Bachelor of Science (Hons) in Information Technology

Programme Objectives

- To inculcate in students a firm foundation in theory and practice of IT skills and innovation, keeping pace with emerging technologies
- To develop strong core competences in students to analyze, formulate, design, and solve hardware/software IT problems
- To develop knowledge in software applications development
- To develop skills in Interface design & Web development
- To develop Mobile Application Development skills to design, build, develop and maintain Mobile Applications
- To introduce Artificial Intelligence (AI) principles, techniques, applications of Artificial Intelligence and to develop a basic understanding of the building blocks of AI
- To teach students concepts of Embedded systems and Internet of Things and its applications
- To train students in Geographic Information systems that lead to analysis of geographic data towards improving environmental sustainability and renewable energy resources
- To provide students with an understanding of innovative technologies thereby becoming employable and becoming pillars for the global economy
- To develop an awareness on Governance, Risks and Compliance
- The programme also aims at preparing students for technical leadership roles
- Employability Skills module integrated in the Programme develops Communication skills & Interpersonal skills and sculpts the students towards becoming a highly valued Human Resource asset for modern workplace.
- To produce graduates who will enter the work market as productive IT Professionals
- To equip the students towards continuing higher professional education
- To develop in students the social, ethical, and moral values needed to make significant contributions to society

Total Number of Credits: 116

Entry Criteria of the Programme:

AIHE respects the academic entry requirements set by the local authorities.

For the BSc (Hons) IT programme, the entry requirement shall not be less than the following:

(i)   Admission to the BSc (Hons) IT Degree Programme has the following requirements for Local Students / Residents:

Either Pass in
Two (2) subjects at A-level and two (2) subject at Advanced Subsidiary / Subsidiary level at the Higher School Certificate (HSC) Examination

OR Pass in
Three (3) subjects at A-level and one (1) subject at Advanced Subsidiary / Subsidiary level at the Higher School Certificate (HSC) Examination

OR Pass in
3 subjects at A-level at the London General Certificate Examination

OR Pass in
The IGCSE and the International Baccalaureate (IB)

OR Pass in
Qualifications awarded by other Universities and Institutions, which have been approved by the Senate of AIHE, as satisfying the minimum requirements for admission.

OR

Special Admission and Mature Applicants: An applicant of minimum 23 years old, may be admitted with a pass at School certificate and with minimum of 3 years' experience in a related field for any undergraduate or honours programme.

(ii)   Admission to the BSc (Hons) IT Degree Programme has the following requirements for International students:

Either Pass in
Two (2) subjects at A-level and two (2) subject at Advanced Subsidiary / Subsidiary level at the Higher School Certificate (HSC) Examination

OR Pass in
Three (3) subjects at A-level and one (1) subject at Advanced Subsidiary / Subsidiary level at the Higher School Certificate (HSC) Examination

OR Pass in
3 subjects at A-level at the London General Certificate Examination

OR Pass in
The IGCSE and the International Baccalaureate (IB)

OR Pass in
Qualifications awarded by other Universities and Institutions, which have been approved by the Senate of AIHE, as satisfying the minimum requirements for admission.

OR Pass in
Grade 12 Certificates/Higher Secondary School Certificate from other countries.

OR

Special Admission and Mature Applicants: An applicant of minimum 23 years old, may be admitted with a pass at School certificate and with minimum of 3 years' experience in a related field for any undergraduate or honours programme.

English Proficiency:

International Applicants whose medium of instruction at HSC or equivalent level is not English must provide evidence of their English language proficiency. The level required for study for an undergraduate degree course is IELTS 5.0 or its TOEFL equivalent. The requirement to provide TOEFL/IELTS score may be waived for students whose medium of instruction for the qualifying level was English.

Modules

Year: 1
Semester: 1
Module Code: IT111
Module Name: Computer Technology
Credits: 3
Module Brief:
This module teaches students on how a computer system works both physically and logically. Basic administrator tasks are being taught in this module as well as troubleshooting.

Module Code: IT121
Module Name: Programming and Algorithms
Credits: 4
Module Brief:

This module entails students on how to write programs in a procedural programming language and flow charts as well as algorithms are being taught. Basic concepts of object-oriented programming are also being showcased in this module.

Module Code: IT151
Module Name: Information Systems in Organisations
Credits: 3
Module Brief:
This module entails the student on how computer systems is being widely used in an organization and students are exposed to different database systems and communication flow that happens within an organization.

Module Code: IT141
Module Name: Database Systems
Credits: 4
Module Brief:
This module entails students with the skills of the fundamentals of data modelling within a database. Students are being taught on the manipulation of SQL within a database.

Module Code: ES1
Module Name: Employability Skills-1
Credits: 3
Module Brief:
This module entails students with the appropriate skills to express themselves, both written as well as spoken. Business etiquette are being showcased in this module.

Semester: 2
Module Code: IT122
Module Name: Object-Oriented Programming
Credits: 4
Module Brief:
This module entails students with the basic concepts and advanced features of Object-Oriented Programming. Students are being taught on the usage of UML in the design of OOP programs and testing of programmes are being showcased. Applications of graphs are being taught for real-world problem-solving.

Module Code: IT161
Module Name: Computer Graphics and Multimedia
Credits: 4
Module Brief:
This module entails students with the concepts of creating animations, poster design as well as using software for video editing.

Module Code: IT161
Module Name: Computer Graphics and Multimedia
Credits: 4

Module Brief:
This module entails students with the concepts of creating animations, poster design as well as using software for video editing.

Module Code: IT112
Module Name Computer Communications and Networking
Credits: 4
Module Brief:
This module entails students on how signals and packets travel across a network. Different types of network topologies are being taught as well as types of Ips. Network routing and protocols are also being exposed to the students.

