	COMP 322	Design and Analysis of Algorithm	Required	COMP 321	3	Department
	COMP 323	Computer Security and Privacy	Required	ITEC 251	3	Department
	COMP 371	Software Engineering	Required	None	3	College
Level 10	COMP 441	Artificial Intelligence	Required	None	3	Department
	COMP 434	Parallel and Distributed Computing	Required	COMP 333	3	Department

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
	COMP 453	Data Science	Required	None	3	Department
Level 11	COMP 452	Cloud Computing	Required	None	3	Department
	COMP 417	Enterprise Architecture	Required	None	3	Department
	COMP 454	Data Mining	Required	ITEC 212	3	Department
Level 12	COMP 481	Cooperative Training	Required	None	3	College
	COMP 461	Computer Graphics	Required	None	3	Department
	COMP 472	Software Project Management	Required	COMP 371	3	Department
	COMP 451	Data Modeling and Simulation	Required	MATH 262	3	Department
Level 13	COMP 525	Cryptography	Required	COMP 323	3	Department
	COMP 4*	Elective – 1	Elective	None	3	Department
	COMP 555	Mobile Computing	Required	None	3	Department
	COMP 593	Seminar	Required	None	1	Department
Level 14	COMP 535	Theory of Computation	Required	None	3	Department
	COMP 582	Project Phase - 1	Required	COMP 371	3	College
	COMP591	Computer and Professional Ethics	Required	None	2	Department
	COMP 5**	Elective – 2	Elective	COMP 4**	3	Department
Level 15	COMP 583	Project Phase - 2	Required	COMP 582	3	College
	COMP 5**	Elective – 3	Elective	COMP 5**	3	Department
	COMP 5**	Selected Topics in Computer Science	Required	None	3	Department
	COMP 592	Entrepreneurship and Innovation	Required	None	2	Department
	COMP 556	Internet of Things (IoT)	Required	None	3	Department

ELECTIVE KNOWLEDGE DOMAIN COURSES

APPLICATION DEVELOPMENT						
Level 13	COMP 418	Concurrent Programming	Elective	None	3	Program
Level 14	COMP 519	Game Programming	Elective	None	3	Program
Level 15	COMP 510	Mobile Application Development	Elective	None	3	Program

ARTIFICIAL INTELLIGENCE						
Level 13	COMP 442	Machine Learning	Elective	None	3	Program
Level 14	COMP 543	Artificial Neural Network	Elective	None	3	Program
Level 15	COMP 562	Computer Vision	Elective	None	3	Program

CLOUD COMPUTING						
Level 13	COMP 457	Big Data	Elective	None	3	Program
Level 14	COMP 558	Cloud Architecture and Design	Elective	None	3	Program
Level 15	COMP 559	Cloud Management	Elective	None	3	Program

SOFTWARE ENGINEERING						
Level 13	COMP 474	Software Requirements Engineering	Elective	None	3	Program
Level 14	COMP 575	Software Architecture & Design	Elective	None	3	Program
Level 15	COMP 576	Software Testing and Quality Assurance	Elective	None	3	Program

LIST OF COURSES UNDER SELECTED TOPICS						
	COMP 563	Virtual Reality	Elective	None	3	Program
	COMP 594	Cyber Law & Security Policy	Elective	None	3	Program
Level	COMP 544	Computational Intelligence	Elective	None	3	Program
15	COMP 526	Digital Forensics	Elective	None	3	Program
	COMP 545	Natural Language Processing	Elective	None	3	Program

	COMP 595	Green Computing	Elective	None	3	Program
	COMP 550	Extreme Computing	Elective	None	3	Program
	COMP 556	Soft Computing	Elective	None	3	Program
	COMP 596	Biomedical Computing	Elective	None	3	Program
	COMP 527	Ethical Hacking	Elective	None	3	Program

COURSE CATALOGUE

CS Courses- Brief Description

101-CSC-3 Introduction to Computer

This course introduces the fundamental concepts and features of Computer. It includes the basics of computer hardware, software, input/output devices, computer network, computer user/client, computer architecture, programming, data representation, advantages and applications. This course also covers Python 3 programming language. This is an introductory course designed for any student interested in using computation to enhance their problem-solving abilities. Students will use their problem-solving abilities to implement basic programs in Python.

