Summary of Courses

Freshman Year (Year I) (For All Departments in the School of Information Technology)
MIT 105: Discrete Mathematics
SIT 113: Computer programming I
SIT 101: Introduction to Information Technology
MIT 107: Mathematics I (For students of Computer Networks and Telecommunication Systems and Software Engineering only)
SIT 121: Introduction to UNIX (For Cyber Security Students only)
SIT 122: Computer programming II
SIT 104: Operating Systems
SIT 102: Computer Architecture
SIT 118: Information Systems I
INTERNSHIP I
MIT 106: Algebra and Trigonometry (For Cyber Security Students only)
MIT 104: Mathematics II (For students of Computer Networks and Telecommunication systems and Software Engineering only)

Bachelor of Science (B.Sc.) in Computer Networks and Telecommunication Systems
Core Courses
MIT 201: Numerical Analysis
SIT 201: Computer Networks and Communication Technologies
SIT 209: Cyber Law
SIT 213: Information Systems II
SIT 203: Object Oriented Programming
SIT 121: Introduction to UNIX
SIT 216: Telecommunications Systems I
SIT 208 – Tutored Projects
SIT 214: Scientific Research Methods
MIT 202: Probability and Statistics
SIT 222: Internetworking with Routers and Switches
INTERNSHIP II
SIT 333: Systems Programming
SIT 343: Access Networks
SIT 345: Telecommunications Systems II
SIT 313: Mobile Networks
Professional Certifications
SIT 391: Oracle Certified Associates (OCA)
SIT 393: Cisco Certified Network Associate (CCNA)
SIT 302: Industrial Placement
SIT 445: Network Security
BUS 405: Project Management
SIT 402: Report writing and Presentations
SIT 410: Senior Project

List of Elective

ACC102: Principles of Accounting
BUS101: Principles of management
BUS102: Fundamentals of Business Economics II
BUS103: Fundamentals of Business Economics I
FIN102: Principles of Finance
BUS214: Small Business Management
BUS218: E-Business
MKT201: Customer Service Management
ACC305: Accounting Information System
BNF303: E-Banking and instruments of payment
BUS303: Management Information System

DESCRIPTION OF COURSES

SIT 101: Introduction to Information Technology 6 Credits

This course introduces students to the technologies that are fundamental in the gathering, processing, representation and storage of information. Based on the fact that students have been interacting with some of these technologies in their everyday activities, the course paints a formal picture of the concepts of Data, Information, Hardware (Input and Output), Software and Networks. Practical aspects will be on modern information representation technologies (HTML).

SIT 113: Computer programming I 6 Credits

This course introduces students to the area of computer programming, taking into consideration the fact that this might be the first course on computer programming that the student is encountering in his / her educational career. Emphasis shall be placed on algorithmic thinking, algorithm representation and introduction to a specific programming language.

MIT 107: Mathematics I 6 Credits

This course serves as the first mathematics course for freshmen in the university and covers introductory notions to calculus. The course builds on advanced level mathematics to further strengthen students' analytical view to mathematical problems. The course focuses on drilling students to formulate mathematical problems as well as equipping them with techniques for solving these problems. Topics such as Mappings, Functions, differentiation and Integration are treated in this course.

MIT 105: Discrete Mathematics 6 Credits

This course introduces the study of finite systems as an increasingly important concept in the computer age and a founding pillar in information technology. The digital computer is basically a finite structure, and many of its properties can be understood and interpreted within the frame work of Finite Mathematical Systems. The course covers formal mathematical objects like Sets, Graphs, Matrices, recurrence relations and examines how

these objects arise in computer science- related problems.

SIT 115: Introduction to Methodology of Scientific Research

This course covers the principles and procedure involved in writing technical documents. It trains students on organizing information, designing graphical aids/diagrams, and writing specialized sections such as abstracts, instructions, manuals and proposals. It equally drills students on how to analyzing their audience and set the purpose of their write-up.

SIT 122: Computer programming II 6 Credits

This course is a follow up of the computer programming I course. It deepens the student's knowledge in computer programming through rigorous exercises / mini projects and covers topics like data types, data structures, programmer-defined data types, pointer, dynamic data structures and memory management from a programming perspective. A prerequisite for this course will be a D+ in computer programming I.

SIT 102: Computer Architecture 6 Credits

This course introduces the micro components that are interconnected for the functioning of a computer system. Very little emphasis is placed on the physics and electronics involved. The course covers the functioning of logic gates and combinational circuits and how they are used to implement Boolean functions which can be analyzed with truth tables and K-maps. Introductory notions in sequential circuits, timing diagrams and the design of registers and state diagrams are equally covered. Additional topics may include in a descriptive manner, the interconnections between combinational circuits (ALU, controllers, etc) sequential circuits (Registers, RAM, ROM, etc), Buses (data, address and control) and peripheral devices in a computer system. It equally introduces assembly programming using basic commands only.

