SYLLABUS

Instructors:

Dr. Vladimir Sobolev
Office: 222 EEP; Tel: 394-1225; E-mail: Vladimir.sobolev@sdsmt.edu
Office Hours: T 3:00-5:00 PM or by appointment

Dr. Xinhua Bai
Office: 217 EEP; Tel: 394-5198; E-mail: Xinhua.Bai@sdsmt.edu
Office Hours: T 3:00-5:00 PM or by appointment

Class Time and Location: T, Th; 01:00 – 2:50 p.m. Room EEP 251-B

Coursed website: 


Other Recommended Texts:

Note: Students with special needs or requiring special accommodations should contact the instructor, Dr. V. Sobolev, at 394-2364 and/or the campus ADA coordinator, Jollie McCoy, at 394-1924 at the earliest opportunity.

The purpose of this course: is to give an introduction of mathematical tools required for physics, with emphasis on practical use, to present mathematical topics of common importance in application of mathematics to variety of physical problems. The course intention is to give students working knowledge of the most widely used mathematical methods along with problem solving skills.

The expected outcomes of this course: Students successfully completing this course will develop a sound understanding and mastery of formulation and solution of mathematical problems in various fields of physics.

Grade Structure:

3 Hour Exams 15 % each
Homework/Quiz 25 %
Final Exam 30 %
Total 100%

A > 90 %
B 90% - 75 %
C 75% - 60%
D 60% - 50%
F < 50%
Tentative Schedule

Lecture Topics by Weeks

Week 1: Vectors, Matrices, and Coordinates
Week 2: Vectors and Scalar Fields
Week 3: Vector Fields in Space
Week 4: Functions of complex variables: Complex numbers
Week 6: Functions of complex variables: Complex functions
Week 6: Functions of complex variables and Exam #1
Week 7: Analytic functions, Cauchy Theorem
Week 8: Line Integrals of Complex Functions
Week 9: Complex Sequences and Series
Week 10: The Residue Theorem and its Applications
Week 11: Conformal Mapping, its Applications, and Exam #2
Week 12: Differential equations
Week 13: Series Solutions of Differential Equations
Week 14: Series Solutions of Differential Equations and Exam #3
Week 15: Applications of Series Solution of Differential Equations

Finals Week: Final Exam (the date will be established later)