MATH 2B Course Outline as of Fall 1999

CATALOG INFORMATION

Dept and Nbr: MATH 2B   Title: CALCULUS 4
Full Title: Calculus, Fourth Course-Differential Equations
Last Reviewed: 11/28/2022

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00   Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable
Grading: Grade Only
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly:

Catalog Description:
First and second order differential equations with applications. Series solution, numerical methods, introduction to Laplace transforms. Systems of differential equations with applications.

Prerequisites/Corequisites:
Math 2A.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: First and second order differential equations with applications, series solutions, numerical methods, introduction to Laplace transforms, systems of differental equations with applications. (Grade Only)
Prerequisites/Corequisites: Math 2A.
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;UC. (CAN MATH24)

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:
	B	Communication and Analytical Thinking	Fall 1981	
	MC	Math Competency		
CSU GE:	Transfer Area		Effective:	Inactive:
IGETC:	Transfer Area		Effective:	Inactive:

CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:
UC Transfer:	Transferable	Effective:	Fall 1981	Inactive:

CID:

CID Descriptor: MATH 240   Ordinary Differential Equations
SRJC Equivalent Course(s):   MATH2

Certificate/Major Applicable:

Not Certificate/Major Applicable

COURSE CONTENT

Outcomes and Objectives:

To be successful, students should be able to:
1. Identify differential equations as to order type and kind.
2. Solve elementary differential equations, including separable and linear differential equations.
3. Model and solve applied problems involving ordinary differential equations.
4. Use numerical techniques to approximate solutions to differential equations.
5. Solve initial value problems using Laplace Transforms with tables.
6. Apply Taylor series to solve differential equations around both singular and nonsingular points.
7. Solve systems of differential equations using matrix techniques and Laplace transforms.
8. Distinguish Euler-Cauchy differential equations from Euley-Caucher differential equations.

Topics and Scope:

1. Ordinary Differential Equations.
   Linear differential equations with applications, special types of nonlinear differential equations, numerical methods including 4th order Runge-Kutta.
2. Introduction to Laplace Transform.
   Laplace transform and inverse, use of tables, application to linear differential equations.
3. Series solutions of Differential Equations.

Differential equations with Taylor's series solutions, method of Frobenius, Bessel and Legendre differential equations.
4. Systems of Diffential Equations.
   Solution by (the operator method, Laplace transform, and matrices). Applications to include coupled spring-mass systems and compartment analysis.

Assignment:

1. The student will have daily outside reading, problem set assignments from required text(s), or instructor chosen supplementary materials.
2. Instructional methodology may include, but not limited to: lecture, demonstrations, oral recitation, discussion, supervised practice, independent study, outside project or other assignments.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing
0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Exams

Problem solving
25 - 50%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Performance exams

Skill Demonstrations
30 - 65%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice

Exams
5 - 25%

Other: Includes any assessment tools that do not logically fit into the above categories.

WRITING ASSIGNMENTS

Other Category
1 - 10%

Representative Textbooks and Materials:
Text(s) required of each student will be selected by the departme
a committee of the department, or the responsible instructor from the

books currently available. Choices in the past have included:
FIRST COURSE IN DIFFERENTIAL EQUATIONS WITH APPLICATIONS,(6th) by
by Zill: PWS, 1997.
DIFFERENTIAL EQUATIONS: Computing and Molding (2nd) Edwards and Penney.
Prentice-Hall, Inc, 1998.