NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Faculty of Computing and Informatics

Department of Computer Science

IT Infrastructure Administration and Services – ITA711S

COURSE OUTLINE

STATEMENT ABOUT ACADEMIC HONESTY AND INTEGRITY

All staff and students of the Namibia University of Science and Technology (NUST), upon signing their employment contracts and registration forms, commit themselves to abide by the policies and rules of the institution. The core activity of NUST is learning and in this respect academic honesty and integrity is very important to ensure that learning is valid, reliable and credible.

NUST therefore does not condone any form of academic dishonesty, including plagiarism and cheating on tests and assessments, amongst other such practices. NUST requires students to always do their own assignments and to produce their own academic work, unless given a group assignment.

Academic Dishonesty includes, but is not limited to:

- Using the ideas, words, works or inventions of someone else as if it is your own work.
- Using the direct words of someone else without quotation marks, even if it is referenced.
- Copying from writings (books, articles, webpages, other students' assignments, etc.), published or unpublished, without referencing.
- Syndication of a piece of work, all or part of an assignment, by a group of students, unless the assignment was a legitimate group assignment.
- The borrowing and use of another person's assignment, with or without their knowledge or permission.
- Infringing copyright, including documents copied or cut and pasted from the internet.
- Asking someone else to prepare an assignment for you or to write or sit an assessment for you, whether this is against payment or not.
- Re-submitting work done already for another course or programme as new work, so-called self-plagiarism.
- Bringing notes into an examination or test venue, regardless of whether the notes were used to copy or not.
- Receiving any outside assistance in any form or shape during an examination or test.

All forms of academic dishonesty are viewed as misconduct under NUST Student Rules and Regulations. Students who make themselves guilty of academic dishonesty will be brought before a Disciplinary Committee and may be suspended from studying for a certain time or may be expelled. All students who are found guilty of academic dishonesty shall have an appropriate endorsement on their academic record, which will never be erased.

COURSE INFORMATION

COURSE CODE AND TITLE:

ITA711S – IT Infrastructure Administration and Services

DEPARTMENT:

Computer Science

PROGRAMME:

07BACS - Bachelor of Computer Science (Systems Administration)

CONTACT HOURS:

120 Notional hours
45 hours = Contact
55 hours = Directed self-learning and self-directed learning (This includes supervised tutorials/laboratories);
20 hours = Assessment

NQF LEVEL AND CREDIT:

NQF: level 7
NQF: 12 credits

COURSE DESCRIPTION:

The purpose of this course is to give students knowledge to manage Internet and intranet infrastructures. The overall aim of the unit is to allow students to use the methods, processes, tools, techniques and issues involved in managing the services of different internet and network administration systems. The emphasis is on practical implementation through planning and installation of operating systems, Internet services, server services and tools. Microsoft Windows Client, Sever and Exchange and Linux shall be used as sample operating systems.

PRE-REQUISITES:

Systems Administrator (SAD622S)

COURSE DELIVERY METHODS:

This course will be facilitated through the following learning activities:

- Teaching and learning will be facilitated through blended learning.
- Theory lectures will be delivered via face-to-face mode. Practical labs will be delivered via face-to-face.
- Lectures – This will be the presentations of materials / notes in theory classes and students are expected to acquire theoretical knowledge and to strengthen their understanding of the course. In addition, students are expected to reinforce their understanding through self studies.
- Classroom presentations – Students will be required to present topics given to them in classroom.
- Theory demonstrations – This will be demonstrations, whereby students are expected to acquire realistic skills of theoretical knowledge gained.
- Laboratory activities – Practical skills presented in the labs whereby students are expected to try out acquired practical skills of theoretical knowledge gained. Laboratory materials will be prepared with clear indication of what the student is expected to achieve, problem statement and guidelines on how to approach the problem.
- Case studies – Students will be required to analyse case studies.
- Discussions
- Assignments and group projects – Students are required to complete homework, assignments, case studies and projects.

