

## Courses Description

**College:** Prince Alhusein Bin Abdullah The Second For Information Technology

**Department:** Computer Science And Applications(Csa)

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**Course ID:** 1001099      **Description:** Prerequest / Computer Skills

**Full Course Description:** jjjjjjjjjjjjjjjjjjjjj

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**Course ID:** 1001100      **Description:** Computer Skills(1)

**Full Course Description:**

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**Course ID:** 1001101      **Description:** Fundamentals of Computer Science

**Full Course Description:** Introduction to C++, algorithms, algorithm design, selection and repetition statements, functions, storage classes, pointers, arrays, array searching and sorting, strings, manipulation of symbols and strings, structured programming, introduction to Object-Oriented Programming.

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**Course ID:** 1001102      **Description:** Fundamentals of Computer Science lab

**Full Course Description:** Introduction to C++, algorithms, algorithm design, selection and repetition statements, functions, storage classes, pointers, arrays, array searching and sorting, strings, manipulation of symbols and strings, structured programming, introduction to Object-Oriented Programming.

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**Course ID:** 1001103      **Description:** Computer Skills (1)

**Full Course Description:** Computer capabilities, limitations, and applications, system components, applications, programming language concepts, communication, and the use of software packages. personal computer and its practical use, including hardware, application and system software, the Internet and World Wide Web, communications, Networks, and computers in society.

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**Course ID:** 1001104      **Description:** Computer Skills (1)/lab

**Full Course Description:** Computer applications and software packages, using operating system windows and office applications such as MS word, Excel, PowerPoint, Internet and electronic mail.

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**Course ID:** 1001110      **Description:** Computer Skills(2)/(for Arts and Humanities)

**Full Course Description:** Advanced Applications for word processing and large documents, and using other applications such as Microsoft excel inside word processing, electronic tables and forms, building macros, mathematical operations and functions, charts and its practical applications, data base applications (e.g. Microsoft Access) in addition basic structure for data base and its different applications, and electronic publisher.

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**Course ID:** 1001115      **Description:** Computer Skills(2)/(for Science)

**Full Course Description:** An introduction to C++ language, data types, assignment statement, arithmetic and logical expressions, selection, repetition, arrays, strings, searching.

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**Course ID:** 1001120      **Description:** Logic Design

**Full Course Description:**

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**Course ID:** 1001121      **Description:** Logic Design

**Full Course Description:** An introduction to numbering systems, logic gates and Boolean algebra, minimizing the functions using Boolean rules and K-map rule, designing the combination, sequential logic circuits and counters, registers and transfer logic.

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**Course ID:** 1001122      **Description:** Logic Design Lab

**Full Course Description:** building circuits through different gates and basic logical circuits, testing number of logical circuits, and running these circuits.

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**Course ID:** 1001141      **Description:** Discrete Mathematics

**Full Course Description:** Logic, propositional logic, predicates, sets, functions, relations, matrices, algorithms and algorithm complexity, counting, permutations, recursion, graph theory, trees.

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**Course ID:** 1001210      **Description:** Visual Programming (1)

**Full Course Description:**

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**Course ID:** 1001211      **Description:** Visual Programming (1)

**Full Course Description:** Basic concepts and basic techniques of object-oriented and event-driven windows programming, Windows architectures, integrated development environment (IDE), message and event-driven programming, and graphical user interface (GUI) design and implementation.

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**Course ID:** 1001212      **Description:** Visual Programming (1) Lab

**Full Course Description:**

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**Course ID:** 1001213      **Description:** Fortran Programming Language

**Full Course Description:**

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**Course ID:** 1001221      **Description:** Computer Organization

**Full Course Description:** Computer components, internal link, central processing unit (CPU), numbering implementation, arithmetic and logical operations, group of commands for processing, addressing, processor structure and its functions, internal memory, external memory, organization of inputs and outputs, and basic of assembly language.

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**Course ID:** 1001241      **Description:** Theory of Computation

**Full Course Description:** Theories, techniques, mechanisms and tools related to the mathematical foundation of digital computers processing activities. Regular languages, Context-Free Languages, automata, finite-State machines, and turning Machines.

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**Course ID:** 1001251      **Description:** Data Structures

**Full Course Description:** Basic concepts of representations of data, including basic data types, stacks and queues, arrays and graphs, contiguous list, linked list, tree and binary tree, sorting techniques, searching and information retrievals.

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**Course ID:** 1001310      **Description:** Multimedia Programming

**Full Course Description:** Multimedia technologies, definitions and applications, visual data input/output devices, audio data input/output devices, multimedia information storage, operating system, support for multimedia applications, multimedia on the Internet/Web, graphical user-interface (GUI) libraries, multimedia support libraries, multimedia user-interfaces, and advanced topics.

