Master Course Syllabus

Your College, Your Future

Established 1969

MAT-111
COLLEGE TRIGONOMETRY

Course Number	**MAT 111**
Course Title	**College Trigonometry**
Credit Hours	**3**
Prerequisites	**A grade ≥ C in MAT 110 or approved placement test scores**
Course Description	**This course includes circular functions; trigonometric identities; solution of right and oblique triangles; solution of trigonometric equations; polar coordinates; complex numbers, including DeMoivre's theorem; vectors; conic sections; sequences; and series.**
Course Objectives	At the conclusion of the course, the student will be able to do the following: • Describe angles in terms of rotations. • Convert between degree and radian measures. • Find arc lengths. • Find exact and decimal values of trigonometric functions. • Identify periods, amplitudes, and vertical and phase shifts. • Graph trigonometric functions and transformations. • Define and evaluate inverse trigonometric functions. • Solve applied problems involving right triangles. • Evaluate trigonometric functions and simplify trigonometric expressions using fundamental identities. • Verify trigonometric identities. • Solve trigonometric equations. • Rewrite and evaluate trigonometric functions using sum and difference formulas, double, and half-angle formulas. • Solve oblique triangles using the Law of Sines and the Law of Cosines. • Find areas of oblique triangles. • Solve applied problems involving oblique triangles. • Find the magnitude and direction angles of vectors. • Perform mathematical operations on vectors. • Find the dot product of two vectors and use the dot product to find the angle between two vectors. • Graph and write equations of conics centered at the origin and their translations.

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	• Graph parametric equations (including trigonometric equations) by hand and using a graphing utility. • Rewrite sets of parametric equations as rectangular equations. • Plot points in the polar coordinate system and graph polar equations.
Course Developer	Isaac Docsol
Means of Instruction	Lecture
Required Textbook/Written Materials/Supplies	*See Booklist online for current book.*

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General Education Core Competencies

General Education Core Competencies	Course Methodology, Content and/or Assessment
Communication: Students will be able to communicate effectively through reading, writing, speaking and listening. • Prepare written documents in a professional manner. • Develop oral communication skills to present information in a professional and appropriate manner. • Demonstrate appropriate listening skills in one-on-one and small and large group settings.	Students will create lab reports using a word processor and will display graphs in a professional manner using TI Connectivity Kit software or Microsoft Excel. Students will develop oral and written communication skills and listening skill by working in small groups, cooperative learning activities, and laboratory settings. On tests, quizzes, and the Final Exam, students will be expected to write the final answers of some constructed response questions (short answer, essay, true/false) in complete sentences or face penalties for noncompliance (points will be deducted). Students are expected to show all work and calculations and explain or justify answers.

General Education Core Competencies	Course Methodology, Content and/or Assessment
Mathematical Reasoning: Students will apply those mathematical skills appropriate to their program of study. • Analyze and solve mathematical problems needed in the workplace, daily life and educational environment. • Interpret data using analytical methods.	Students will use mathematical concepts and techniques to analyze and solve real-world applications across several contexts and disciplines (Business and Economics, Life Sciences, Social and Behavioral Sciences, Physical Sciences, & General). Students will apply Intermediate Algebra concepts and analyze and/or interpret data using mathematical techniques in in-class and out of class laboratory assignments/projects.
Critical Thinking: Students will employ effective processes for resolving problems and making decisions. • Identify problems and potential causes. • Solve problems using basic research, analysis and interpretation. • Evaluate results of solutions and revise strategies as indicated by findings.	Students will develop critical thinking skills by successfully completing laboratory activities, quizzes tests, final exam, and the final capstone activity. When tests, quizzes, and other assessments are returned to the student, the student is expected to engage in error analysis to minimize the probability of future errors in his or her work.

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Technology Utilization: Students will apply knowledge of computers on a level compatible with job and/or educational demands. • Demonstrate a basic knowledge of computer applications including word processing, spreadsheets, databases, and presentation software. • Use basic operating system functions competently (e.g. store and retrieve data, load software). • Demonstrate communication and research skills through use of the internet.	Student will use graphing calculators in class when learning mathematical concepts in this course. Students will use TI Connectivity Kit software, Microsoft Word, Excel, PowerPoint, and the Internet in completing course assignments. Students will create lab reports using a word processor and will display graphs in a professional manner using TI Connectivity Kit software or Microsoft Excel.

