**PROGRAM : Bachelor of Science in Information Technology (BSIT)**

**VISION :** The BSIT program envisions itself as a center of excellence on the holistic formation of computer science professionals responsive to the

challenges of global information technology who are Christ-centered and service-oriented individuals.

**MISSION :** The BSIT program is committed to deliver high quality Information Technology Education (ITE) producing professionals who are to

become community and service-individuals.

**PROGRAM GOALS :** The BSIT program aims to:

1. Apply knowledge of computing, science, and mathematics appropriate to the discipline.
2. Understand best practices and standards and their applications.
3. Analyze complex problems, and identify and define the computing requirements appropriate to its solution.
4. Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.
5. Design, implement and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints.
6. Integrate IT-based solutions into the user environment effectively.
7. Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession.
8. Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal.
9. Assist in the creation of an effective project plan.
10. Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions.
11. Analyze the local and global impact of computing information technology on individuals, organizations and society
12. Understand professional, ethical, legal, security and social issues and responsibilities in the utilization technology.
13. Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development.

**GRADUATE ATTRIBUTES :** Graduates of the Bachelor of Science in Information Technology are professionals who:

|  |  |  |
| --- | --- | --- |
| **CHRISTIAN-CHARACTER** | **COMPETENCE** | **SERVICE** |
| Show love for others, perform corporal works of mercy and practices social responsibility. | Show mastery and in-depth understanding of the required knowledge and skills in information technology and its application for continuous self-improvement through research. | Exhibit the spirituality of St. Columban in the service of both personal and professional relationship with others through the living philosophy: *“We are Christ’s and not our own.”* |
| Manifest professionalism, self-respect, goodwill, credibility, transparency, honesty, sincerity and trustworthiness in dealing with others; and lives life morally upright. | Develop and integrate computing solutions with the use of modern computing tools, resources and techniques. | Act as stewards of God’s creation to extend support for the social amelioration of the underprivileged by demonstrating qualities of leadership, civic-mindedness and responsible individuals in the community. |
| Care for God’s creation and promotes the preservation, conservation and sustainable use of the physical and natural environment. | Install, operate, maintain and administer IT-based solutions, meeting the organizational needs and requirements. | Promote social development to uplift the quality of life of the people in the community most especially the marginalized sectors of the society. |
| Demonstrate a deep sense of nationalism and patriotism through words and deeds. | Demonstrate creativity and innovativeness in the development of information system of varying complexity | Committed to charity and volunteerism in supporting and helping the community to establish a just, peaceful and humane society. |
| Respect the rights and dignity of other regardless of age, gender, religion, ethnicity and socio-cultural background and promotes justice and peace. | Communicate effectively with the computing community and society by being able to comprehend and write effective reports, design documentation, make effective presentations and give and understand clear instruction. | Promote awareness involving socio-economic and environmental issues in the community to manifests the commitment for social responsibility and service. |

**SYLLABUS**

**COURSE TITLE : NETWORK ADMINISTRATION AND MAINTENANCE 2**

**COURSE CODE : ICT103E**

**PRE-REQUISITE : ICT321N**

**CREDIT UNITS : 3 UNITS**

**COURSE DESCRIPTION :** This course will introduced students in open source server administration using Linux platform. This will cover the server installation, network setup, and configuration of network services such as file sharing, domain system configuration and network security configuration.

**COURSE INTENDED LEARNING OUTCOMES :**

Upon successful completion of the course**,** the students can:

1. Understand the idea about the open source software and networking.
2. Demonstrate knowledge and skills in using open source network applications and services.
3. Have skills and knowledge to confidently administer Linux system.
4. Implement TCP/IP services in computer network.

**REFERENCES :**

**BOOKS**

Limoncelli, T. (2015). The Practice of Cloud System Administration. Addison-Wesley

Fox, R. (2015). Linux with Operating System Concept. CRC Press.

Basta, A. (2013). Linux Operations and Administration. Cengage Learning

Eckert, J. (2007). SUSE Linux Enterprise Server Administration. Thonsom Course Learning.