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**Course ID:** 1001312      **Description:** Visual Programming (2)

**Full Course Description:** GUI-based applications, document-View architecture, object linking and embedding (OLE), and advanced component programming (Java-Beans & ActiveX) visual programming packages.

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**Course ID:** 1001314      **Description:** Visual Programming (2)

**Full Course Description:**

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**Course ID:** 1001320      **Description:** Computer Architecture

**Full Course Description:** History and evolution of computer system architecture, description of the components of the computer and its different levels, CPU design, pipeline, control unit design, microprogrammed & hardwired control unit, Cpu types, RISC & CISC, operating system support.

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**Course ID:** 1001321      **Description:** Computer Organisation and Architecture

**Full Course Description:** History and evolution of computer system architecture, description of the components of the computer and its different levels, CPU design, pipeline, control unit design, microprogrammed & hardwired control unit, Cpu types, RISC & CISC, operating system support.

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**Course ID:** 1001330      **Description:** System Programming

**Full Course Description:**

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**College:** Prince Alhusein Bin Abdullah The Second For Information Technology

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**Course ID:** 1001331      **Description:** System Programming

**Full Course Description:** Review of assembly language principles, system software (assembler, compiler, interpreter, linker, loader, and text editor), introduction to operating systems and multiprogramming, and introduction to formal systems and programming languages.

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**Course ID:** 1001341      **Description:** Introduction to Numerical Methods

**Full Course Description:** Sources of error, accumulation of error, solve nonlinear equation in one variable interpolation, approximation, differentiation, numerical integration, direct, and iterative methods for solving liner systems of equations.

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**Course ID:** 1001342      **Description:** Operation Research

**Full Course Description:** Solving linear programming problems by using different methods such as simplex method, graphical method and sensitivity analysis, and applications of linear programming, such as, transportation problems, assignment and limitation problems, and network problems.

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**Course ID:** 1001351      **Description:** Algorithms

**Full Course Description:** Algorithm definition, method of algorithm analysis and design, divide and conquer strategy, sorting algorithms, quick sort, merge sort, searching algorithms, and network algorithms, dynamic programming, Greedy algorithms, graph algorithms, Shortest path algorithms, NP definition.

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**Course ID:** 1001370      **Description:** Computer Networks

**Full Course Description:**

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**Course ID:** 1001371      **Description:** Computer Networks

**Full Course Description:** Networks types, Protocols, Layered OSI and TCP/IP models, Cable tyes and specifications, Error control, Data rate, Wide Area Networks (WANs), circuit-switching, packet-switching, frame relay, asynchronous transfer mode (ATM), Routing, Congestion, local-area networks (LANs), Ethernet, wireless LANs.

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**Course ID:** 1001372      **Description:** Computer Networks Lab

**Full Course Description:**

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**Course ID:** 1001411      **Description:** Computer Graphics

**Full Course Description:** Networks types, Protocols, Layered OSI and TCP/IP models, Cable tyes and specifications, Error control, Data rate, Wide Area Networks (WANs), circuit-switching, packet-switching, frame relay, asynchronous transfer mode (ATM), Routing, Congestion, local-area networks (LANs), Ethernet, wireless LANs.

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**Course ID:** 1001430      **Description:** Operating Systems

**Full Course Description:**

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**Course ID:** 1001431      **Description:** Operating Systems

**Full Course Description:** Basic concepts of operating systems and their evolution, study of the basic components of the operating systems, CPU scheduling, Memory management, virtual memory, deadlocks, concurrent processing, and Disk scheduling are also handled.

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**Course ID:** 1001432      **Description:** Compilers

**Full Course Description:** Programming languages and their rules as well as the rules of their formulation, phases of compiler construction such as lexical analysis, syntax analysis, semantic analysis, code generation, and code optimization.

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**Course ID:** 1001470      **Description:** Advanced Computer Networks

**Full Course Description:**

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**College:** Prince Alhusein Bin Abdullah The Second For Information Technology

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**Course ID:** 1001471      **Description:** Internet Protocols

**Full Course Description:** Internetworking concepts, TCP/IP internet protocol, Classful and classless IP addressing, subnetting, connection-oriented and connectionless protocols, Transport protocols, wireless networks.

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**Course ID:** 1001472      **Description:** Network Security

**Full Course Description:** Security requirements and attacks, security architectures, encryption, authentication, access control, hash functions, digital signatures, packet filters, firewalls, intrusion detection systems, security management and monitoring.

