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DELAWARE TECHNICAL & COMMUNITY COLLEGE

COLLEGEWIDE COURSE SYLLABUS

Campus:	Collegewide
Department:	Mathematics/Physics Department
Course Number and Title:	MAT 288 – Linear Algebra
Instructor Name:	**Telephone:** **E-mail:**
Prerequisites:	MAT 282
Corequisites:	None
Course Hours and Credits:	4:1:4
Course Description:	The study of linear equations, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors.
Materials:	The Mathematics/Physics Department recommends the use of a TI-83+ Graphic Calculator. Lecture demonstrations and instruction will include the use of the TI-83+. Calculators with QWERTY keyboards are inappropriate for this course and will not be permitted in test situations.
Method of Instruction:	Lecture
Manuals:	None

CORE COURSE PERFORMANCE OBJECTIVES

The student will be able to:

1. Perform matrix operations and use them in application problems (CCC 1, 2, 6, 7)
2. Use determinants to solve systems of equations and applied problems (CCC 2, 6, 7)
3. Perform basic vector operations on vector spaces (CCC 2, 6, 7)
4. Represent linear transformations using matrices and perform basic operations on linear transformations (CCC 1, 2, 6, 7)
5. Find eigenvalues and eigenvectors for matrices and use them in applications (CCC 1, 2, 6, 7)

MEASURABLE PERFORMANCE OBJECTIVES

1. Perform matrix operations and use them in application problems (CCC 1, 2, 6, 7)

- 1.1 Use properties of matrices to perform basic operations with given matrices.
- 1.2 Solve application problems using Gaussian elimination.

2. Use determinants to solve systems of equations and applied problems (CCC 2, 6, 7)

- 2.1 Perform cofactor expansion.
- 2.2 Apply Cramer's Rule to determinant problems.
- 2.3 Solve applied problems using appropriate properties of determinants.

3. Perform basic vector operations on vector spaces (CCC 2, 6, 7)

- 3.1 Add, subtract, multiply and perform scalar and dot product operations on vectors.
- 3.2 Define a vector space and subspace.
- 3.3 Find the basis and dimension of a given vector space.
- 3.4 Prove linear independence of a given vector space.
- 3.5 Give the rank and nullity of a given vector space.

4. Represent linear transformations using matrices and perform basic operations on linear transformations (CCC 1, 2, 6, 7)

- 4.1 Define linear transformation.
- 4.2 Determine the kernel, nullity, range, and rank of a given linear transformation.
- 4.3 Perform linear transformations on given functions.

5. Find eigenvalues and eigenvectors for matrices and use them in applications (CCC 1, 2, 6, 7)

5.1 Determine the eigenvalues and eigenvectors of a given matrix.

5.2 Solve systems using eigenvalues.

EVALUATION CRITERIA

Students will demonstrate proficiency on all Measurable Performance Objectives at least to the 75% level. The grade will be determined using the College Grading System:

92 - 100	A
83 - 91	B
75 - 82	C
0 - 74	R

Students should refer to the Student Handbook for information on Academic Standing Policy, Academic Honesty Policy, Students Rights and Responsibilities and other policies relevant to their academic progress.