**E-LEARNING WEBSITES**

The OmniSecure website provide many links to Linux Administration (http://www.omnisecure.org).

The Guru99 website provides many links to Linux Administration (https://www.guru99.com ).

The Ubuntu Server Guide website provides links to Ubuntu Server Administration (https://help.ubuntu.com/lts/serverguide).

The Linux Home Networking website provides many links to Linux Administration (https://www.linuxhomenetworking.com).

**GRADING SYSTEM :**

|  |  |
| --- | --- |
| **Preliminary Period** | |
| Quizzes | 40% | |
| Others(Recitation/Projects/Laboratories/ Assignment) | 30% | |
| Major Examination | 30% | |
| **Total** | **100%** | |

|  |  |
| --- | --- |
| **Midterm Period** | |
| Current Ratings(Quiz/Laboratories/Midterm Grade) | 67% | |
| Prelim Grade | 33% | |
| **Total** | **100%** | |

|  |  |
| --- | --- |
| **Final Period** | |
| Current Ratings(Quiz/Projects/Laboratories/Final Grade) | 67% | |
| Midterm Grade | 33% | |
| **Total** | **100%** | |

**PREPARED BY : Mr. Angelito Paulo Mauricio Date: JUNE 2018**

Instructor

**REVIEWED BY : PROF. GEMMA T. TAPADO Date: JUNE 2018**

Chairperson, BS Information Technology Program

**APPROVED BY**  **: ENGR. NOEL H. YAP Date**: **JUNE 2018**

Dean, College of Computer Studies

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| --- | --- | --- | --- | --- | --- | --- |
| **Time Frame** | | **Student Learning Outcomes**  **(SLO)** | **Topics** | **Outcomes-Based Assessment (OBA) Activities** | **Assessment Modalities** | **Values**  **Integration** |
| **No. of week(s)** | **No. of Hours** |
|  |  | **Upon successful completion of the course, the students can:** |  |  |  |  |
| .5 | 2 | 1. Recite the vision, Mission, and Goals and Objectives of the College 2. Show understanding of the College-VMGO. 3. Shows understanding of the course outcomes. | **Course Orientation**   1. V M GO 2. Policies 3. Syllabus 4. Course Overview | * Group Discussion * Lecture-Discussion * Recitation / Drill Method | * Written Reflection | * Acceptance * Openness * Awareness * Attentiveness * Tidiness * Clarity * Accuracy |
| .5 | 3 | 1. Familiarization with the development of open source applications and operating system. 2. Understanding the characteristic and legal aspects open source applications. 3. Evaluate different distribution of open source operating system. | **Chapter 1 – Introduction to Open Source**   * 1. Open Source Overview   1.1.1 History of Unix  1.1.2 Open Source  1.1.4 Open Source Applications  1.1.4 Licenses | * Lecture – Discussion * Case Study * Computer Demonstration * Hands-on | * Participation * Quizzes * Laboratory Activities | * Preparedness * Extroversion |
| 2 | 10 | 1. Manage Linux system applications and services. 2. Connect systems to network environment. 3. Remotely to manage Linux system. 4. Transfer files to remote computers. | **Chapter 2 – NETWORK COMMUNICATION**  2.1 Connecting to Network  2.1.1 Configuring Network  2.1.2 Checking Connection  2.2 Gateways  2.3 Remote Administration  2.3.1 Telnet  2.3.2 Secure Shell  2.4 Transferring File | * Case Study * Computer Demonstration * Hands-on | * Quizzes * Activities * Laboratory Activities | * Resourcefulness * Preparedness * Extroversion |
