CORE CURRICULUM COMPONENT APPLICATION
Texarkana College

Part I: Course Information

Course Type
☒ Existing/Restructured
☐ New Course

Course Prefix & Number: Math 1314

Texas Common Course Number (TCCN): 1314

Course Title: College Algebra

Course Catalog Description

> **College Algebra** (3,3,0). Topics include graphs, functions and their inverses; data analysis and modeling; polynomial and rational functions, roots of polynomial equations, exponential and logarithmic functions; linear and nonlinear systems of equations and inequalities, determinants, matrices, binomial theorem, sequences and series, permutations and combinations.

Course Prerequisites:
MATH 0033 or satisfactory placement scores. (TSI Scores: 270 or above. After August 25, 2013, students will be required to meet new scores based on the TSI Assessment Test).

Available Online?
☒ Yes
☐ No

Part II: THECB Course Objectives
1. Demonstrate understanding and knowledge of properties of functions, which include domain and range, operations, compositions, and inverses.

2. Recognize and apply polynomial, rational, radical, exponential, and logarithmic functions and solve related equations.

3. Apply graphing techniques.

4. Evaluate all roots of higher degree polynomial and rational functions.

5. Recognize, solve and apply systems of linear equations using matrices.

Part III: THECB Skill Objectives
1. Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. Empirical and Quantitative Skills: to include applications of scientific and mathematical concepts.

Part IV: Course Student Learning Outcomes (SLO)
 1. Demonstrate understanding and knowledge of properties of functions, which include domain and range, operations, compositions, and inverses.
2. Recognize and apply polynomial, rational, radical, exponential, and logarithmic functions and solve related equations.

3. Apply graphing techniques.

4. Evaluate all roots of higher degree polynomial and rational functions.

5. Recognize, solve and apply systems of linear equations using matrices.

Skill Objective:	**Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
THECB Course Objective	Recognize, solve and apply systems of linear equations using matrices.
Course Student Learning Outcome	Recognize, solve and apply systems of linear equations using matrices.
General Learning Activities	Students will use data and systems of linear equations to analyze profit, costs, and the break-even point.
Assessment *Must Include Assignment & Rubric*	The assignment will be for students to use systems of equations in a real-world setting to calculate the break-even point for a business. The students will analyze the results and make changes, if necessary, in the pricing to determine the level of production necessary to maintain a profit. This will be assessed using the Critical Thinking Skills rubric.

Skill Objective:	**Communication Skills:** to include effective written, oral, and visual communication

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THECB Course Objective	Recognize, solve and apply systems of linear equations using matrices.
Course Student Learning Outcome	Recognize, solve and apply systems of linear equations using matrices.
General Learning Activities	Students will use data and systems of linear equations to analyze profit, costs, and the break-even point.
Assessment *Must Include Assignment & Rubric*	The assignment will be for students to communicate the analysis, results, and conclusion of their findings in a written report as well as a class presentation using the media of their choice. The Communication Skills rubric will be used to assess communication skills.

Skill Objective:	**Empirical and Quantitative Skills:** to include applications of scientific and mathematical concepts.
THECB Course Objective	Recognize, solve and apply systems of linear equations using matrices.
Course Student Learning Outcome	Recognize, solve and apply systems of linear equations using matrices.
General Learning Activities	Students will use data and systems of linear equations to analyze profit, costs, and the break-even point.
Assessment *Must Include Assignment & Rubric*	The assignment will be for students to calculate the break-even point using the cost and revenue functions. The Empirical and Quantitative Skills rubric will be used to assess empirical and quantitative skills.