



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Physics

PHY 505 – Mathematical Methods in Physics II

COURSE PARTICULARS

Course Code: PHY 505

Course Title: Mathematical Methods in Physics II

No. of Units: 3

Course Duration: Two hours of theory and one hour of tutorials per week for 15 weeks.

Status: Compulsory

Course Email Address: phy505@gmail.com

Course Webpage: <http://www.fwt.futa.edu.ng/courseschedule.php?coursecode=PHY%20505>

Prerequisite: PHY 405

COURSE INSTRUCTOR

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COURSE DESCRIPTION

This course is an exploratory, first course in computer usage designed primarily for students in forestry and allied disciplines. However, it also meets the need of students in other fields, as a course that provides hands-on training in the use of computers for word processing, descriptive data analysis and preparation of slides for presentation. As a practical course, the focus is to impart useful skills on the students in order to enhance their computer literacy level and prepare them for other specialised applications to be encountered at higher levels. Topics to be covered include computer hardware components and their functions; operating systems with emphasis on Windows Operating System; file and disk management; Microsoft Office (Word, Excel and PowerPoint) and use of the Internet.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the use of computers for various academic activities; and
- provide students with opportunities to develop basic computing skills with respect to preparation of documents, use of spreadsheets, making PowerPoint presentations, and efficient use of the Internet.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- explain how a PC works, and understand the relationship between hardware and software;
- classify and explain the function of different computer hardware components;
- understand purpose and functions of an operating system (OS);
- carry out efficient storage management, file maintenance and file organization;

(Skills)

- use the Control Panel to:
 - customize keyboard, display and mouse functions;
 - add new hardware;
 - install and launch software applications;
 - Create user accounts and customize user settings;
- backup his/her system and protect the files;
- produce well-formatted document with Microsoft Word;
- perform simple computations with Microsoft Excel;
- prepare good slides for presentation using Microsoft PowerPoint; and
- conduct literature search on the Internet.

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Assignments	10%
Test(s)	20%
<u>Final Examination</u>	<u>70%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in all practical exercises. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as scheduled. Failure to submit an assignment, as at when due, will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Rooms and Laboratories: Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, etc.) during lectures. Food and drinks are not permitted in the laboratories.

READING LIST

¹Erwin Kreyszig. (1979). *Advanced Engineering Mathematics*. Fourth Edition. John Wiley & Sons Inc, Canada.

¹Stroud, K. A. (2003). *Advanced Engineering Mathematics*. Fourth Edition. Published by Palgrave Macmillan, New York, N.Y.

⁴Mary L. Boas (2006). *Mathematical Methods in the Physical Sciences*. Third Edition. John Wiley & Sons Inc, Canada.

¹Bajpai, A. C., Mustoe, L. R. and Walker, D. (1982). *Advanced Engineering Mathematics*, John Wiley & Sons Inc, Canada.

Legend

- 1- Available in the University Library
- 2- Available in Departmental/School Libraries
- 3- Available on the Internet.
- 4- Available as Personal Collection
- 5- Available in local bookshops.

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Overview History and Types of Computers	During this first class, the expectation of the students from the course will also be documented.
2 & 3	Exploring the Computer (Part 1) <ul style="list-style-type: none"> • Hardware Components • Software Components 	Practical exercise will involve opening up a desktop PC to examine the components and specify their functions.
4 & 5	Exploring the Computer (Part 2) <ul style="list-style-type: none"> • Computer Configurations • Device Manager • Operating Systems • Windows Attributes • Windows Display • Desktop Themes • Screen Resolution • Dual Monitors • Mouse Settings • Start Menu • User Accounts 	When learning about computer configurations, students will be taught on what to look for when deciding on what PC or laptop to buy. The lecture on Operating Systems will involve brief introduction to various operating systems but emphasis will be laid on Windows.
6	File and Disk Management	Exercises will involve creating folders and sub-folders, and using Antivirus program to clean up a disk.
7 & 8	Word Processing <ul style="list-style-type: none"> • Creating a Document • Formatting a Document • Editing a Document (Cut, Copy, Paste) • Page Layout • Save Options • Adding Graphics to Document • Printing 	Students will be requested to prepare a well formatted document as assignment.
		MID-SEMESTER TEST
9 & 10	Spreadsheets <ul style="list-style-type: none"> • Creating Workbooks • Spreadsheet Layout • Input Data • Formatting Data • Copy and AutoFill • Simple Calculations • Sorting and Filtering • Charts • Printing Worksheets 	Microsoft Excel is the spreadsheet program to be used. Students will be taught on efficient use of the program for routine activities.

11 & 12	<p>PowerPoint Presentation</p> <ul style="list-style-type: none"> • Overview of Microsoft PowerPoint • Creating Slides • Inserting graphics into slides • Formatting Slides • Extracting points from documents • Use of Animations 	<p>Students will be divided into groups and given topics to prepare slides on, for group presentation during the lab session.</p>
13 & 14	<p>The Internet</p> <ul style="list-style-type: none"> • The Webpage Layout • Home Pages and Web Addresses • Browsers (Internet Explorer, Firefox, Mozilla) • Search Engines (Google, Yahoo, <i>etc.</i>) • Creating Emails • Social Networking (Facebook, Twitter, MySpace, <i>etc.</i>) • Blogging (Visit www.blogger.com to sign in) • Creating a Website (Go to www.webs.com and click Start Now) 	<p>The Internet is a very powerful tool for research. Students will be taught on how to make the best use of it for their academic pursuits.</p>
15	REVISION	<p>This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met.</p>