100 MATH-3 Mathematics

Basic Algebraic Operations: The set of real numbers, Operation on real numbers, Exponents and Radicals, Integer exponents, Roots of real numbers, Rational exponents and radicals, Simplifying radicals, Polynomials and Basic operations, Factoring

Equations and Inequalities: Linear equations, Linear inequalities, Absolute value in equations and inequalities, Complex Numbers, Quadratic equation and application by (factoring -quadratic formula).

Graphs: Cartesian coordinate systems, (reflection-symmetry), Distance in the plane, (distance-midpoint-circle), Equation of a line, Slope, Special forms of line, Parallel and perpendicular lines

Functions: Definition of function, Domain, Even and odd function, Composition

System of Linear Equations: Solving System of Linear Equations (Graphical, Substitution and Elimination)

Matrix: Matrix operations (Equality, Addition Subtraction and Multiplication)

System of Linear Equation by Gauss-Jordan method

011 COMP-3 Programming – I

This knowledge area consists of those skills and concepts that are essential to programming practice independent of the underlying paradigm and programming language for the beginners. Specific topics covered include: An Overview of Computers and Programming Languages, Basic Elements of Java, Variables, Types, Operators, Branching Mechanism, Iteration and loops, Methods, and Arrays.

102 MATH-3 Matrix Algebra

Concept of matrix, rank of matrix, types of matrices, basic algebraic operations on matrices, inverse of square matrix A_{2X2} and A_{3X3}.

Determinants and their properties and methods of calculation.

Linear equation system homogenies and non-homogenies.

Solving methods Linear equation systems: Gauss method, simple row method,

    Cramer's Rule.

Eigenvalues and Eigenvectors of matrices.

Linear Space and subspace.

PREREQ: 100 MATH-3 Mathematics

112 COMP-3 Programming-II

This course continues the coverage of the Programming I using the Java language. The concepts of object-oriented programming and design will be introduced. Topics include the concepts of Class and object, methods, overloading, constructors, recursion, single dimensional and multidimensional arrays, inheritance and polymorphism, exception and handling. , files inputs /outputs and interfaces with inner classes.

PREREQ: 011-COMP-3 Programming-I

111 INFS-3 Introduction to Information Systems

This course aims to introduce students the types of careers available in information systems. Identify the role of the essential hardware and software components of a computer system, key issues and trends that have an impact on organizations and individuals. Explore data management concepts, terms, features and applications of popular end-user database management systems. Introduce the telecommunications components, networks, describe their functions, and services. Identify e-commerce types, it's applications and the basic activities common to all TPSs. Discuss different artificial intelligence characteristics and applications. Explain the types of computer crimes, preventive measures and privacy issues in information systems and the internet.

201 PHYS-4 Principles of Physics

The course is a fundamental course in mechanics, properties of matter, electricity and sound. As an application to the theoretical part, there is an experimental part contains several experiments.

151 COMP-3 Computational Geometry

The course begins by introducing the fundamentals of computational geometry as a new tool for modeling and designing algorithms, the application of the computational geometry in many different areas like geology and biology is also introduced. Graph theory is introduced in the next chapter including representing graphs, graph isomorphism, Euler graph, Hamilton path, shortest distance problems, adjacency matrix and distance matrix. The theory of trees is covered including binary search tree algorithm, decision tree and game tree. Tree traversal and spanning tree are also covered in the chapter.

114 COMP-3 Programming in Statistics & Probability

This course provides an elementary introduction to statistics and probability with applications. This course also covers several topics specifically, basic definitions, graphs, measure of central tendency, measure of dispersion, theory of probability, random variables, probability distributions, correlation and linear regression.

201 MATH-3 Differentiation & Integration/Calculus

The functions: Definition, Types of functions, domain of the functions, graph of functions, composite functions, different properties of functions, inverse function.

Limits and Continuity: Limit by definition, theorems, limits and continuity of trigonometric functions.

Derivatives of Functions: Techniques of differentiation, derivative rules, chain rule, implicit and parametric differentiation, higher order derivatives.

Applications of Differentiation: The absolute, local maximum and minimum values of a function, Rolle's theorem, Mean Value theorem, critical points, increasing and decreasing functions, concavity and convexity, inflexion points, vertical and horizontal asymptotes and graph of curves.