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**Course ID:** 1001473      **Description:** Network Security

**Full Course Description:**

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**Course ID:** 1001495      **Description:** Selected Topics in Computer Science

**Full Course Description:** Covering one of the recent topics in the field of computer science.

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**Course ID:** 1001498      **Description:** Practical Training

**Full Course Description:** The Bsc degree in (CS / CIS / SWE) requires 8 weeks of continuous training inside Jordan or 6 weeks continuous training outside Jordan. The training must be conducted within private or public sectors working in the IT field, wich requires the approval of the department.

A final report is also required, training can be replaced by a recognized certificate in the IT field.

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**Course ID:** 1001499      **Description:** Computer Science Project

**Full Course Description:** Designing and developing a software system in one of the computer science areas.

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**Course ID:** 111001100      **Description:** Introduction to Programming

**Full Course Description:** g

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**Course ID:** 111001101      **Description:** Introduction to Programming Lab

**Full Course Description:** g

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**Course ID:** 111001110      **Description:** Object Oriented (1)

**Full Course Description:** f

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**Course ID:** 111001111      **Description:** Object Oriented (1) Lab

**Full Course Description:** f

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**Course ID:** 111001123      **Description:** Digital Logic Design

**Full Course Description:** r

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**Course ID:** 111001212      **Description:** Object Oriented (2)

**Full Course Description:** fr

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**Course ID:** 111001213      **Description:** Object Oriented (2) Lab

**Full Course Description:** g

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**Course ID:** 111001214      **Description:** Visual Programming

**Full Course Description:** f

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**Course ID:** 111001215      **Description:** Visual Programming Lab

**Full Course Description:** j

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**Course ID:** 111001240      **Description:** Theory of Computation

**Full Course Description:** f

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**College:** Prince Alhusein Bin Abdullah The Second For Information Technology

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**Course ID:** 111001250      **Description:** Data Structures

**Full Course Description:** d

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**Course ID:** 111001321      **Description:** Internet Protocols

**Full Course Description:** g

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**Course ID:** 111001341      **Description:** Operation Research

**Full Course Description:** gt

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**Course ID:** 111001351      **Description:** Algorithms

**Full Course Description:** f

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**Course ID:** 111001370      **Description:** Programming of Internet Applications

**Full Course Description:** f

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**Course ID:** 111001371      **Description:** Programming of Internet Applications Lab

**Full Course Description:** f

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**Course ID:** 111001372      **Description:** Bioinformatics

**Full Course Description:** f

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**Course ID:** 111001373      **Description:** Simulation

**Full Course Description:** f

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**Course ID:** 111001375      **Description:** Computer Vision

**Full Course Description:** f

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**Course ID:** 111001416      **Description:** Programming Languages Design

**Full Course Description:** f

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**Course ID:** 111001421      **Description:** Wireless Networking

**Full Course Description:** g

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**Course ID:** 111001422      **Description:** Network Security

**Full Course Description:** gt

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**Course ID:** 111001431      **Description:** Operating Systems

**Full Course Description:** f

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**Course ID:** 111001432      **Description:** Compilers

**Full Course Description:** de

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**Course ID:** 111001460      **Description:** Artificial Intelligence

**Full Course Description:** d

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**Course ID:** 111001474      **Description:** Computer Graphics

**Full Course Description:** f

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**Course ID:** 111001480      **Description:** Practical Training

**Full Course Description:** de

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**Course ID:** 111001490      **Description:** Graduation Project (1)

**Full Course Description:** f

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**Course ID:** 111001491      **Description:** Graduation Project (2)

**Full Course Description:** d

## Courses Description

**College:** Prince Alhusein Bin Abdullah The Second For Information Technology

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**Course ID:** 111001492      **Description:** Special Topics In Computer Science

**Full Course Description:** f

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**Course ID:** 121001100      **Description:** a

**Full Course Description:** ff

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**Course ID:** 151001460      **Description:** Artificial Intelligence

**Full Course Description:** m

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**Course ID:** 1910011100      **Description:** Introduction to Programming

**Full Course Description:** Introduce to the student the programming concepts using the C++ language. The course covers the fundamental concepts for analyzing problem statements, designing computer solutions, as well as an introduction into the syntax and semantics of the C++ language. It also focuses on Data types, variables, constant, Operators and expressions, Control flows, Functions, Arrays, and classes.

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**Course ID:** 1910011101      **Description:** Introduction to Programming Lab

**Full Course Description:** The course provides students with basic understanding of C++ programming language. It shows students the ideal way to create programs by c++ language. It introduces the history of computer programming languages, and in more details covers the C++ programming languages by study the syntaxes and rules of C++ languages.