The following communication tools will be used in this course:

- Online server (IsNotes) will be used to access course materials and resources.
- Blended E-learning platform (Moodle) will be used for online contents, discussions forums, chat forums and message communication.
- MS Teams application will be used for theory lectures and some practical labs.
- E-mail for communication and appointments for consultation.

Course Format:

45 hours = Contact; remote lectures between students and lecturer

75 hours = Directed self-learning and self-directed learning, suggested to be slit as follow:

- 30 hours = reading prescribed and recommended materials
- 20 hours = Assessments – preparing tests, case studies
- 25 hours = self-guided work – preparing for class presentations, making own notes, participating in group discussions and online activities, researching for own understanding of the subject.

EFFECTIVE DATE:

06 February 2023

LECTURER INFORMATION

Course Coordinator and theory lecturer: Mr. Nasimane Ekandjo

Email: nekandjo@nust.na
Office phone: +264 61 207 2572
Office location: 5 Storch Street, IT House
Office hours: 08:00 am – 17:00 pm
Consultation hours: By appointment via e-mail.

STUDENT READINESS

Technology & Equipment Readiness:

This course will utilize already exiting NUST equipment and tools.

Student Commitments and Contact Times:

- It is compulsory for students to attend a minimum of **80%** of all lectures.
- All assessments should be submitted within given time.
- Make notes during lectures.
- After every class, and before the start of the next class, sort, complete, and annotate own lecture notes, and select further reading in case any particular item was not understood on first attempt.
- Read all prescribed material to the extent that the student could write a one-page essay, summarising the content, without looking at the material again.
- Students are recommended to fully make use of their notional hours.

Course Resources:

There are several facilities which students can use as course resource at the University, the faculty and at home.

- University level: Undergraduate Prospectus/yearbook; The library (borrow books, read short loan books and use the e-resources especially books24x7); Internet is available 24x7 for research.

- Faculty level: There is a repository for course resources - IsNotes accessible from the faculty website or from computer laboratories. http://fci.nust.na/ ; Computer laboratories are available.

- Course level: Course Outline; Electronic learning resources can be obtained in the course folder on IsNotes; E-learning moodle can be assessed 24x7 and from anywhere as long there is internet connectivity. On e-learning, students can also find exercises, homework, announcements, discussion forum, other course materials, etc. Students can access the server via Windows Explorer: \\172.21.253.166 or Web browser: https://isnotes.students.nust.na/.

    - The course materials and other resources can also be found on MS Teams and on Moodle.

Student Readiness

COVID-19 Adherence:

Campus activities that involve physical contact, whether in a meeting, laboratory, assessment, tutorial/lecture will be held under strict COVID-19 National Health and Safety Protocols. Students not adhering to such National Regulations, i.e. wearing masks correctly to cover both the mouth and nose, social distancing of at least 1.5m, hand sanitising and refraining from campus activities when experiencing COVID-19 symptoms, will not be allowed into a venue.

Course Resources:

Windows, Linux, Cisco Packettracer
Windows 7/8/10/Server 2012/2016/2008, Linux, Oracle VM VirtualBox.

Technology & Equipment Readiness:

This course will only utilise already existing NUST equipment.

Student Commitments and Contact Times:

Class Attendance: Attend all classes, and be on time, and make appropriate notes. If a student fails to attend a class, it is their responsibility to catch-up on what was covered. The students have access to the recommended books from the library. If any special presentations are used in class, it will be made available and do not need to be copied by the student.

