**BIT 2108 Information Technology II (3 CU)**

(a) **Course description:** A necessary pre-requisite for this course is Information Technology I.

This course continues an overview of the discipline of IT, describes how it relates to other computing disciplines, and finally instills an IT mindset. This course includes topics:

(b) **Aims**: The course aims to:

• Give the students main guidelines for the future study of IT-related courses

• Develop knowledge and understanding of

- the elements of a feasible IT application

- the extend and activities involved in an IT application

- business processes

- project management processes

- integration processes

- history of computing technology and Internet

- impacts of computing and IT on society, communication and interaction, global processes

- changes in human-computer interaction

- the relationship between IT and other disciplines (computing and non-computing)

- the importance of mathematics and statistics in IT

- the application of IT in non-computing disciplines

- the number systems used in computation

- data representation and encoding systems

- encryption methods and their limitations

- mathematical concepts used in programming (functions, relationships, sets, basic logic)

- probability and statistical concepts related to IT

- the basic data analysis concepts and methods used in IT applications

• Form initial skills of

- identification of the elements of a feasible IT application

- identification of the extend and activities involved in an IT application

- identification of the requirements to business processes, project management processes, integration processes

- outlining business processes, project management processes, integration processes

- application of IT in non-computing disciplines

- data representation and encoding

- using basic data analysis methods.

(c) **Learning Outcomes:** On completion of this course unit, the students will be able to:

• Acquire the main guidelines for the future study of IT-related courses;

• Develop knowledge and understanding of the elements of a feasible IT application; the extend and activities involved in an IT application; business processes; project management processes; integration processes; history of computing technology and Internet; impacts of computing and IT on society, communication and interaction, global processes; changes in human-computer interaction; the relationship between IT and other disciplines (computing and non-computing); the importance of mathematics and statistics in IT; the application of IT in non-computing disciplines; the number systems used in computation; data representation and encoding systems; encryption methods and their limitations; mathematical concepts used in programming (functions, relationships, sets, basic logic); probability and statistical concepts related to IT; the basic data analysis concepts and methods used in IT applications.

• To form initial skills of identification of the elements of a feasible IT application; identification of the extend and activities involved in an IT application; identification of the requirements to business processes, project management processes, integration processes; outlining business processes, project management processes, integration processes; application of IT in non-computing disciplines; data representation and encoding; using basic data analysis methods.

(d) **Teaching and learning pattern:** Since this course is supposed to have only lecture hours, it will form mostly theoretical knowledge. To provide students with practical skills, they will be given individual and group assignments to be done as a form of extracurricular activity.

(e) **Indicative content:**

• Organizational Issues: How to introduce IT applications; Dissemination of innovation and change agency; Integration of processes; Business process redesign; Cost benefit analysis; Project Management

• History of Information Technology: History of Computing Technology; Social History of

Computing Impacts; Development of User interaction; and History of the Internet

• IT and Its Related and Informing Disciplines: Definition of IT; Computer Science; Software

Engineering; Information Systems; Cognitive Science; Computer Engineering;

Mathematics and Statistics; Natural Sciences, Linguistics, Sociology, Psychology, etc.

• Application Domains: Bio-informatics & medical applications; Business applications; Law enforcement; Political processes; e-commerce; Manufacturing; Education; Entertainment; Agriculture etc.

• Application of Math and Statistics to IT: Functions, relations, and sets; Data representations and encryptions; Basic logic used in programming; Applications of probability tools in solving problems; Applications of statistical methods in solving problems

(f) **Assessment method**: The assessment will be in form of tests and assignments (40% - Test I: 15%, Test II: 15%, Assignment: 10%) and final written exam (60%)

(g) **Reference books**:

(i) Senn, J.A. Information Technology: Principles, Practices, Opportunities. Pearson

Education, 2003.

(ii) Cyganski, D., Orr, and J.A. Information Technology: Inside and Outside. Prentice Hall,

2001

(iii) Brown, C.V. et al. Managing Information Technology (6th Edition). Prentice Hall, 2008 (iv) Reynolds, G. Ethics in Information Technology. Course Technology, 2006

(v) Schwalbe, K. Information Technology Project Management. South-Western, Div of

Thomson Learning, 2009