



# Bachelor of Science in **Applied Computer Technology**

USIU-Africa is accredited in Kenya by the Commission for University Education (CUE) & the United States of America by WASC Senior College and University Commission respectively.

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**United States  
International  
University-Africa**

Education to take you places

## PROGRAM DESCRIPTION

The Bachelor of Science in Applied Computer Technology program addresses the integration, design, deployment and management of computing and telecommunication resources and services, as well as the development of technology infrastructures in organizations. It prepares students to solve complex hardware and software problems requiring fundamental knowledge and competencies in the processes of needs assessment, technology transfer and user support.

## LEARNING OUTCOMES

Upon successful completion of the program, students will be able to:

1. Apply algorithmic, mathematical and scientific reasoning to a variety of computational problems.
2. Design integrated software for organisations.
3. Develop applications using modern tools and techniques.
4. Apply communication and collaboration skills in information technology projects.
5. Demonstrate professional standards, behavior and ethics.

# DEGREE REQUIREMENTS

# 150 UNITS

**GENERAL EDUCATION 39 UNITS**

**SIGNATURE COURSES 15 UNITS**

**STRATEGIES FOR UNIVERSITY SUCCESS 3 UNITS**

SUS 1010 Strategies for University Success

**RESEARCH METHODS 3 UNITS**

GRM 2000 Introduction to Research Methods

**COMMUNITY SERVICE OR COMMUNITY PROJECT 3 UNITS**

CMS 3700 Community Service

**THE SENIOR EXPERIENCE 3 UNITS**

SEN 4800 Integrated Senior Seminar

**FUNDAMENTALS OF INFORMATION LITERACY 3 UNITS**

FIL 1010 Fundamentals of Information Literacy

**LANGUAGE STUDIES 12 UNITS**

**ENGLISH LANGUAGE 6 UNITS**

ENG 1106 Composition I (WI)

ENG 2206 Composition II (WI)

**FOREIGN LANGUAGE 6 UNITS**

Students must have credit for a foreign language or must take a two-course foreign language sequence of one language.

USIU-Africa offers courses in Arabic (ARB1000), French (FRN1000), Japanese (JPN1000), Spanish (SPN1000), Swahili (SWA1000), Chinese (CHI1000) and Kenya Sign Language (KSL1000).

**DISCIPLINARY GENERAL EDUCATION ELECTIVES 6 UNITS**

IST 1020 Introduction to Information Systems

MTH 1109 College Algebra

**SCHOOL-BASED GENERAL EDUCATION ELECTIVES 6 UNITS**

Students are required to pick 2 elective courses from other Schools. One of the courses should be an upper level course.

**CHANDARIA SCHOOL OF BUSINESS**

**LOWER LEVEL ELECTIVES**

BUS 1010 Introduction to Business

ECO 1010 Principles of Microeconomics

|     |      |                                           |
|-----|------|-------------------------------------------|
| ENT | 1010 | Introduction to Entrepreneurship          |
| HRT | 1010 | Intro to Hospitality & Tourism Management |

### UPPER LEVEL ELECTIVES

|     |      |                                 |
|-----|------|---------------------------------|
| MGT | 3010 | Overview of Management Practice |
| MKT | 3010 | Principles of Marketing         |

## SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

### LOWER LEVEL ELECTIVES

|     |      |                            |
|-----|------|----------------------------|
| PSY | 1101 | Introduction to Psychology |
| PHL | 1104 | Introduction to Philosophy |
| SOC | 1110 | Introduction to Sociology  |

### UPPER LEVEL ELECTIVES

|     |      |                               |
|-----|------|-------------------------------|
| GEO | 3000 | Geography and the Environment |
| PSY | 3135 | Psychology of Communication   |
| SOC | 3301 | Social Problems               |
| PHL | 3310 | Ethics and Value Theory       |
| SOC | 3500 | Social Conflict & Resolution  |
| LIT | 4815 | Oral Literature               |

## CORE COURSES

**111 UNITS**

### LOWER LEVEL CORE COURSES

**51 UNITS**

|     |      |                                             |         |
|-----|------|---------------------------------------------|---------|
| MTH | 1110 | Calculus                                    | 3 Units |
| IST | 1025 | Introduction to Programming                 | 3 Units |
| APT | 1030 | Fundamentals of Programming Languages       | 3 Units |
| APT | 1040 | Introduction to Web Design and Applications | 3 Units |
| APT | 1050 | Database Systems                            | 3 Units |
| APT | 2010 | Systems Analysis and Design                 | 3 Units |
| APT | 2020 | Computer Organization                       | 3 Units |
| APT | 2022 | Introduction to Assembly Programming        | 3 Units |
| APT | 2030 | Digital Electronics                         | 3 Units |
| APT | 2040 | Operating Systems                           | 3 Units |
| IST | 2045 | Introduction to Computer Networks           | 3 Units |
| APT | 2050 | Computer Networks and Telecommunication     | 3 Units |
| APT | 2055 | Hardware and Software Practicum             | 3 Units |
| APT | 2060 | Data Structures & Algorithms                | 3 Units |
| APT | 2080 | Introduction to Software Engineering        | 3 Units |
| APT | 2090 | Computer Graphics                           | 3 Units |
| MTH | 2215 | Discrete Mathematics                        | 3 Units |