| 2 | 10 | 1. Understand network authentication and sharing files. 2. Deploy centralized users administration. | **Chapter 3 – NETWORK AUTHENTICATION**  3.1 OpenLDAP  3.1.1 Introduction to Ligthweight Directory Access Protocol (LDAP)  3.1.2 Installation  3.1.2 Configuration  3.2 SAMBA and LDAP  3.2.1 Introduction to SAMBA  3.2.2 Installation  3.2.3 Configuration | * Lecture – Discussion * Computer Demonstration * Hands-on | * Quizzes * Laboratory Activities | * Resourcefulness * Self-Reliance |
| 1 | 5 | 1. Understand dynamic assignment of IP Address through DHCP services.  2. Install and configure IP address scope for IP distribution.  3. Implement dynamic IP addressing. | **Chapter 4 – DYNAMIC HOST CONFIGURATION PROTOCOL (DCHP)**  4.1 Introduction to Dynamic Host Configuration Protocol (DHCP)  4.2 Installation  4.3 Configuration | • Discussion  • Computer Demonstration  • Case Study  • Hands-on | • Quizzes  • Laboratory Activities | • Resourcefulness  • Self-Reliance |
| 1 | 1.5 | **PRELIMINARY EXAMINATION** | | | | |
| 3 | 15 | 1. Understand different resources sharing using different file servers. 2. Able to share resources using different type of services. | **Chapter 5 – FILE SERVERS**  5.1 FTP Server  5.1.1 Introduction to FTP  5.2.2 Installation  5.2.3 Configuration  5.2 Network File System (NFS)  5.2.1 Introduction to Network File System  5.2.2 Installation  5.2.3 Configuration  5.3 iSCSI  5.3.1 Introduction to iSCSI  5.3.2 Installation  5.3.3 Configuration  5.4 CUPS-Printer Server  5.4.1 Introduction to CUPS  5.4.2 Installation  5.4.3 Configuration | * Lecture – Discussion * Computer Demonstration * Hands-on | * Quizzes * Laboratory Activities | * Creativity * Resourcefulness * Self-Reliance |
| 2 | 10 | 1. Understand email services. 2. Install and administer mail services. | **Chapter 5 – EMAIL SERVICES**  5.1 Postfix  5.2 Exim4  5.3 Dovecot Server  5.4 Mailman  5.4 Mail Filtering | * Discussion * Computer Demonstration * Case Study * Hands-on | * Quizzes * Laboratory Activities | * Resourcefulness * Preparedness * Self-Reliance |
| 1 | 1.5 | **MIDTERM EXAMINATION** | | | | |
| 3 | 15 | 1. Understand the importance of Domain Name Services (DNS) in network. 2. Create Forward Lookup Zone. 3. Create Reverse Lookup Zone. | **Chapter 6 – DOMAIN NAME SERVICES (DNS)**  7.1 Introduction to Domain Name Services  7.2 Installing BIND  7.3 Configuring BIND  7.3.1 Forward Lookup Zone  7.3.2 Reverse Lookup Zone | * Lecture – Discussion * Computer Demonstration * Hands-on | * Quizzes * Laboratory Activities | * Resourcefulness * Preparedness * Confidence * Coordination |
| 2 | 10 | 1. Understand web hosting using Apache Web Server. 2. Deploy website using Apache Web Server. 3. Implement domain name in hosting web sites in Apache Web Server. | **Chapter 7 – APACHE WEB SERVER**  8.1 Installing Apache Web Server  8.2 Configure Apache Web Server  8.3 Configuring Apache Web Server | * Lecture – Discussion * Computer Demonstration * Hands-on | * Quizzes * Laboratory Activities | * Resourcefulness * Preparedness * Self-Reliance * Coordination |
| 2 | 10 | 1. Understand the application of shell scripting in administration of Linux. 2. Create shell script for Linux administration. 3. Implement automation using shell script. | **Chapter 11 – Shell Scripting**  9.1 Introduction to Scripting  9.2 Creating Script  9.3 Automation using Shell Script | * Lecture – Discussion * Computer Demonstration * Hands-on | * Quizzes * Laboratory Activities | * Resourcefulness * Preparedness * Self-Reliance |
| 1 | 3 | **FINAL EXAMINATION** | | | | |