PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

INTERMEDIATE ALGEBRA
DSM 0840

Class Hours: 5.0   **Credit Hours: 5.0**

Laboratory Hours: **Date Revised: Fall 1998**
0.0

Catalog Course Description:

 This course includes the study of the concept of a function and graphing a function;   polynomial
expressions and solving quadratic equations and inequalities; rational expressions and solving rational
equations; radical expressions and solving radical equations. Associated word problems are solved
throughout the course. The TI-83 calculator is required and used throughout the course.

Entry Level Standards:

 Satisfactory completion of RSR 0710 or equivalent test score

Prerequisite:

 DSM 0830 or equivalent math placement score

Textbook(s) and Other Reference Materials Basic to the Course:

 Thomasson/Pesut, Experiencing Algebra. Prentice Hall Publishing Company, 1999.
 TI - 83 Graphics Calculator

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction to Polynomials, 9.1; polynomial functions and their graphs, 9.2; quadratic functions and their graphs, 9.3
2	Writing quadratic functions, 9.4; Calculator/Group Work/Modeling Activities; review; Test 1
3	Rules for exponents, 10.1; polynomial operations, 10.2; polynomial multiplication, 10.3
4	Common factors and factoring by grouping, 10.4; Factoring Trinomials, 10.5
5	General strategies for factoring, 10.6; Calculator/Group Work/Modeling Activities; review; Test 2
6	Solving Equations Numerically and graphically, 11.1; solving equations algebraically by factoring, 11.2; solving quadratic equations by using square roots, 11.3
7	Solving quadratic equations by completing the square, 11.4; solving quadratic equations by quadratic formula, 11.5; more real-world models, 11.6

8	Solving quadratic inequalities, 11.7; Calculator/Group Work/Modeling Activities; review; Test 3
9	Rational expressions and functions, 12.1; multiplication and division of rational expressions, 12.2
10	Addition and subtraction of rational expressions, 12.3; solving rational equations in one variable numerically and graphically, 12.4; solving rational equations with one variable algebraically, 12.5; Calculator/Group Work/Modeling Activities; review; Test 4
11	More real-world models, 12.6; Calculator/Group Work/Modeling Activities; review; Test 4
12	Evaluating radical expressions and expressions containing rational exponents, 13.1; radical functions and their graphs, 13.2; properties of rational exponents, 13.3
13	Properties of radicals, 13.4; operations on radicals, 13.5; solving radical equations in one variable numerically and graphically, 13.6
14	Solving radical equations algebraically, 13.7; Calculator/Group Work/Modeling Activities; review; Test 5
15	Review and final
16	Performance evaluations and final exam retesting.

II. Course Objectives*:

DSM 0840 is a mathematics course in the TBR mandated R/D program. The program is designed to provide students with skills which support their success in college-level curricula and enable them to achieve their educational goals. Student's test results will show 80% competency when compared to his/her initial assessment. Students who complete the R/D program will experience about the same or better success in college- level classes as students who did not need to enroll in developmental courses.

A. Use function notation: evaluate, determine the domain, and graph a function. III, V

B. Solve quadratic equations and inequalities algebraically, numerically, or graphically. V,IV

C. Solve equations with rational or radical expressions algebraically, numerically, or graphically. V,IV

D. Model word problems algebraically. II,V

E. Interpret graphical information. I

F. Use a calculator to support problem solving. GE-V.6

G. Simplify and evaluate algebraic expressions and formulas. V

*Roman numerals after course objectives reference goals of the Math department.

III. Instructional Processes*:

Students will:

1. Use graphing calculators and/or computer software to graph functions, solve polynomial, rational, radical equations and quadratic inequalities, and simplify expressions with rational exponents and

radicals. *Technological Literacy Outcome*

2. Engage in collaborative activities, e.g., modeling projects, teamwork,   presentations, and/or other activities involving linear, quadratic, rational, and/or   radical functions. *Problem Solving and Decision Making Outcome, Numerical   Literacy Outcome, Transitional Strategy, Active Learning Strategy*

3. Use multiple approaches--physical, numerical, graphical, symbolic, and verbal--to solve polynomial, rational, and radical equations. *Numerical Literacy Outcome*

4. Participate in interactive discovery exercises that lead to the development of   mathematical relationships. *Active Learning Strategy*

*Strategies and outcomes listed after instructional processes reference Pellissippi State☐s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Simplify an expression with rational exponents. G

2. Rewrite a polynomial as a product of factors or state that the polynomial   "cannot be factored". G

3. Rewrite a rational expression in simplest form and determine the domain G,A

4. Perform indicated operations on expressions with algebraic fractions. G

5. Find an acceptable solution set for equations or word problems with algebraic   fractions. C,F

6. Evaluate and simplify a radical expression. G

7. Find an acceptable solution set for equations or word problems with radicals.   C,F

8. Find an acceptable solution set for equations or word problems with quadratics.   C,F

9. Calculate the distance between two points using the distance formula. G

10. Solve a quadratic inequality and graph the solution. B,F

11. Evaluate, determine the domain, and graph a linear, radical, rational, or   quadratic function. A,F

12. Model and solve word problems with quadratic, rational, or radical equations.   D,B,F

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

Retesting: Students have a maximum of three attempts at any one   test. If a student requires more than one attempt to achieve the 80%, the scores   on all attempts will be averaged. The student will receive the average on the   attempts or 80%, whichever is higher. If the student does not achieve at least   an 80% within three attempts, the student will receive an "F" for the course.   The student has two attempts to pass the final with the required 60%. A third   attempt at passing the final may be given at the instructor's discretion.

B. Laboratory Expectations: None

C. Field Work: None

D. Other Evaluation Methods:

To begin the next level of course work, a student must:
1. achieve a course average of 77% or better.
2. achieve at least 60% correct on the final exam.
3. achieve an 80% proficiency on each chapter test.

E. Grading Scale:

Students are evaluated primarily on the basis of tests, quizzes, and homework as   outlined on the syllabus distributed by the instructor.

A = 94 - 100
B = 87 - 93
C = 77 - 86
F = below 77

VI. Policies:

A. Attendance Policy:

Regular attendance is very important for successful   completion of this course. Absences will be recorded and monitored. Students   who miss the equivalent of one week of class may be dropped from the roll   and receive an "F" for the course at the instructor's discretion.

B. Academic Dishonesty:

Cheating in any form will not be tolerated. The penalty   for cheating is a grade of "F" for the course.

C. Two Attempt Rule:

According to TBR policies, a student must complete this   course within two semesters of enrollment or be suspended from all TBR schools for one   semester. Grades of A, B, C, E, F, I, or W constitute enrollment.

Withdrawal: Students placed in and enrolled in an R/D course are not   permitted to withdraw except for serious circumstances and with the permission   of the R/D program director. Students wishing to withdraw must discuss this   matter first with their mathematics instructor and then with the student development counselor. The counselor will notify the student of the decision to allow   him/her to withdraw.