PREREQ: 100 MATH-3 Mathematics

206 MATH-3 Discrete Mathematics

Mathematical logic: Propositional logic and propositional equivalence

Basic structures: Function of integers

Basics of counting: Permutation and combinations, binomial coefficients, generalized permutation and combinations

Advanced counting techniques: Recurrence relation, solving linear recurrence relation and generating functions

Graphs: Digraphs and undirected graphs and representing graphs

Trees: Types of trees

Boolean algebra: Boolean functions, representing Boolean functions and logic gates

PREREQ: 102 MATH-3 Matrix Algebra

213 CNET-3 Computer Organization and Architecture

This course is about the structure and basic function of computers. Its purpose is to present, as clearly and completely as possible, the nature and characteristics of modern-day computer systems. This course cover all aspects of computer, from the underlying integrated circuit technology used to construct computer components, to the increasing use of parallel organization concepts. This course also focuses on different elements of Computer Organization and Major components which include processor, memory, I/O, control unit, registers, ALU, and instruction execution unit. It also discusses control signals for the operation and coordination of all processor components.

213 COMP-3 Object-oriented Programming

This course provides the fundamental concepts of object-oriented design and implementation of software systems. The list of topics includes the fundamental concepts of classes, objects, methods, object orientation techniques such as abstraction and modularization, code coupling and refactoring, encapsulation, inheritance/subtyping and polymorphism, abstract data types, and defensive programming. Students will acquire basic knowledge on how to translate problem statement into an object-oriented software that is easy to maintain (change a feature, remove a feature, fix a bug etc.) and extend.

PREREQ: 112 COMP-3 Programming II

252 COMP-3 Data Modeling and Simulation

This course provides an overview of models and simulations and of modeling and simulation techniques. Techniques include time-driven, event-driven dynamic models/simulations and Monte Carlo Simulation. Classification of models: discrete or continuous, stochastic or deterministic, static or dynamic. The course also provide thorough understanding of random number generation, Queuing models, Simulation of queuing systems, inventory systems input modeling and verification & validation of simulation models.

221 COMP-3 Algorithms & Data Structures-I

This course focuses on the study and implementation of linear Data Structures-Arrays, Stacks, Queue, Linked List. The course gives the introduction to Asymptotic complexity and performance measurement of simple algorithms. The topic includes the concepts of Recursion, implementation and analysis of Sorting algorithms-Bubble Sort, Insertion Sort, Selection Sort and Searching algorithms- Linear Search, Binary Search.

221 INFS-3 Database Systems-I

This course aims to discuss the basic concepts and designs of the database. It covers topics such as database system architecture, data model, levels of abstraction, data independence, and concurrency control. It focuses on how to design databases for given problems, and how to use database effectively, including ER modelling, key and participation constraints, weak entities, class hierarchies, aggregation and conceptual DB design using the ER model. Relational model: creating and modifying relation using query language, enforcing integrity constraints, ER to relational and view. Schema refinement and normal forms: Functional dependencies, reasoning about functional dependencies, normal forms, decompositions and normalization. Relational Queries: Relation algebra operation and commercial query languages. Students will be trained on one of the software tools: Oracle, Sybase, and DB2.

PREREQ: 111 INFS-3 Introduction to Information Systems

111 CNET-3 Digital Logic

This course presents the various binary systems suitable for representing information in digital systems and binary codes are illustrated. It introduces the basic postulates of Boolean algebra and shows the correlation between Boolean expressions and their corresponding logic diagrams. It covers the map method for simplifying Boolean expressions. The map method is also used to simplify digital circuits constructed with AND-OR, NAND or NOR gates. The procedures for the analysis and design of Combinational & Sequential circuits. It deals with various sequential circuit components such as registers, shift registers and counters with memory circuits.

231 COMP-3 Operating Systems

This course introduces a detailed description about operating system objectives, functions and core concepts. Topics include operating system principles, file management systems, memory management, processes and threads, scheduling algorithms and deadlocks.

222 COMP-3 Algorithm and Data Structures- II

The course teaches basic techniques for data abstractions, access algorithms, and manipulation of the abstract structure, as well as an introduction to complexity analysis of space and time allocation in implementing the algorithms. The topics covered are: Abstract Data Type Concept, Linear Data Model: Arrays and Dynamic Lists, Hierarchical Data Model, Binary Tree, Heap, Binary Search Tree, AVL-Tree, Graph Model, Hashing

PREREQ: 221 COMP-3 Algorithms & Data Structures-I

241 COMP-3 Artificial Intelligence

This course offers basic concepts of the intelligence, innovations, achievements and advanced development in the areas of AI. It covers modern techniques for computers to represent task-relevant information and intelligent decisions system, solving problems by searching towards the achievement of goals. It covers some advanced topics namely Planning, Learning, Robotics and Multi-Agent Systems basics.

