

Kibabii University (KIBU)

School of Computing and Informatics (SCAI)

Department of Computer science

**Course Description**

Year II Semester 2 (2023/2024)

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| **CSC 223** | **Data Communication** | | |
| **Course Lecturer Details** | Eng Eric Sifuna PhD (ongoing). Msc. Information Systems, Bsc. EEE,  Mobile no. 0721240864,  E-mail: esifuna@kibu.ac.ke | | |
| **Lecture Hours** | Thursdays, 11.00 AM – 2.00 PM, ABB 013 | | |
| Pre-requisite | N/A | | |
| Purpose/Aim | This course is to introduce learners to data communication in Computer Networks | | |
| Course Objective (Indicative Learning Outcomes) | After the completion of the course, students will be able to:  1. Explain the fundamentals of data communications and describe the different media available to support data communications, 2. Identify key limitations in networking technology implementations, 3. Describe the role of the various protocols in facilitating the transfer of data across a communication network, 4. Discuss the role of the OSI seven layer model which attempts to standardize communication protocols,  State the techniques by which interfaces to computers are designed and implemented. | | |
| Course Content | **Week One:** Introduction to Data Communication  **Week Two:** Types of Computer networks: LAN, MAN, WAN, Intranet, extranet, Internet; Network Topologies: Bus, star, Ring, Mesh, Tree, Hybrid topologies  **Week Three:** Peripheral and data communication equipment;    **Week Four:** Data Signals  **Week Five:** Data Communication Modes    **Week Six:** CAT I  **Week Seven:** Transmission media: (Guided UTP, STP, Coaxial cable, Fiber Optic cable) and Unguided media Multiplexing: TDM, FDM, STDM  **Week Eight:** Multiplexing  **Week Nine:** Switching Techniques: Circuit switching, Message switching; Packet switching;  **Week Ten:** Standards and Protocols: OSI model, TCP/IP model;  **Week eleven:** CAT 2  **Week Twelve:** Data routing: Serial vs. Ethernet; Manual routing vs. auto synchronization;  **Week 13:** Error detection and error Correction  **Week 14&15:** Examinations | | |
| Learning and Teaching Methodologies | Lectures, Tutorials, Group Discussions, and self study | | |
| Instructional Materials/Equipment | Classroom with audio and visual aids | | |
| Course Assessment | **Type** | | **Weight (%)** |
| Examination | | 70 |
| Continuous Assessment | | 30 |
| CAT One - Date: (Week 6) | 20 |
| CAT Two - Date: (Week 12) | 10 |
| **Total** | | **100** |
| Recommended Reading | **Title** | **Author** | **Publisher** |
| Forouzan, Data Communication and Networking Companies | McGraw-Hill | McGraw-Hill Companies |
| Additional Reading | 1. *Data and Computer Communication*. Pearson 2. *Fundamentals of Data Communications & Networks* 3. *Computer Networks: A top-down approach*, Pearson ISBN: 9788131790540 | Stalling, W (2012);  Sharma, S (2013);  Kurose, J. F &Ross, K. W (2012); |  |
| Other Support Material | A variety of multimedia systems and electronic information resources  Various application manuals and journals | | |
| Approved for Use By: | Dorcus Arshley Shisoka  Chairperson, Computer Science Department  Signature: …………..……………..…… Date: ……………………………….. | | |