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**Course ID:** 1910011110      **Description:** Object Oriented (1)

**Full Course Description:** This course provides students with a comprehensive study of the Java Programming Language. The course stresses the object paradigm including classes, inheritance, virtual functions, and templates in the development of Java programs. Lab exercises reinforce the lectures.

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**Course ID:** 1910011111      **Description:** Object Oriented Lab (1)

**Full Course Description:** The objectives of the course are to have students identify and practice the object-oriented programming concepts and techniques, practice the use of Java classes and class libraries, modify existing Java classes, develop Java classes for simple applications, and practice the concepts of Object-Oriented Analysis and Design (OOA/OOD) and design patterns and frameworks by developing a Java based project.

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**Course ID:** 1910011123      **Description:** Digital Logic Design

**Full Course Description:** A modern introduction to logic design and the basic building blocks used in digital systems, methods for designing digital circuits, implementation of systems computer systems, control systems and other applications which demand digital hardware. Topics include: Numbering systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization techniques, Combinational circuits: Adders, Decoders, Encoders, Code Converters, Sequential Circuits: flip-flops, counters, registers, synchronous sequential circuits.

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**Course ID:** 1910011212      **Description:** Object Oriented (2)

**Full Course Description:** This course teaches the fundamental ideas behind the object-oriented approach to programming; through the widely-used Java programming language. Concentrating on aspects of Java that best demonstrate object-oriented principles and good practice, students will gain a solid basis for further study of the Java language, and of object-oriented software development.

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**Course ID:** 1910011213      **Description:** Object Oriented Lab (2)□

**Full Course Description:** This course presents a conceptual and practical introduction to imperative and object oriented programming, exemplified by Java. As well as providing a grounding in the use of Java, the course will cover general principles of programming in imperative and object oriented frameworks. The course should enable you to develop programs that support experimentation, simulation and exploration in other parts of the Informatics curriculum (e.g. the capacity to implement, test and observe a particular algorithm).

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**Course ID:** 1910011214      **Description:** Visual Programming

**Full Course Description:** Introduction to the principles of programming for Windows in Visual Basic. Event driven programming. Control structures. Data types and structures. Properties, events, and methods of forms controlling. Modular programming.

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**Course ID:** 1910011215      **Description:** Visual Programming Lab□

**Full Course Description:** Visual programming environment, Hands on practicing using one of the visual programming languages such as VB.Net. Developing programs using object oriented programming, building user interface forms, connecting to Database.

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**Course ID:** 1910011240      **Description:** Theory of Computation□

**Full Course Description:** Language theory includes: regular expressions, regular languages, finite automata (deterministic and non-deterministic), Context-Free Languages, Pushdown automata, and language grammars, simple introduction to Turing machines.

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**Course ID:** 1910011250      **Description:** Data Structures

**Full Course Description:** Present fundamental techniques in the design and analysis of data structures using Java Programming Language. Fundamental data structures include: lists, stacks, queues, trees, priority queues, hashing, graphs, and search trees. Introduces algorithm design and analysis techniques such as recursion and formal methods for analyzing the time and space requirements of programs.

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**Course ID:** 1910011320      **Description:** Computer Networks

**Full Course Description:** Principles, design, implementation, and performance of computer networks, Internet protocols and routing, local area networks, wireless communications and networking, performance analysis, congestion control, TCP, network address translation, multimedia over IP, switching and routing, mobile IP, peer-to-peer networking, network security.

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**Course ID:** 1910011321      **Description:** Internet Protocols

**Full Course Description:**

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**Course ID:** 1910011322      **Description:** Mobile Application Development

**Full Course Description:** This course covers software mobile application development, its architecture and lifecycle, as well as its inherent design considerations. Students will learn about mobile resources, activities, views, layouts, and intents in addition to interacting with the location based services, messaging services, multimedia interfaces, sensors available on the mobile device, and application distribution.

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**Course ID:** 1910011330      **Description:** Multimedia Programming

**Full Course Description:** Various elements of multimedia developmental environment: hardware and software such as: text, sound, images, animation, video, multimedia authoring techniques, multimedia approaches on Web including digitizing of audio and video multiple types of audio, images, video and animation, broadcasting techniques. Planning and producing multimedia projects, testing and deliver, compression algorithms and digital audio conversion.

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**Course ID:** 1910011341      **Description:** Operation Research

**Full Course Description:** The Linear programming models, Simplex & revised simplex algorithms, Duality and sensitivity analysis in LP, Transportation and assignment problems, Decision Trees, Integer programming models, and the applications of the operations research.