241 INFS-3 Internet Technology

This course introduces World Wide Web Consortium (W3C) standard markup language and services of the Internet. Topics include creating web pages using HTML, CSS, and integrating JavaScript into site structure, Introducing PHP to develop dynamic web sites and other related topics, and emphasizes the important role standards play in Web Site development. Upon completion, students should be able to deploy a hand-coded website created with mark-up and scripting languages.

331 CNET-3 Computer Networks

This Course introduces the fundamentals of Computer Network. It is based around the TCP/IP Reference Model, and explains the working and protocols of upper two layers (Applications and Transport). The course also discusses the bottom three (Physical, Data Link and Network) layers of the model with the emphasis on routing algorithms, error detection, multiple access, link layer protocols, IEEE 802.3 Ethernet, Switching, Bridging, Media and Signal, data encoding and wireless network.

315 CNET-3 Microprocessor & Assembly Language

The purpose of this course is to teach students the fundamentals of microprocessor and microcomputer systems. The student will be able to incorporate these concepts into their electronic designs for other courses where control can be achieved via a microprocessor/controller implementation. Topics include number system conversions,

Logic devices, ALU and Memory, Microcomputer architecture, Microprocessor Evolutions, 8086 Microprocessor Architecture, 8086 Signals and Pin configuration, addressing modes, 8086 Instruction set, Assembly language programming, Interrupt handling, Types of Interrupts, 8259 Priority Interrupt Controller. Laboratory exercises will be based on the microprocessor (Intel 8086).

PREREQ: 213 CNET-3 Computer Organization and Architecture

315 COMP-3 Visual Programming

This course introduces the .Net framework and Visual C# language basic concepts (Statements, Exceptions, Methods, Arrays, Class, Objects, Interface, and Namespaces) to develop windows applications. This course also covers C#'s event driven programming concepts, windows forms, controls, multithreading, and data handling. Also introduces the web application development with ASP.NET.

323 COMP-3 Analysis and Design of Algorithms

This course provides to the students a techniques for designing and analyzing algorithms such as brute-force and divide-and-conquer. They acquire some understanding on design techniques and algorithms that address an important set of well-defined problems: DFS and BFS; shortest-path algorithms (Dijkstra's and Floyd's algorithms); transitive closure (Floyd's algorithm); minimum spanning tree (Prim's and Kruskal's algorithms); topological sort. In addition, the course will provide different complexity characteristics P and NP classes, NP-completeness and reduction techniques.

PREREQ: 222 COMP-3 Algorithm and Data Structures- II

324 COMP-3 Computer Data Security and Privacy

This course provides an integrated, comprehensive and up-to-date coverage of topics in Computer Security. The list of topics covers the basics of Computer Security, Cryptographic Tools, User Authentication, Access Control, Malicious Software, Denial-of-Service Attacks, Intrusion Detection and Message authentication.

336 COMP-3 Computer Graphics

In this Course Computer Graphics theory and applications will be covered. Topics taught are classified as Fundamentals of computer graphics programming, Graphics hardware and software standards, 2D geometric primitives and raster images, 3D object representations. Data structures, algorithms, and the graphics pipeline. Graphical user interfaces. Underlying

concepts in computer graphics systems including games, animation, modelling, rendering and paint systems.

332 COMP-3 Advanced Operating Systems

This course provides the detailed description of distributed system concepts and its applications. It includes synchronization, concurrency, distributed scheduling algorithms and distributed file systems. It also covers the fundamental concepts, structure, characteristics and scheduling algorithms of multi-processor & real time operating system.

390 COMP-3 Summer Training

The primary goal of the summer training / filed experience is to obtain and enhance the students computer technology skills that help students to:
1) Familiarize with a particular real life work environment.
2) Observe and practice practical computer based problem solving techniques.
3) Gain skills to collaborate, work in groups and communicate effectively to share ideas with working team and supervisors.
4) Apply ethical principles and commit to professional ethics, responsibilities and norms of Computer Science practice.

