INSTITUTE OF COMPUTER SCIENCES AND INFORMATION TECHNOLOGY
THE UNIVERSITY OF AGRICULTURE PESHAWAR

Program: BS (CS)-III
Course Name: Multivariate Calculus
Course Code: MT-401
Course Hours: 03
Total Weeks: 16
Total Hours: 48

Course Objectives

Multivariate calculus is a vast subject. It has many applications in Engineering Sciences as well as in computer Sciences. It enables the students to define partial derivatives of multivariable functions, line and surface integrals, the above course is planned for BS(CS) students such that, after the completion of this course, students will be able to differentiate and integrate functions of multivariable, at the end of the course student will be able to apply the concepts of Fourier series, Fourier transformation, Laplace transformation and Z-transformation while solving problems of computers.

Week-1
-Introduction to Functions of several variables and partial differentiations.

Week-2
-Multiple Integrals
        I.   Double Integrals

Week-3
-Triple Integrals

Week-4
- Line and Surface integrals

Week-5
- Green's and Stokes theorem

Week-6
- Fourier series

Week-7
- Fourier series Periodic functions

Week-8
- Functions of any period P-2L

Week-9
- Fourier series Even and Odd functions

Week-10-11

- Half range expressions

Week-12
- Fourier Transformations

Week-13-14
-Laplace Transform

Week-15-16
-Z- Transform

Total Marks: 100

Recommended Book:
1.   Multivariable calculus, 6th Edition James, Stewart 2007 Cengage publisher.
2.   Advance Engineering Mathematics by Erwin Kreyzig 10th Edition
2.   Multivariable calculus, 9th Edition Howard Anton, Albert H. 1995.
3.   Calculus and Analytical Geometry Alternate Edition. Swoswski Olincle perce, 1994. Thomson learning EMEA. Ltd.