**ILLINOIS INSTITUTE OF TECHNOLOGY**  
**FALL 2010**  
**MATH 119 - 02**  
**GEOMETRY FOR ARCHITECTS**

**INSTRUCTOR**  
Dr. David J. Maslanka

**LECTURES**  
Monday, Wednesday, and Friday at 1:50 – 3:05 PM,  
Room 102 Engineering 1 Building.

**OFFICE HOURS**  
Monday, Wednesday, and Friday from:  
12:30 – 1:30 PM, and 3:30 – 5:00 PM, or by appointment,  
Room 234D E1 Building.

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**TEXTBOOK**  

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>CHAPTER.SECTION</th>
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<tbody>
<tr>
<td>Elementary Topics in Plane and 3-D Euclidean Geometry:</td>
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<tr>
<td>Angles and lines, triangles, the Pythagorean Theorem,</td>
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<td>areas of polygons and circles, similarity, volume, Compass</td>
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<td>and Straight–edge constructions</td>
<td>Handouts, 5.1 – 5.5</td>
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<td>Right Triangles:</td>
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<tr>
<td>Right Triangle Trigonometry, vectors, applications</td>
<td>6.1 – 6.4</td>
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<tr>
<td>Oblique Triangles and Trigonometry:</td>
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<td>General trigonometric functions, the Laws of Sines</td>
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<td>and Cosines, Solving Oblique Triangles, proof of</td>
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<td>Hero’s Formula</td>
<td>7.1 – 7.5</td>
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<tr>
<td>Circles, Spheres, 3-Dimensional Coordinate Systems &amp; Solar Geometry:</td>
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<td>Radian Measure, Arc Length and Rotation, Longitude and latitude,</td>
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<td>linear distances between points in space and surface distances</td>
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<td>between points on a sphere, the angle at which solar radiation reaches</td>
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<td>the surface of the Earth</td>
<td>Handouts, 13.1 – 13.3</td>
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<td>Graphing in the Coordinate Plane:</td>
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<td>Cartesian &amp; polar plotting of trigonometric functions et. al.,</td>
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<tr>
<td>converting equations of curves between rectangular and</td>
<td>14.1, 14.4, 14.6</td>
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<tr>
<td>polar coordinates systems</td>
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</table>
Analytic Geometry of Lines and Conics:
Equations of straight lines and their slopes, the angle
between two lines, the distance between points, the
distance from a point to a line, equations of the conic
sections: the parabola, ellipse and hyperbola. ......................... 20.1 – 20.6

COURSE OBJECTIVES

The successful student will:
• Learn to measure the areas of polygons and the volumes of polyhedra and that of other
basic shapes such as cones and cylinders.
• Learn to construct regular polygons using only a compass and straight-edge.
• Learn to solve right triangles using basic trigonometry.
• Learn to solve oblique triangles, including those satisfying conditions which result in the
• Learn to use plot graphs of functions, including trigonometric ones, in both the rectangular
and polar coordinate systems.
• Learn to find the equations of lines and to analyze their slopes and their angles of
intersection.
• Learn to identify and graph the equations of the conic sections in the coordinate plane.

COURSEWORK

• Homework
  Homework problems will be assigned regularly and collected on a weekly basis. Each
  assignment should be submitted complete and on time in order to receive full consideration.
  Assignments submitted more than one week late will receive no credit.

• Worksheets
  There will be worksheet quizzes given on a regular basis (about twice weekly) throughout the
course of the semester. Each worksheet should be completed and submitted at the end of
the class session – unless otherwise indicated. Students are encouraged to work with their
fellow classmates while solving the workshop quizzes. They may also discuss their work with
the course instructor and the course teaching assistant. Students who fail to attend class will
not be permitted to make-up a worksheet quiz. The worksheet quiz problems should serve
as a good source of review material when preparing for examinations.

• Exams
  There will be two midterm exams and a mandatory final examination.
  Students will be given at least one week advance notice of the date of each of the midterm
examinations in class. The two-hour final examination will be administered during the final
exam week: December 8 – 14 according to the Registrar’s schedule. Check the web page
http://www.iit.edu/registrar/important_dates/ for details.
EVALUATION

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<th>GRADE SCALE</th>
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<tr>
<td>Homework . . . . . . . . . . . . 5 %</td>
<td>A : 85 - 100</td>
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<td>Worksheets . . . . . . . . . . . . 25 %</td>
<td>B : 74 - 84</td>
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<tr>
<td>Exams . . . . . . . . . . . . . . . . 70%</td>
<td>C : 60 – 73</td>
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<td>D : 50 - 59</td>
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<td>E : 0 - 49</td>
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NOTES

• Attendance will be taken at every class session this semester. Students are required to attend all sessions and to arrive for class on time. The final course grade of a frequently absent student may be lowered for “nonparticipation” at the discretion of the instructor. Regular class participation may have a positive influence on the final grade of a "borderline" student.

• Illinois Institute of Technology expects students to maintain high standards of academic integrity. Students preparing for the practice of a profession are expected to conform to a code of integrity and ethical standards commensurate with the high expectations that society places upon the practitioners of a learned profession. Therefore, incidents of cheating, plagiarism, or interference with the work of others during an examination will not be tolerated. Such acts of academic dishonesty will be reported to the Dean of Students and may be grounds for immediate dismissal from the class with a grade of E.

• Reasonable accommodations will be made for a student with a documented disability. In order to receive such considerations, the student must obtain a Letter of Accommodation from the Center for Disability Resources. He/she should then schedule an appointment to discuss this matter with the course instructor as early in the term as possible. The Center for Disability Resources (CDR) is located in the Life Sciences building, Room 218. Telephone (312)567-5744 or email disabilities@iit.edu for further details.

• During all course lectures, examinations, and workshop sessions, students are prohibited from listening to audio associated with any personal music/video device. This prohibition extends to, but is not limited to, all iPods, iPads, MP3 players, and notebook computers. Students shall not access their cell phones to send or receive phone/text messages while class is in session.