323 INFS-3 Data Warehousing & Data Mining

An overview of data warehousing and data mining concepts included cycles of business intelligent system architecture, data mining methodology, measurements of the extracted knowledge effectiveness and its applications. It provides some background knowledge of data mining to the students for understanding the roles in data mining and data warehousing like machine learning, pattern recognition, database technology, knowledge based systems, artificial intelligence, high performance computing and data visualization. It will discuss planning of logical and physical design, implementation, maintenance and evolution of data warehouse systems. The course introduces various data mining techniques for data preprocessing, mining frequent patterns, associations, data classification, and cluster analysis. Students will be trained on some software tools such as: SPSS, Weka, Matlab, Oracle, DBMiner e.t.c to solute case studies on business solutions from the real world.

PREREQ: 221 INFS-3 Database Systems-I

334 INFS-3 Software Engineering

Software engineering is a major branch of computing science that deals with the development of software systems as practical and cost-effective solutions for individuals and society. This course covers the fundamentals of software engineering like software life cycle, requirements

engineering, system development paradigm, and system modeling using UML. It also covers software verification & validation, important implementation issues, open source development and concepts of software re-engineering. The course has a strong technical relation with graduation project providing the opportunity to practice software engineering knowledge, skills, and practices in a realistic development setting with a real client.

336 INFS-3 Human-Computer Interaction

This course provides a comprehensive introduction to the usability methods in the dynamic field of human-computer interaction (HCI). Students will learn principles, guidelines and theories needed to develop high quality interface designs. Different interaction methods will also be addressed. Numerous examples of direct manipulation give students an understanding of excellence in interaction and related design principles. The advancements in virtual environments and their applications are also dealt with. Studying various aspects of social media and collaborative technologies will understand the usability of technologies among human diversity. It also provides updates on current HCI topics, interaction devices and interfaces. Study cases are also designed for higher learning with different scenarios in human-computer interaction.

426 CNET-3 Mobile Computing

This course provides a comprehensive overview of mobile computing along with its security issues and mobility. The course will give an understanding of mobile agent systems and platforms, multiple access schemes and of various communication satellite systems. The course broadly covers the standard issues and physical mobility's of wireless LANs, mobile IP and mobile TCP. This course focuses on the Routing protocols and issues associated with mobile ad hoc and wireless sensor networks. This course will aware the students with latest trends and technologies of mobile operating systems and build understanding for developing the mobile applications.

471 COMP-3 Elective-II (Java Programming)

This course aims to introduce the development of stand-alone and dynamic web applications with respect to solve real world problems using one to many tier architectures. In order to construct the stand-alone and web applications, it mainly focuses on techniques to design and implement front-end, back-end and business logics using various java-based technologies.

443 INFS-3 Multimedia Applications

This course is designed to provide the fundamental concepts and techniques of multimedia system components e.g. text, image, sound, animation, and video. Some of the key areas covered by the course are: Multimedia authoring and tools, hypertext and hypermedia content creation and delivery, media representations, user interfaces design and development, multimedia skills, animation principle, multimedia project requirements, planning, costing, designing and producing, and recent trends in multimedia. The techniques and tools for producing, designing, and implementing interactive multimedia applications will also be covered. Students will be trained on a range of authoring, editing, and scripting tools for multimedia development.

433 COMP-3 Theory of Compilers

This course presents an introduction to compilers phases –analysis, synthesis, lexical analysis, regular expressions, finite automata NFA and DFA. Syntax Analysis, context-free grammar, ambiguity, top-down parsing - recursive descent and LL(K), bottom-up parsing, shift reduce parsing, introduction to LR parser, semantic analysis, syntax directed translation, intermediate code generator-three address code, storage organization, heap management, code generation, and code optimization.

442 COMP-3 Artificial Neural Networks

This course provides an introduction to artificial neural networks. It reviews biological neural networks, and presents a general framework to construct their mathematical models with a view to study their applications. It gives a historical view to the McCulloch-Pitts model, application of Rosenblatt's Perceptron learning model in both linear and non-linear classification problems and the Widrow-Hoff's ADALINE model. It discusses important issues in the design, training, troubleshooting, and testing of neural network applications.