Prescribed Reading:

- Nemeth, E., Snyder, G., Hein T.R.& Whaley, B. (2017). *UNIX and Linux System Administration Handbook* (5th ed.). Addison Wesley. ISBN: 0134277554
- Thomas, O. (2016). Inside out: Windows Server 2016. Available from https://www.microsoftpressstore.com/
- Minasi et al., Mark. (© 2014). Mastering windows server 2012 r2. [Books24x7 version] Available from http://common.books24x7.com/toc.aspx?bookid=52799.
- Gancarz, M. (2011). Linux and the Unix Philosophy: Digital Press
- Schaefer, K., Cochran, J., Forsyth, S., Baugh, R., Everest, M. & Glendenning, D. (2008). Professional IIS 7. Indianapolis: Wiley Publishing
- Stanek, W. R. (2012). Windows server 2008 inside out. Washington: Microsoft Press
- Limoncelli, T. Hogan, C.J. & Strata Chalup, S. (2007). *The practice of system and network administration* (2nd ed.). Indiana: Pearson Education, Inc.
- Schaefer, K., Cochran, J., Forsyth, S., Baugh, R., Everest, M. & Glendenning, D. (2008). *Professional IIS7.*Indianapolis: Wiley Pub-lishing.

Recommended Reading:

- Shinder, Thomas W. & Diogenes, Yuri & Shinder, Debra Littlejohn. (© 2013). Windows server 2012 security from end to edge and beyond: architecting, designing, planning, and deploying windows server 2012 security solutions. [Books24x7 version] Available from http://common.books24x7.com/toc.aspx?bookid=53997.
- Finn, Aidan & Lownds, Patrick & Luescher, Michel & Flynn, Damian. (© 2013). Windows server 2012 hyper-v installation and configuration guide. [Books24x7 version] Available from http://common.books24x7.com/toc.aspx?bookid=52937.
- Negus, Christopher & Foster-Johnson, Eric. (© 2009). Fedora 10 and red hat enterprise linux bible. [Books24x7 version] Available from http://common.books24x7.com/toc.aspx?bookid=29594.

STUDENT LEARNING

Learning Outcomes:

By the end of this course of study, students should be able to:

- Utilise best practice for choosing hardware, software, vendors and services for an organisation;
- Classify and explain different types of servers;
- Manage infrastructure servers;
- Explain daemons, interrupt handling, port listening on a server;
- Apply structured methodologies to service implementation;
- Deploy selected services in computer system networks;
- Utilise systems administration knowledge to plan, improve processes for IT environments;
- Evaluate business processes and select appropriate services to deploy.

LECTURE SCHEDULE:

Week	Week starting date	Chapter/Content	Practical/Lab	Assessment
1	06 - 10 February 2023	Introduction and Overview		
2	13 - 17 February 2023	Classification and explanation of different types of servers		
3	20 - 24 February 2023	Server requirements analysis: • Hardware and software overview • Installation procedure		
4	27 February - 03 March 2023	Server requirements analysis: • Configuration management • Deployment and testing • Security issues • Log data analysis	Lab 1: DHCP (Windows)	
5	06 - 10 March 2023	Daemons, interrupt handling, port listening on a server: • Identify various daemons and their usage • Discuss interrupt handling		
6	13 - 17 March 2023	Daemons, interrupt handling, port listening on a server: • Analyse port activity	Lab 2: DHCP (Linux)	Case study
7	20 - 24 March 2023	Daemons, interrupt handling, port listening on a server: • Analyse reports from a port scan		
8	27 - 31 March 2023	Apply structured methodologies to service implementation: • Distribution File Services (Samba, LDAP, NFS, CMS)	Lab 3: FTP	Class exercise / Quiz
9	03 - 07 April 2023	**Mid-Semester Break**		
10	10 - 14 April 2023	Apply structured methodologies to service implementation: • Application Services (remote connectivity, printing, SAP)	Lab 4: Daemons	Test 1

