Bossier Parish Community College
Master Syllabus

Course Prefix & Number: MATH 217 **Credit Hours:** 3-3-0

Course Title: Elementary Geometry

Course Prerequisites: A grade of "C" or higher in MATH 117.

Textbook(s): BPCC Custom Manipulative Kit,
Billstein, Libeskind and Lott. A Problem Solving Approach to Mathematics for Elementary School Teachers, 13th edition, Pearson, 2019. ISBN: 9780321987297

Course Description: This course is designed for elementary education majors. The emphasis of the course is measurement and geometry. Topics include basic notions of Geometry; choosing appropriate units; unit conversions; estimating measurement; measurement of length, circumference, weight, area, temperature, angles and parallels; Geometric constructions; angles of a triangle; polygons; centers and lines of symmetry; congruent figures; similarity; tessellations; area of triangles and polygons; the Pythagorean Theorem; surface area; and volume.

Learning Outcomes:
At the end of the course, the student will:

A. use various concepts of geometry to understand basic geometric notions, plane figures, theorems involving angles, and three-dimensional figures;
B. use the various concepts of congruence and similarity and investigate systems of equations both geometrically and algebraically;
C. use the systems of measurement for length, area, volume, mass, and temperature with the philosophy that students should learn to think within a system; and
D. use the various concepts to understand motions of the plane, symmetries, and tessellations.

To achieve the learning outcomes, the student will or will be able to:
(The letter designations at the end of each statement refer to the learning outcome(s).)

1. know basic geometric terms related to points, lines, and planes; (A)
2. classify angles; (A)
3. measure angles; (A)
4. estimate linear measure; (A)
5. measure length using nonstandard units; (A)
6. convert English units of linear measure; (A)
7. convert metric units of linear measure; (A)
8. use a ruler; (A)
9. apply the triangle inequality theorem; (A)
10. find the perimeter of a plane figure; (A)
11. find the circumference of a circle; (A)
12. determine if a figure is simple and/or closed; (A)
13. determine if a figure is a polygon; (A)
14. determine if a polygon is convex/concave; (A)
15. classify polygons according to their sides; (A)
16. classify polygons as regular or non-regular; (A)
17. classify triangles according to sides and angles; (A)
18. classify quadrilaterals according to sides and angles; (A)
19. determine lines of symmetry, rotational symmetry, and point symmetry; (A)

20. find the measure of complementary angles; (A)
21. find the measure of supplementary angles; (A)
22. use vertical angles to find missing angle measures; (A)
23. find missing angle measures when two parallel lines are cut by a transversal; (A)
24. find the sum of the interior angles of any convex n-gon; (A)
25. find the sum of the exterior angles of any n-gon; (A)
26. perform geometric constructions using a compass and a straightedge; (B)
27. write triangle congruence statements; (B)
28. use triangle properties to prove congruent triangles; (B)
29. apply properties of quadrilaterals; (B)
30. use a Mira for appropriate constructions; (B)
31. determine if triangles are similar; (B)
32. apply properties to prove triangles are similar; (B)
33. use proportions to find missing measures in similar triangles; (B)
34. applications of similar triangles; (B)
35. use the addition method to find area; (C)
36. convert English units of area; (C)
37. convert metric units of area; (C)
38. find the area of polygons; (C)
39. find the area of circles; (C)
40. solve application problems related to area; (C)
41. apply Pythagorean Theorem; (C)
42. recognize polyhedrons; (C)
43. classify polyhedrons; (C)
44. recognize cylinders and cones; (C)
45. label parts of three-dimensional solids; (C)
46. find the surface area of three-dimensional solids; (C)
47. solve application problems related to surface are of three-dimensional solids; (C)
48. find the volume of three-dimensional solids; (C)
49. convert English units of volume; (C)
50. convert metric units of volume; (C)
51. solve application problems related to volume of three-dimensional solids; (C)
52. perform translations; (D)
53. perform rotations; (D)
54. perform reflections; (D) and
55. tessellate a figure across a plane; (D)

Course Requirements: All students are required to take a comprehensive final exam. When this course is taken in an online environment, the department has established a minimum grade of 60% on the final exam required to earn a grade of "C" or higher in the course. If this minimum score is not obtained by the student, then the student shall refer to the policy outlined in the course syllabus which will supersede the course grading scale shown below.

Course Grading Scale:

90 – 100 = A
80 – 89 = B
70 – 79 = C
60 – 69 = D
0 – 59 = F

Attendance Policy: The college attendance policy is available at http://www.bpcc.edu/catalog/current/academicpolicies.html

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

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