### UPPER LEVEL CORE COURSES

**45 UNITS**

|     |      |                                         |         |
|-----|------|-----------------------------------------|---------|
| APT | 3010 | Introduction to Artificial Intelligence | 3 Units |
| APT | 3025 | Applied Machine Learning                | 3 Units |
| APT | 3040 | Object Oriented Design and Programming  | 3 Units |
| APT | 3050 | Introduction to Project Management      | 3 Units |

|     |      |                                        |         |
|-----|------|----------------------------------------|---------|
| APT | 3060 | Mobile Programming                     | 3 Units |
| APT | 3065 | Mid-Term Project                       | 3 Units |
| APT | 3080 | Management Information Systems         | 3 Units |
| APT | 3090 | Cryptography and Network Security      | 3 Units |
| APT | 3095 | Cloud Computing and Virtualization     | 3 Units |
| APT | 4900 | Applied Computer Technology Project    | 3 Units |
| APT | 4910 | Applied Computer Technology Internship | 3 Units |
| IST | 3015 | Business Data Analytics                | 3 Units |
| IST | 3050 | Introduction to Security Systems       | 3 Units |
| IST | 4035 | Advanced Web Design and Applications   | 3 Units |
| IST | 4078 | IT Innovation and Entrepreneurship     | 3 Units |

## CONCENTRATION COURSES

15 UNITS

Applied Computer Technology majors should take either Software Engineering, Networking, Mobile Computing & Distributed Systems or Forensic Information Technology and Cybercrime as their concentration or area of specialization.

## NETWORKING

15 UNITS

|     |      |                                        |         |
|-----|------|----------------------------------------|---------|
| DST | 4010 | Distributed Systems                    | 3 Units |
| NET | 4020 | Network Management and Security        | 3 Units |
| NET | 4030 | Internet Architecture and Protocols    | 3 Units |
| APP | 4035 | Web Application Development Frameworks | 3 Units |
| NET | 4050 | Sensor Networks and Internet of Things | 3 Units |

## FORENSIC INFORMATION AND CYBERCRIME

15 UNITS

|     |      |                                             |         |
|-----|------|---------------------------------------------|---------|
| FIC | 4010 | Information System Security                 | 3 Units |
| FIC | 4020 | Forensic Accounting and Fraud Investigation | 3 Units |
| FIC | 4030 | Information Systems Audit                   | 3 Units |
| FIC | 4040 | Information Technology and Cybercrime       | 3 Units |
| FIC | 4050 | Computer Forensics and Investigation        | 3 Units |

## SOFTWARE ENGINEERING

15 UNITS

|     |      |                                                    |         |
|-----|------|----------------------------------------------------|---------|
| SFE | 4010 | Human Computer Interaction                         | 3 Units |
| SFE | 4020 | Software Design & Architecture                     | 3 Units |
| SFE | 4030 | Software Testing & Quality Assurance               | 3 Units |
| APP | 4035 | Web Application Development Frameworks             | 3 Units |
| APP | 4080 | Collaborative (Team Work In) Software Developments | 3 Units |

## DISTRIBUTED SYSTEMS & MOBILE COMPUTING

15 UNITS

|     |      |                                           |         |
|-----|------|-------------------------------------------|---------|
| DST | 4010 | Distributed Systems                       | 3 Units |
| DST | 4020 | Mobile Computing                          | 3 Units |
| DST | 4030 | Parallel Computing                        | 3 Units |
| DST | 4040 | Digital Wireless Communication & Networks | 3 Units |
| DST | 4050 | Embedded Real Time Systems                | 3 Units |

# CAREER OPPORTUNITIES

A Bachelor of Science in Applied Computer Technology opens up a wide range of career opportunities:

1. Network Administrator/Engineer/Designer
2. Network Architect
3. Software Engineer
4. Software Applications Developer
5. Information Systems Developer
6. Mobile Applications Developer
7. Systems Analyst / Programmer
8. Information Systems Project manager
9. Systems Architect

# ADMISSION REQUIREMENT

Kenya Certificate of Secondary Education (KCSE) or its equivalent with a minimum aggregate of C+ (Plus).

# CONTACTS

P.O. Box 14634 - 00800,  
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