PREREQ: 241 COMP-3 Artificial Intelligence

495 COMP-3 Final Project

This is a capstone course emphasizes team collaboration and application of modern software engineering approaches to software construction. The development by each team of an original, industry strength software product is the main objective of the course. The instructors will present lectures on the Unified Modeling Language (UML) and its application to object-oriented analysis and design and the teams will report on their project's progress by giving presentations and submitting deliverables related to the project. The teams will deliver and present project parts at the following stages: topic proposal (concept), software specification (requirements), design (model), and implemented software (final

product). At the end of the semester, there will be a final Project presentation where students will demonstrate and presentation the outcome and findings of the project work.

4.52 INFS - 3 Computer Ethics & Society

This course covers the fundamentals of computer ethics & society. It also covers Legal, social, and ethical issues surrounding use of computers and the internet. The course will stress ethical decision making as well as legal and social responsibility in connection with technology-related concerns. This course covers the areas such as security, crime, privacy and intellectual property in the context of computer use. It also deals with computer and information ethics, social implications of technology current trends in computer science and information technology applications and development, professional issues, emerging trends and current topics in computer science research.

DEPARTMENT FACULTY

Main Campus (Boys)

Dr. Baseem Ibrahim Assiri, Assistant Professor, Ph.D. in Computer Science, Parallel and Distributed Computing, Louisiana State University, USA

Dr. Abdullah Sheneamer, Assistant Professor, Ph.D. in Computer Science, Software Engineering, University of Colorado at Colorado Springs, USA

Dr. Muath Alhussain Khawaji, Assistant Professor, Ph.D. in Computer Science, Human Computer Interaction, IOWA State University, USA

Dr. Mousa Khobrani, Assistant Professor, Ph.D. in Computer Science, Mobile Applications, Brighton University, UK

Dr. Faisal Mohammedalamen AlShanketi, Assistant Professor, Ph.D in Information Systems Security, Mobile Security, University of Victoria, Canada

Dr. Alhijab Alhazmi, Assistant Professor

Dr. Essa Alhazmi, Assistant Professor

Mr. Megrin Hakami, Lecturer, Masters in Computer Science, Newcastle University, UK

Mr. Adel Mohammed Gharawi, Lecturer, Masters in Computer Science, Artificial Intelligence, DePaul University

Mr. Ibrahim Mohsen Khromi, Lecturer, Masters in Computer Science, Information Technology, Sacred Hart University, U.S.A

Mr. Abdulrehman Al Harbi, Lecturer, Masters in Computer Science, Saint Joseph's University, USA

Mr. Zaid Hakami, Lecturer, Masters in Computer Science, Software Engineering, Manmot University, U.S.A

Mr. Adel Salem Al gahtani, Lecturer, Masters in Computer Science, Security, University of Colorado, U.S.A

Mr. Hamad Zogan, Lecturer, Masters in Computer Science, Saint Joseph University, USA

Mr. Mnassar Alyami, Lecturer, Masters in Computer Science, Kentucky State University, USA

Dr. Mohammed Fakherdin, Assistant Professor, Ph.D. in Computer Science, Web applications, University Malaysia Pahang, Malaysia

Dr Rajan John, Assistant Professor, Ph.D. in Computer Science, Data Mining, Karunya University, India

Dr. Sherif Tawfik Amin, Assistant Professor, Ph.D. in Computer Science, Computer Security & Bioinformatics, Assiut University, Egypt York University, UK

Dr. Shadab Alam, Assistant Professor, Ph.D. in Computer Science, Cryptography & Network Security, Aligarh Muslim University, India

Dr. Shams Tabrez Siddiqui, Assistant Professor, Ph.D. in Computer Science, Software Requirement Engineering, Aligarh Muslim University, India

Dr. Nasser Mohamed Anis Ebrahim Aisa, Assistant Professor, Ph.D. in Computer Science, Image processing, Cairo university, Egypt

Dr. Shanmuga Sundaram Marappan, Assistant Professor, Ph.D. in Computer Science, Digital Image Processing, Bharathiar University, India

Mr. Yaqoub Abbker Adam, Lecturer, Masters in Computer Science, Computer Sciences & Information, Gezira University, Sudan

Mr. Alfadil Ahmad Hamdan, Lecturer, Masters in Computer Science, Academy of Graduate Studies, Libya

Mr. Imad Al Sheikh, Lecturer, Masters in Computer Science, Bio-Inspired Systems & Object technology, Philadelphia University, Jordan

Mr. Ashfaq Ahmad, Lecturer, Masters in Computer Science, Databases, G.C University, Pakistan