Module Code: IT132
Module Name Advanced Database Systems
Credits: 4
Module Brief:
This module entails students with the knowledge of advanced implementation concepts for the relational database model and analyze the implications of those concepts. Students are taught on the design of a distributed database system and the usage of NoSQL database systems. Students are taught data warehouse systems as well as XML database systems.

Module Code: IT123
Module Name Python Programming
Credits: 4
Module Brief:
This module entails students with a sound knowledge of using python to develop programs with conditionals and loops using Operators, Iterative Constructs and data structure. Students learn on file handling Input/output with files.

Year: 2
Semester: 3
Module Code: IT271
Module Name: Research Methodology
Credits: 4
Module Brief:
This module entails students with Research, Quantitative, qualitative and mixed methods approaches to research. Students are taught how to review Literature and analyze published research. Students will learn how to develop and write research proposals.

Module Code: IT252
Module Name: Software Engineering
Credits: 4
Module Brief:
This module entails students with the phases in a software project, fundamental concepts of requirements engineering and Analysis Modelling and various software design methodologies, testing and maintenance measures.

Module Code: IT224
Module Name: JAVA Programming
Credits: 4
Module Brief:
This module entails students with the basic object-oriented concepts using Java language as well as the essential client-side technologies for web programming. Students will be able to write simple Java programming using control statements, strings, arrays, Array List, and passing and returning objects with exception handling. development of GUI applications by including I/O streams and threads is also being taught...

Module Code: IT262
Module Name: Artificial Intelligence - 1
Credits: 4
Module Brief:
This module entails students with the knowledge of the underlying structure behind Artificial intelligence and the logical implications in computational intelligence. Students will learn automated learning techniques in real-time scenarios.

Module Code: ES2
Module Name: Employability Skills - 2
Credits: 3
Module Brief:
This module entails students to display the understanding of employability skills needed to join the workforce of the industry related to the Programme of study

Semester:4
Module Code: IT253
Module Name: Project Management
Credits: 4
Module Brief:
This module entails students with skills on how to manage a project in terms of all resources. Students are also taught how to make project proposals.

Module Code: IT225
Module Name: C# and .Net Programming
Credits: 4
Module Brief:
This module entails students with the technologies of the .NET framework. Segments of programming in C# starting from the language basics, followed by the object-oriented programming concepts are being taught. Students are exposed to skills development in writing Windows applications, ADO.NET and ASP .NET. Students are taught how to implement mobile applications using .Net compact framework

Module Code: IT233
Module Name: Cloud Computing
Credits: 4

Module Brief:
This module entails students with the basics of cloud platforms and technologies and the ability to implement and Design Cloud Patterns and Use Cases as well as data centres. Students are taught how to prepare cloud strategy and technical building blocks.

Module Code: IT383
Module Name: Artificial Intelligence -2
Credits: 4
Module Brief:
This module entails students learning the role of AI in industry and understanding the concept and application of Deep Learning

Module Code: IT241
Module Name: Mobile Application Development
Credits: 4
Module Brief:
This module entails students with the knowledge to understand the components and structure of mobile application development frameworks for Android and Windows OS-based mobiles. Students will learn the basic and important design concepts and issues of the development of mobile applications.
Module Code: INT
Module Name: Internship
Credits: 4
Module Brief:
This module entails students with the experience of working in the IT sector to gain radical knowledge.

Year:3
Semester:5
Module Code: SDP
Module Name: System Development Project (Phase 1)
Credits: 4
Module Brief:
This module entails students with the knowledge to be able to develop a software system which solves real life scenario.

Module Code: IT364
Module Name: Geographic Information Systems
Credits: 4
Module Brief:
This module entails students with knowledge of the role of GIS and its application in solving practical problems as well as usage of the GIS packages. Students will learn GI data creation and understanding of how geographic data is acquired and the possible sources of data. Problem solving in spatial analysis especially in the areas of visualization, query/measurement and design/modelling are also being taught.

Module Code: IT342
Module Name: Interface Design and Web Development
Credits: 4
Module Brief: This module entails students with the major application areas and design of HCI. Students are taught on the Implementation of web pages using HTML, XHTML and CSS as well as the generation of dynamic web content and interaction with users of web resources using a client-side scripting language and Server-side Scripting

Module Code: IT381
Module Name: Embedded Systems and Internet of Things
Credits: 4
Module Brief:
This module entails students with the knowledge of Internal architecture and programming of an embedded processor which includes interfacing I/O devices to the processor.   Students will learn the evolution of Internet of Things (IoT) and build a small low-cost embedded and IoT system using Arduino/Raspberry Pi/ open platform. Students will learn the application of the concept of Internet of Things in real world scenario.

Module Code: IT354
Module Name: Distributed Systems and Systems Integration
Credits: 4
Module Brief:
This module entails students with knowledge of the fundamental characteristics and development of distributed systems using one or more middleware technologies. Students should be able to evaluate middleware technologies and integration strategy and selection of appropriate technology for a given application, providing analyses and justifications. Students will learn the security and configuration aspects of such systems.

Semester:6
Module Code: IT372
Module Name: Data Warehousing and Data Mining
Credits: 4
Module Brief:
This module entails students with knowledge of KDD process, Data warehousing architecture and OLAP & OLTP.   Students will learn how to build a basic Data warehouse using snowflakes. Students are exposed to Data mining using Power BI, Tableau, R and Python Programming

Module Code: IT391
Module Name: Governance, Risks & Compliance
 Credits: 3
Module Brief:

This module entails students with the knowledge about laws relating to data security. Students are exposed to standards such as ISO and ITIL such that they can learn how to secure a network both physically and logically.

Module Code: SDP
Module Name: System Development Project
Credits: 9
Module Brief:
This module entails students with the knowledge to be able to develop a software system which solves real-life scenario.