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**College:** Prince Alhusein Bin Abdullah The Second For Information Technology

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**Course ID:** 1910011351      **Description:** Algorithms□

**Full Course Description:** The design and analysis of computer algorithms, growth of functions, recurrences, sorting, divide-and-conquer, binary search tree, red black tree, dynamic programming, greedy algorithms, graph searching and graph algorithms, flow networks, bipartite matching, NP-completeness.

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**Course ID:** 1910011373      **Description:** Simulation

**Full Course Description:** System modeling and simulation, Discrete and Continuous Markov Chains, Queuing Theory, Discrete Event Simulation, Large Sample Estimation, Output Statistics, Test of Randomness, Monté Carlo Simulation, sequence of assignments using some simulation tools such as ARENA.

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**Course ID:** 1910011416      **Description:** Programming Languages Design□

**Full Course Description:** Fundamental concepts and general principles underlying current programming languages and models, control and data abstractions, language processing and static and dynamic binding, indeterminacy and delayed evaluation, and languages and models for parallel and distributed processing. A variety of computational paradigms such as: functional programming, logic programming, object-oriented programming and data flow programming.

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**Course ID:** 1910011421      **Description:** Wireless Networking

**Full Course Description:** The design and implementation of wireless networks and mobile systems, the science and technology behind wireless networks, comprehensive view of the electromagnetic spectrum, mobile computing concepts and applications, the concepts of frequency and wavelength, radio propagation and attenuation, telecommunications via wireless, technology offerings, frequency allocations, and types of wireless technologies and their appropriate application, Wireless LAN technology, TCP/IP suite and sub netting, and IEEE 802.11 wireless LAN standard.

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**Course ID:** 1910011422      **Description:** Network Security

**Full Course Description:** Theory and practice of computer security, focusing in particular on the security aspects of the web and Internet. Cryptographic tools used to provide security, such as shared key encryption (DES, 3DES, RC-4/5/6, etc.); public key encryption, key exchange, and digital signature (Diffie-Hellmann, RSA, DSS, etc.). Utilizing these concepts in the internet protocols and applications such as SSL/TLS, IPSEC, Kerberos, PGP, S/MIME, SET, and others (including wireless). System security issues, such as viruses, intrusion, and firewalls, will also be covered.

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**Course ID:** 1910011423      **Description:** Parallel and Distributed Computing

**Full Course Description:** Basic architectural, programming, and algorithmic concepts in the design and implementation of parallel and distributed applications. The specific topics include, but not limited to, multithreaded programming, message passing interface, Shared memory programming, GPU, and cloud computing.

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**Course ID:** 1910011431      **Description:** Operating Systems□

**Full Course Description:** Concepts and principles of operating systems, structure and services, processor scheduling, thread, virtual machine, processing synchronization, deadlocks, concurrent processes, memory management, virtual memory, input/output, secondary storage management, and file systems.

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**Course ID:** 1910011460      **Description:** Artificial Intelligence

**Full Course Description:** Rapidly-developing fields of artificial intelligence (AI): general knowledge representation techniques and problem solving strategies, classical and heuristic search techniques, rule-based systems, production system, stochastic system, prepositional and first order logic, fact representation in logic and logic programming (Prolog). Natural language processing, machine learning, expert systems, reasoning, neural network.

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**College:** Prince Alhussein Bin Abdullah The Second For Information Technology

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**Course ID:** 1910011474      **Description:** Computer Graphics□

**Full Course Description:** Hardware and software principles of interactive raster graphics. Introduction to the basic concepts, 2-D and 3-D modeling and transformations, viewing transformations, projections, rendering techniques, graphical software packages and graphics systems. Students will use a standard computer graphics API to reinforce concepts and study fundamental computer graphics algorithms.

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**Course ID:** 1910011480      **Description:** Practical Training

**Full Course Description:**

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**Course ID:** 1910011490      **Description:** Applied Project (1)□

**Full Course Description:** There are no formal lectures for this course but the student holds discussion at least 3 hours a week with the supervisor. The student will be given assigned a practical project where he/she is expected to analyses, design and implement it and finally to write a report of very high quality.

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**Course ID:** 1910011491      **Description:** Applied Project (2)

**Full Course Description:** There are no formal lectures for this course but the student holds discussion at least 3 hours a week with the supervisor. The student will be given assigned a practical project where he/she is expected to analyses, design and implement it and finally to write a report of very high quality.

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**Course ID:** 1910011492      **Description:** Special Topics In Computer Science

**Full Course Description:** Covers topics of interest in computer science at the senior undergraduate level. Content varies from semester to semester. Prerequisites: Consent of instructor.