Mr. Aasif Aftab, Lecturer, Masters in Computer Science, Aligarh Muslim University, India

Mr. Mohammed Shabbir Alam, Lecturer, Masters in Computer Science, Aligarh Muslim University, India

Mr. Shiraz Ahmed Maniyar, Lecturer, Masters in Computer Science, Osmania University, Hyderabad, India

Mr. Raj Kumar Masih, Lecturer, Masters in Computer Science, Software Engineering, Punjab Technical University, India

Mr. Mohammad Shahnawaz Nasir, Lecturer, Masters in Computer Science, Aligarh Muslim University, India

Mr. Khalid Ali Qidwai, Lecturer, Masters in Computer Science, IGNOU, India

Mr. Alighazi Siddiqui, Lecturer, Masters in Computer Science, India Gandhi National University, India

Mr. Wajid Ali Siddiqui, Lecturer, Masters in Computer Science, Dr. Babasaheb Ambedkar Marathwada University, India

Mr. Khaja Raoufuddin Ahmed, Lecturer, Masters in Computer Science, Middlesex University, London

Mr. Syed Ziauddin, Lecturer, Masters in Computer Science, Osmania University, Hyderabad, India

Mr. Mohammad Alamgir Hossain, Lecturer, Masters in Computer Science, Information Technology, Bengal Engineering and Science University, India

Mr. Abu Salim, Lecturer, Masters in Computer Science & Engineering, Jawaharlal Nehru Technological University, Kakinada, India

Mr. Mohammed Qamruddin, Lecturer, Masters in Computer Science & Engineering, Data Mining & Security, Jawaharlal Nehru Technological University, Hyderabad, India

Mr. Mohammed Shuaib, Lecturer, Masters in Computer Science & Engineering, Software Engineering, Aligarh Muslim University, India

Mr. Khalid Hasan Mahmoud Alsinglawi, Lecturer, Masters in Computer Science & Engineering, Computer Information System, Al-Yarmok University, Jordan

Mr. Mohammed Shahid Kamal, Lecturer, Masters in Computer Science, IGNOU, India

Mr. Fahad Ahmed Aati, Teaching Assistant, Bachelors in Computer Science, Programming Languages, Jazan University, Saudi Arabia.

Mr. Tariq Mousa Alar , Lecturer, Master in Computer Science, University of New England.

Mr. Osama Daghriri , Lecturer, Master in Computer Science, Newcastle University, UK .

Mahliya Campus (Girls)

Dr. Nada Hakami, Assistant professor, Ph.D. in Computer Science, Technology-Enhanced learning, University of Southampton, UK

Dr. Walaa Mohamed Abdelhafiez Hussein, Assistant professor, Ph.D. in Computer Science, Image Processing, Souhag University, Egypt

Dr. Sahar Eldeep, Assistant professor, Ph.D. in Computer Science, Electric power Control, Zagazig University,

Dr. Uma Perumal, Assistant professor, Ph.D. in Computer Science, Data Mining, Magadha University, India

Ms. Noha Mostafa, Lecturer, Masters in Education Technology, Cairo University, Egypt

Ms. Sahar Mansour Hassen Mohamed Ahmed, Lecturer, Masters in Computer Science, Biometrics, AlZaiem Algzharj University, Sudan

Ms. Nagla Babiker, Lecturer, Masters in Information Systems, Communication networks, AlZaiem Algzharj University, Sudan

Ms. Sameena Shaik, Lecturer, Masters in Computer Science, Andhra University, India

Ms. Sangeetha Komandur (Zainab Khan), Lecturer, Masters in Computer Science, Osmania University, India

Ms. Fazeelatunnisa, Lecturer, Masters in Computer Science, Wireless Networks, Osmania University, India

Ms. Saahira Banu Ahamed Maricar, Lecturer, Masters in Computer Science, Wireless Sensor Networks, Vels University

Ms. Subuhi Kashif Ansari, Lecturer, Masters in Computer Science, RGPV, Bhopal, India

Ms. Shermin Shamsudheen, Lecturer, Masters in Computer Science & Engineering, Wireless Sensor Networks, Anna University, India

Ms. Nusrat Hamid Shah, Lecturer, Masters in Computer Science, University of Pune, India

Ms. Jaya Suriya Muthukrishnan Panchalingam, Lecturer, Masters in Computer Science & Engineering, Image Processing, Vinayaka Mission University, India