11	17 - 21 April 2023	Apply structured methodologies to service implementation: • Internet Information Services (HTTP, FTP, Tftp) • Network Services (NTP, DNS, proxy and agents) • Game Services (FreeCiv, counter strike)		
12	24 - 28 April 2023	Deploy selected services in computer systems and networks: • Analyse hardware and software requirements for the type of service • Identify available software packages and determine hardware specifications	Lab 5: Distributed File Services & Windows Services	Class exercise / Quiz
13	01 - 05 May 2023	Deploy selected services in computer systems and networks: • Install and administer the service • Deploy and test the service		Test 2
14	08 - 12 May 2023	Deploy selected services in computer systems and networks: • Evaluate various security features and issues • Audit usage of the service	Lab 6: Webserver	
15	15 - 19 May 2023	Evaluate Business Processes and select appropriate services to deploy: • Identify and classify business processes • Analyse suitable services to deploy • Document implementation strategies • Formulate an implementation scheme	Lab 7: Proxy Server	
16	22 - 26 May 2023	Revision	Revision	Supplementary Assessment
17	29 May - 02 June 2023	Revision	Revision	
18	05 - 09 June 2023	Marks compilation	Marks compilation	

IMPORTANT DATES:

NOTE: The following dates are subject to change based on the needs of the students at the lecturer's prerogative. Students will be notified ahead of time of any changes.

Date	Important Information
Week 6	Case study to be handed out during this week.
Week 13	Case study due this week. Exact due date is to be communicated.
Week 10	Test 1 to be written this week. The exact date, time and venue will be communicated at least a week in advance. The theory test will be written face-to-face under a controlled/invigilated environment.
Week 13	Test 2 to be written this week. The exact date, time and venue will be communicated at least a week in advance. The practical test will be written in FCI labs under a controlled/invigilated environment.

Week 16	Supplementary assessment to be written this week. The exact date, time and venue will be communicated a week in advance. This will be for students who have done all assessments and did not obtain the final mark of 50% to pass the course.
	Students must take not that students who have missed one or more of the assessments, will be allowed access to the make-up assessment. The make-up assessment mark will replace the missed assessment mark. In the case of more than one missed assessment, the make-up assessment mark will replace the missed assessment mark that carries the highest weight.

ASSESSMENT AND EVALUATION:

Assessment	**Weight**
Tests	50%
Case study	35%
Labs/Class exercise/quizzes	15%
Total:	**100%**

COURSE POLICIES

General Academic Policies:
It is the student's responsibility to be familiar with and adhere to NUST's Policies. These Policies can be found in NUST Year book: General Information and Regulations or online at:
https://www.nust.na/sites/default/files/documents/Yearbook_Part1_GeneralRules%26Regulations_2023_v2.pdf

Supplementary Policies:

- The make-up assessment is for students who have missed one or more of the written (test) assessments. The make-up assessment mark will replace the missed test mark. In the case of more than one missed test, the make-up assessment mark will replace the missed test mark that carries the highest weight.
- The supplementary assessment will be for students who have done all assessments and did not obtain the final mark of 50% to pass the course.

The course will be assessed using diversified Continuous Assessment.
There will be no examination for the course.
The final marks will be determined by continuous evaluation made up of tests, case study, labs, class exercises/quizzes offered during the semester. Therefore, students are required to complete and submit all assessments.

Students have to obtain a minimum final mark of 50% in order to pass the course.

DATE REVISED 06 February 2023

FAILURE TO PAY FEES:

A student who fails to pay his/her fees may not be to have access to his/her results. The results will be withheld until all outstanding fees are paid in full.

IMPORTANT STUDENT SERVICES AT NUST

There are a variety of services which students can use at the NUST. These services are to the student's advantage. They include the following:

- Student Counseling and Career Development – Department: Students Services
- Writing Centre and student academic problems –Teaching and Learning Unit (CTL)
- Campus Health and Wellness Centre (CHWC) - Student Services'/ NUST Clinic

AUTHORISATION:

This course is authorised for use by:

_____ _____

Head of Department Date

ACKNOWLEDGEMENT BY STUDENT

(To be completed by all students doing the course, detached from the course outline and kept on record in the department)

I, (insert name), _____ (Student number), _____ hereby acknowledge that I have received this course outline for IT Infrastructure Administration and Services (ITA711S), and that I have familiarised myself with its content, in particular the statement about academic honesty and integrity. I agree to abide by the Policies and arrangements spelt out in this course outline.

_____ _____

Signature of Student Date