MIT 104: Mathematics II 6 Credits

This course is a continuation of the mathematics I course. It covers introductory notions on linear algebra such as matrices and their determinants, vector spaces, linear transformation and solutions to systems of linear equations. Emphasis is on how these notions are useful in handling large problems in systems analysis.

SIT 118: Information Systems I 6 Credits

This course introduces the concepts of information systems as used in businesses and covers areas like definition, classification, components of a computer-based Information Systems, the place and role of Information Systems in various management structures and at various levels of management as well as analysis of IS. Introduction to database concepts are equally covered. Students will practice working with ISs and be able to perform simple create, read, update and delete operations on computer-based information systems.

SIT 104: Operating Systems 6 Credits

This course covers the various generations of operating systems software as well as future trends in operating systems. It equally covers the boot process of a computer and the how the

operating system executes its functions after boot-up. Students will practice how to install and exploit different operating systems (Disk partitioning and management of Software installations; System backup and recovery; Systems upgrade).

MIT 201: Numerical Analysis 6 Credits

This course covers some elementary numerical methods that are frequently used in computations. Topics such as errors and mistakes in computation, iterative solutions to equations, interpolation, Gaussian elimination, numerical integration and differentiation, etc. shall be covered in this course. A prerequisite for this course will be a D+ in the Mathematics II course.

SIT 213: Information Systems II 6 Credits

This course bases on the knowledge acquired in information systems I and teaches students how to design, construct, test, and debug databases using an Integrated Development Environment (IDE). Emphasis is on the design of databases that meet the needs of its users as well as the methodology used. A prerequisite for this course will be a D+ in the information systems I course.

SIT 203: Object Oriented Programming 6 Credits

This course introduces students to the object oriented programming paradigm and concepts such as classes, objects, methods, interfaces, packages, inheritance, encapsulation, and polymorphism. Emphasis is on the application of these concepts to practical problems. A prerequisite for this course will be a D+ in the Computer programming II course.

SIT 201: Computer Networks and Communication Technologies 6 Credits

This course covers the different layers of the OSI reference model and the TCP/IP model with emphasis on the role of each layer; describing transmission techniques, media and protocols associated to each layer as well as network topologies. Other topics such as Address classes and subnetting will be introduced in this course. A prerequisite for this course will be a D+ in the introduction to information technology course.

SIT 209: Cyber Law 6 Credits

This course presents a legal perspective of the cyber space and the activities within it. Topic such as Infractions in cyberspace, Investigating and prosecuting crime in cyberspace, on-line contracts, Trademark issues in Cyberspace, On-line service liability issues, Privacy issues, Laws tackling cyber criminality as well as an examination of some international bodies working to curb cyber criminality are covered with this course..

MIT 202: Probability and Statistics 6 Credits

This course introduces students to the nature and purpose of probability and mathematical statistics. It covers topics such as Sample Mean and Variance, Random Experiments, Mathematical Probability, Random Variables, Discrete and Continuous Distributions; Mean and Variance of a Distribution; Binomial, Poisson and Hyper-geometric Distributions; Normal Distribution; Random Sampling, Random Numbers; Estimation of Parameters;

Confidence Intervals; Testing of Hypotheses; Decisions; Quality Control; Acceptance Sampling ; Goodness Fit. X2- Test.

SIT 214: Scientific Research Methods 6 Credits

This course introduces students to the concepts and practices of social research, its history, importance and applications. Topics such as sampling, measurements, design and analysis with respect social research will be covered in this course. A prerequisite for this course will be a D+ in the Introduction to Research Methodology course.

SIT 216: Telecommunications Systems I 6 Credits

This course introduces students to the basic components of a telecommunication system covering topics such as Telecommunications networks and standards; Electrical signals, frequencies and modulation; analogue and digital transmissions; switch size and link capacity; queuing systems in telecommunications; digital networks and signaling techniques.

SIT 222: Internetworking with Routers and Switches 6 Credits

This course introduces configuration routers and switches to build multiprotocol internetworks. OSI reference model, basic LAN and WAN design, dial access services, TCP/IP protocol suites, IP addressing, subnetting, static and dynamic routing, and WAN technologies such as HDLC, PPP, Frame Relay, ATM and ISDN.