Ms. Roma Fayaz, Lecturer, Masters in Computer Science, University of Kashmir, India

Ms. Munleef Quadir, Lecturer, Masters in Computer Science, Central University of Kashmir, India

Ms. Pravitha, Lecturer, Masters in Computer Science, Bharathiyar, University, India

Ms. Rawia Ahmed, Lecturer, Masters in Computer Science, Artificial Intelligence, Sudan University

Ms. Remya Rajappan, Lecturer, Masters in Computer Science, Mahatma Gandhi University, India

Ms. Betty Elezebeth Samuel, Lecturer, Masters in Computer Science, Anna University, India

Ms. Afshan Kauser, Lecturer, Masters in Computer Science, Dr. Babasaheb Ambedkar Marathwada University, India

Ms. Arshia Arjumand Banu, Lecturer, Masters in Computer Science, Osmania University, India

Ms. Sabana Parveen, Lecturer, Masters in Computer Science, Jawaharlal Nehru Technological University, India

Ms. Anne Anoop, Lecturer, Masters in Computer Science, Sikkim Manipal University, India

Ms. Shama Kouser, Lecturer, Masters in Electronics and Communication Engineering, Jawaharlal Nehru Technological University, India

Ms. Umi Salma Basha, Lecturer, Masters in Computer Science, Information Security, Visvesvaraya Technological University, Belgum University, India

Dr. Rua Aburasain, Assistant Professor, PhD in Computer Science, Loughborough University.

Ms. Ebtisam, Lecturer, Master in Computer Science, University of East Anglia.

Ms. Laila Fhaid Alqhtani, Lecturer, Master in Computer Science, University of East Anglia.

Dr. Awatif Balobaid, Assistant Professor, PhD in Computer Science, Oakland University.

Dr. Ashwag Albakri, , Assistant Professor, PhD in Computer Science, University of Missouri- Kansas City.

Ms. Nada Alzahrani, Lecturer, Master in Computer Science, Taif University, S Saudi Arabia.

Ms. Fatima Al Qahtani, Lecturer, Master in Computer Science. Royal Melbourne Institute of Technology.

Dr. MAHALAKSHMI, Assistant Professor, PhD in Computer Science, Bharathidasan University, India.

Ms. KIRAN, Lecturer, Master in Computer Applications, IGNOU, India.

Ms. MANAL HASSAN ZAKRI, Lecturer, Master in Computer Science, Bowling Green State University.

Ms. MAHA IBRAHIM HASSAN SHAABI, Lecturer, Master in Computer Science, King Saud University, Saudi Arabia.

Dr. NOHA MOSTAFA, Lecturer, PhD in Education Technology, Cairo University.

Sabya University College

Dr. Mawahib Adam, Assistant Professor, Ph. D. in Computer Science, Computer Networks Sudan University for Science and Technology, Sudan

Ms. Samar Mansour, Lecturer, Masters in MIS, Alzaiem Alazhari University, Sudan

Ms. Sayyada Sara Banu, Lecturer, Masters in Computer Science, Osmania University, India

Ms. Vini Vidyadharan, Lecturer, Masters in Computer Science, Kerala University, India

Ms. Chaman Deep Kaur, Lecturer, Masters in Computer Science, Punjab Technical University, India

Ms. Afsana Anjum, Lecturer, Masters in Computer Science, Maharishi Dayanad University, India

Ms. Rejina Aziz, Lecturer, Masters in Computer Science, Manonmaniam Sundaranar University, India

Ms. Sunanda Kondapalli, Lecturer, Masters in Computer Science, Osmania University, India

Ms. Ayasha Siddiqua, Lecturer, Masters in Computer Science, Information Security and Management, Uttarakhand Technical University, India

Ms. Shaista Sabir, Lecturer, Masters in Computer Science, Hamdard University, India

Ms. Ahmed unissa, Lecturer, Masters in Computer Science, Osmania University, India

Ms. Amal Saad, Teaching Assistant, Bachelors in Computer Science, Bisha University, Saudi Arabia.

Ms. Afnan Sumaily, Teaching Assistant, Bachelors in Computer Science, Jazan University, Saudi Arabia.

Ms. Atheer Omar S Bajneed, Master in Advance Computer Science.

Ms. Najla Qalam, Bachelor in Computer Science.

Ms. Nedaa Haadi, Master in Computer Science.