General Education Core Competencies	**Course Methodology, Content and/or Assessment**
Interpersonal Skills: Students will deal effectively and appropriately with others. • Interact well with individuals and groups from diverse backgrounds and cultures. • Work with others in situational analysis, problem solving, and task accomplishment. • Demonstrate respect for the rights, work, and views of others.	Students will develop interpersonal skills by working in small group and cooperative learning group situations. When students are working in these situations, the student is expected to work with a positive attitude and mutual respect with other support group members and assist the team in accomplishing stated objectives and/or goals.
Professionalism: Students will exhibit professionalism through observances of a code of ethics, a sense of responsibility, good habits, and a positive attitude. • Demonstrate personal and business integrity and ethics. • Recognize, manage, and cope with the transitions of change. • Utilize informational resources for lifelong learning.	Students are expected to abide by the Addendum and any other policies and procedures as set forth in this syllabus. Students are expected to use all the available resources in order to maximize the learning of algebra concepts in this course (textbook, textbook website, the instructor, tutoring, the internet, study groups, & textbook supplements). When students are working in group settings, the student is expected to work with a positive attitude and mutual respect with other support group members and assist the team in accomplishing stated objectives and/or goals.

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College Policies

Policy Type	Policy Description
Attendance Policy	Williamsburg Technical College does not require specific attendance in a course. Acknowledging that participation supports student success in coursework, however, individual instructors may set attendance guidelines for the course. Those specific guidelines must be included in the course syllabus. (*See Syllabus Addendum provided by the instructor.)* In addition, students must attend during the first two weeks of class or inform the instructor of their intent to attend to remain on the class roster. If no prior arrangements have been made and the student does not attend during the first two weeks following the semester start date, the student will be dropped as a "no show" from that course following the second week of class. Class rosters will be final as of the end of the second week of classes. Students may withdraw from a class at any time by completing a withdrawal form in the Student Services Office. A student can only receive a "WP" grade if withdrawal is completed in the Student Services Office prior to the last date to receive a "WP" grade published in the academic calendar. Students who fail to withdraw by the specified time will receive a letter grade for the course. For specific procedures related to this policy, refer to WTC Procedure D-23.1.
Policy Type	**Policy Description**
Policy for Students with Disabilities	The Student Affairs Division provides counseling and support services which help students with disabilities to pursue academic programs of their choice and participate fully in campus life. The AVP for Student Affairs can arrange counseling, special parking, priority registration, and other reasonable services needed by students with disabilities. Students with disabilities are encouraged to contact the AVP for Student Affairs to discuss needs and concerns as they arise.
Policy for Academic Misconduct	All forms of academic dishonesty including, but not limited to, cheating on tests, plagiarism, collusion, and falsification of information will call for discipline. See the Student Code & Grievance Procedure in the Williamsburg Technical College Catalog for details.

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Grading Policy	The College operates on the semester hour system, and the following symbols are used in grading: A-- Excellent B -- Above Average C -- Average D -- Passing F -- Failure I -- Incomplete WF -- Withdrawal while failing WP -- Withdrawal while passing
Policy for Class Safety and Emergencies	Injuries must be reported to the AVP for Student Affairs immediately. Insurance claim forms are available in the Student Affairs division. Please refer to the college catalogue for more information on how Williamsburg Technical College addresses safety and emergency issues. For additional information, contact Student Affairs at 843.355.4162. Students taking coursework at off-site locations are responsible for reading and adhering to all safety instructions and guidance at the off-site location. Health Services and First Aid Williamsburg Technical College is a commuter institution; therefore, infirmary facilities are not provided. Basic first aid for minor injuries is available, and first aid kits are located in various departments of the College. Major illness or injury will be treated by health professionals. The campus is located adjacent to Williamsburg Regional Hospital. Each student is covered by accident insurance at no additional cost. This group insurance covers the student while on campus and during college-sponsored group travel.