Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: ~~**Algebra II**~~ **Algebra II – College Preparatory**

Course Number: ~~**00240**~~

Course Description and Prerequisites: Algebra II College Preparatory is one of three courses in the Academic sequence. Algebra concepts are an integral part of secondary mathematics courses. This course expands on the foundation of algebraic theory that was begun in Algebra I. It uses practical problems to connect algebra to the real world and apply the theory introduced in Algebra I, going from linear equations and inequalities to complex numbers. It includes the study and applications of quadratics including parabolas. This course is intended for students planning on pursuing higher education, particularly those whose primary interests are in fields that require a strong background in math or science. Grade of 70% or higher in Algebra I is recommended, or with a recommendation by the principal or guidance counselor.

Suggested Grade Level: 9 -12

Length of Course: ___One Semester ___X__Two Semesters _____Other (Describe)_____

Units of Credit: **1** (Insert ***NONE*** if appropriate.)

PDE *Certification and Staffing Policies and Guidelines (CSPG)* Required Teacher Certification(s) (Insert certificate title and CSPG#) ___Mathematics 50_____

Certification verified by WCSD Human Resources Department:
__X__Yes ____No

Board Approved Textbooks, Software, Materials:
Title: **Algebra 2**
Publisher: Prentice Hall
ISBN #: 0 13 201597-8
Copyright Date: 2007

Date of WCSD Board Approval: November 13, 2006

BOARD APPROVAL:

Date Written: **2006-2007**

Date Approved: **January 11, 2009 tentatively**

Implementation Year: **2009-2010**

Suggested Supplemental Materials: Graphing calculator, Software and Computer

Course Standards

PA Academic Standards:

2.1.11 – Numbers, Number Systems and Number Relationships
2.7.8 - Probability and Predictions
2.8.11 - Algebra and Functions
2.10.11 - Trigonometry
2.11.11 – Concepts of Calculus

WCSD Academic Standards: None

Industry or Other Standards: None

WCSD EXPECTATIONS

WCSD K-12 Expectations for instruction in writing, reading, mathematics and, technology have been developed and revised annually. The teacher will integrate all WCSD Expectations into this planned instruction

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (I.E.P.) or Gifted Individual Education Plan (G.I.E.P.).

SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS AND ELIGIBLE CONTENT WHERE APPLICABLE

(List Objectives, PA Standards #'s, Other Standards (see samples at end))

Specific Educational Objectives to be Taught:

The student will be able to:

I. Review (2.1.11 A)

- Use properties to perform all operations of real numbers
- Solve one variable equations
- Solve word problems (consecutive integers, age, distance/rate, mixture, and money problems)

II. Inequalities and Absolute Value (2.8.11 G)

- Solve one variable and combined inequalities
- Absolute value (graphically and algebraically)
- Theorems about order and absolute value

III. Linear Equations and Their Graphs

- Solve open sentences in two variables
- Graph linear equations in two variables
- Find the slope of a line
- Finding equation of a line given slope and a point, two points, or slope and intercept

IV. Linear Systems

- Solve systems of linear equations
- Solve problems using system of equations
- Graph inequalities in two variables
- Linear programming
- Solve systems of equations using Cramer's Rule

V. Functions and Relations

- Find and graph functions (2.8.11 P, 2.11.11 A & B)
- Find equations and values of linear functions (2.8.11 Q)
- Graph relations and distinguish between functions and relations (2.8.11 S)

VI. Products and Factors of Polynomials (2.8.11 S)

- Factor polynomials completely by using the GCF, recognizing special products and by grouping terms
- Solve polynomial equations
- Solve problems using polynomial equations
- Solve polynomial inequalities

VII. Rational Expressions (2.8.11 S)

- Simplify expressions using the laws of exponents
- Use scientific notation and significant digits
- Simplify rational algebraic expressions
- Solve equations and inequalities having fractional coefficient
- Solve and use fractional equations

VIII. Irrational and Complex Numbers (2.8.11 S)

- Find roots of real numbers
- Simplify expressions that involve radicals
- Solve equations containing radicals
- Find and use decimal representation of real numbers

- Simplify complex numbers

IX. Quadratic Equations (2.8.11 A & B)
- Solve quadratic equations by: a) completing the square, b) quadratic formula
- Use the discriminant to determine the nature of the roots
- Graph parabola, and find vertex and axis of symmetry
- Write quadratic functions
- Find distance and midpoint using formula

X. Triangle Trigonometry Fundamentals (2.8.11 J, Q, R & T)
- Define trigonometric functions
- Solving right triangles to find the sides and angles
- Using the law of sine and cosine to find the sides and angles of triangles
- Define circular functions (2.10.11 A)
- Graph trigonometric functions (2.10.11 B)

ASSESSMENTS

PSSA Assessment Anchors Addressed: The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at pde@state.pa.us.

Formative Assessments: The teacher will develop and use standards-based assessments throughout the course.

Portfolio Assessment: ____ Yes __X__ No

District-wide Final Examination Required: __X__ Yes ____ No

Course Challenge Assessment: Course challenge assessment will be based on activities and exams that measure student proficiency as the course standards at 84%.

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

Days	Content Sequence
11 days	I. Review
14 days	II. Inequalities/Absolute Value
10 days	III. Linear Equations and Their Graphs
10 days	IV. Linear Systems
10 days	V. Functions and Relations
15 days	VI. Products and Factors of Polynomials
25 days	VII. Rational Expressions
20 days	VIII. Irrational and Complex Numbers
25 days	IX. Quadratic Equations
40 days	X. Triangle Trigonometry Fundamentals

180 days

WRITING TEAM: Math Teachers

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? __X__ Yes ____ No
2. Does this course issue a mark/grade for the report card?

   __X__ Yes____ No
3. Does this course issue a Pass/Fail mark? ____ Yes __X__ No
4. Is the course mark/grade part of the GPA calculation?

   __X__ Yes ____ No
5. Is the course eligible for Honor Roll calculation? __X__ Yes ____ No
6. What is the academic weight of the course?

   ____ No weight/Non credit __X__ Standard weight

   ____ Enhanced weight (Describe)_____