Santiago Canyon College

Mathematics Department

Math 287, Introduction to Differential Equations and Linear Algebra

Fall 2013

Student Learning Outcome Assessment

Math 287 Introduction to Linear Algebra and Differential Equations (COR 4/15/2013)

Catalog Entry

Topics include matrices, determinants, vector spaces, linear systems of equations, linear product spaces, first and second order differential equations, systems of differential equations, and the Laplace transform.

Course Purpose

Provides the student with basic theory and applications of linear algebra and differential equations, as well as techniques for solving ordinary differential equations.

Student Learning Outcomes (Fall 2010)

1. State and apply basic definitions, properties and theorems of linear algebra and differential equations.
2. Use matrices to solve systems of linear equations and analyze linear transformations and vector spaces.
3. Correctly choose and apply techniques to solve various types of differential equations.
4. Model and solve applications involving differential equations and linear algebra.

COURSE SLO ASSESSMENT REPORT, SCC

Department: ___*Mathematics*___ Course: ___*Math 287 Introduction to Differential Equations and Linear Algebra*___

Year: ___*2013*___ Semester:___*Fall*____

1) Outcome to be assessed	2) Means of assessment and criteria of success	3) Summary of data collected	4) Analysis of data	5) Plan of action/what to do next
SLO 4 Model and solve applications involving differential equations and linear algebra.	Score #2 on each final exam using the attached 5-point rubric. Individual Success = 3, 4, or 5 Course Success = 70% of students achieving individual success	A total of 34 exams were scored. Score # % 1 0 0.0% 2 2 5.9% 3 3 8.8% 4 6 17.6% 5 23 67.6%	94.1% of the students scored 3, 4, or 5 on this question about the amount of salt in a tank at time *t* given inflow and outflow rates and concentrations. The papers that scored 2 demonstrated a serious error in the analysis of the application.	Inform department of results.

Math 287 Intro. Lin. Alg. & DEs, Fall 2013, SLO Assessment

Five-Point Rubric

<http://www.mvhs.fuhsd.org/i-heng_mccomb/par/writing/general/hhsdept/am.htm>

5 Exemplary; Complete Understanding

- Work at a very high level of proficiency.
- Clear, insightful, thorough, discerning and demonstrates an in-depth understanding.
- Polished, refined and consistently well-crafted.
- Contains no significant factual errors.

4 Thoughtful; clear understanding

- Work at an above average competency level.
- Work shows thoughtful grasp of the content studied.
- Contains illustrative material that is supportive.
- Contains no significant factual errors.

3 Developing; literal

- Work at an average competency level.
- Demonstrates a grasp of the whole, but is simplistic or literal.
- Some effort evident, yet it does not meet all specifications of the challenge.
- Contains some factual errors that represent a flawed understanding of the topic

2 Limited; barely acceptable

- Work barely meets the basic requirements of the challenge.
- Work shows minimal understanding of the content's key ideas.
- Limited and is carried out with little commitment to precision and excellence.
- Contains significant factual errors.

1 Minimal; unacceptable

- Work at a very low competency level.
- Little or no understanding of the challenge or the task.
- Disjointed and unorganized.
- Contains many significant factual errors.

Assessment Cycle – Math 287, Intro. to Linear Algebra and Diff. Equ'ns – Fall 2013

All SLOs should be assessed at least once within a three-year cycle. A complete assessment cycle includes: gathering assessment data, analyzing assessment data, sharing results within the department or discipline, and reporting results. In the matrix below, indicate the term in which each of your course SLOs will be assessed (inclusive of the entire assessment cycle).

SLO	Data Gathered	Data Analyzed	Data Shared Improvement Dialogue	Results Reported	Changes Implemented
SLO 1 State and apply basic definitions, properties and theorems of linear algebra and differential equations.	Spring 2014	Fall 2014	Fall 2014	Fall 2014	Spring 2015
SLO 2 Use matrices to solve systems of linear equations and analyze linear transformations and vector spaces.	Fall 2014	Spring 2015	Spring 2015	Spring 2015	Fall 2015
SLO 3 Correctly choose and apply techniques to solve various types of differential equations.	Spring 2015	Fall 2015	Fall 2015	Fall 2015	Spring 2016
SLO 4 Model and solve applications involving differential equations and linear algebra.	Fall 2013	Spring 2014	Spring 2014	Spring 2014	Fall 2014