SIT 208: Tutored Projects 12 Credits

This course runs throughout the sophomore year and will be examined through a series of working sessions, project write-up and presentation. The course drills students on what it takes to deliver a project and encourages them to make use of the knowledge acquired after two years of studies in the School of IT.

Electives from the School of Business

CODE	TITLE	Credit Value
ACC102	Principles of Accounting	6
BUS101	Principles of management	6
BUS102	Fundamentals of Business Economics II	6
BUS103	Fundamentals of Business Economics I	6
FIN102	Principles of Finance	6
BUS214	Small Business Management	6
BUS218	E-Business	6
MKT201	Customer Service Management	6

Sophomore students are required to register and validate a freshman or Sophomore Year course from the School of Business. Any introductory course on accounting, management and or finance will suffice. Students are required to consult the handbook for the School of Business and talk to the corresponding course instructors for orientation.

SIT 333: Systems Programming 6 Credits

This course trains students on the issues involved in developing system-dependent applications. Topics such as file manipulations, working with vendor and third party programmers' libraries (static and dynamic), programming for specific hardware, device driver and network programming are treated within this course. The course is project based.

SIT 343: Access Networks 6 Credits

This course covers the fundamentals structure and role of access networks within a telecommunication system. Emphasis is on the feeder and distribution layers of access networks, the structure and role in a telecommunication system. The course equally covers the various technologies (Wired and Wireless) available for providing connectivity to telecommunication networks form a descriptive and configuration standpoint.

SIT 345: Telecommunications Systems II 6 Credits

This course is a continuation of the Telecommunication systems I course. It covers topics such as local and long-distance networks; Enterprise networks; concepts in transmission transport; CCITT signaling system No. 7; Voice over IP in packet Switched networks as well as community antenna television (Cable TV). A prerequisite of this course will be a D+ in the Telecommunications Systems I course.

SIT 313: Mobile Networks 6 Credits

This course provides an academic backing to mobile communications and wireless networks which students would have worked with during the work experience course. It presents the wireless and mobile network architectures, technologies and protocols. Topics covered include cellular and mobile IP concepts multiple-access methods, spread spectrum modulation, and different wireless network protocols such as WiFi, WiMAX and Bluetooth. It equally introduces the various wireless 1G, 2G, and 3G platforms, architecture, and protocols.

Professional Certifications 18 Credits

This course prepares students for one or more internationally recognized professional certifications examinations. It is the students' responsibility to register and take the certification exams. However, an end of course evaluation will be carried out and recorded in the students' Transcript. One or two of the following certifications will be covered this Academic Year:

SIT 391: Oracle Certified Associates (OCA)

SIT 393: Cisco Certified Network Associate (CCNA)

SIT 395- Comptia Security +

SIT 302: Industrial Placement 26 Credits

This course initiates and integrates students into professional life. The course is taken off-campus in any IT related firm or organization under strict supervision from the school of IT. Throughout the semester, students are expected to appear at their place of work and spend a full working day, dressed professionally and carry out tasks as required by the organization. Regular faculty visits form the school of IT shall be performed, to facilitate continuous

assessment of the students' performance. At the end of the internship, the students are expected to present and defend an internship report which they would submit to the school.

SIT 445: Network Security 6 Credits

This course provides an academic backing to network security which students would have worked with during the work experience course. The course presents the need for and key concepts in information security in relation to Hacking. It describes Security mechanisms and tools used at each layer of the TCP/IP model. This course will also help students to understand the security mechanisms used in the process of information exchange in a network, tools and technologies used to secure access to resources such as servers in a network and finally security of systems and applications.

**** BUS 405 Project Management– From the School of Business 6 Credits***

Students are advised to take the project management course from the School of Business. The course code is BUS 405 and it is titled Project management. PMP certification courses or short courses on project management, which are offered through our online Programme, are equally acceptable substitutes.

(SIT 402): Report writing and Presentations 6 Credits

This course drills students on how to write reports and boosts their confidence in presentations. The course is divided into two parts 40% lectures on types of report, report writing style, formatting reports, and more and 60% of practical which will be carried out during the annual trade/academic fair. Students are expected to prepare and present on various topics during the morning / academic sessions of the fair.

(SIT 410): Senior Project 18 Credit

As a partial fulfillment of the requirement for graduation, the student(s) plan and develop a project in which he/she demonstrates the ability to analyze and synthesize information. He/she learns to effectively communicate the results of his/her study through a dissertation of work experience project not more than 30 pages. The work must fit within the framework of the institutional priorities and research norms. The student(s) will be expected to produce 4 copies, 3 for the panel of examiners, and one for himself/herself. After examining the project, the student(s) will be required to effect corrections as required by panel if he/she wants copies to be kept in CUIB library.