Introduction to Engineering Design	Unit 1 Overview	Unit 11 Production	Unit 2 Student Portfolio	Unit 5 Geometric Relations	Unit 10 Presentation	Unit 12 Markets	Unit 3 Introduction To Design	Unit 4 Sketching and Vis	Unit 6 Modeling	Unit 7 Assembly Modeling	Unit 8 Modeling Analysis	Unit 9 Model Documented
Michigan Grades 9-12 Math Standards Linked												
MATH.GRADES.9-12 - http://www.michigan.gov/mde/0,1607,7-140-38924_41644_42668---,00.html	X	X X		X X X X X X X X X X X X X		X	X X X X X X	X	X X X X	X X	X X X	X
STRAND 1: QUANTITATIVE LITERACY AND LOGIC	X					X			X		X X	
STANDARD 1.1: REASONING ABOUT NUMBERS, SYSTEMS, AND QUANTITATIVE SITUATIONS									X			
QSR1.2 Representations and Relationships									X			
QSR1.2.4 Organize and summarize a data set in a table, plot or spreadsheet; find patterns in a display of data; und critique data displays in the media.									X			
STANDARD L3: MEASUREMENT AND PRECISION											X X	
QSMP3.2 Understanding Error											X X	
QSMP3.2.1 Determine what degree of accuracy is reasonable measurements in a given situation; express accuracy significant digits, error tolerance, or percent o errors in measurements are magnified o accumulated error in applied ca											X X	
STANDARD L4: MATHEMATICAL REASONING, LOGIC, AND PROOF	X					X						
QSMELP4.1 Mathematical Reasoning	X											
QSMELP4.1.2 Differentiate between statistical arguments (statements verified empirically using examples or data arguments based on the rules of logic.	X											
QSMELP4.2 Language and Laws of Logic						X						
QSMELP4.2.1 Know and use the terms of basic logic (e.g., proposition, negation, truth and falsity, implication, if a contrapositive, and converse).						X						
STRAND 2: ALGEBRA AND FUNCTIONS				X				X		X X	X	
STANDARD A2: FUNCTIONS				X				X		X X	X	
AF2.1 Definitions, Representations, and Attributes of Functions										X		
AF2.1.1 Recognize whether a relationship (given in context symbolic, tabular, or graphical form) is a function; and domain and range.										X		
AF2.2 Operations and Transformations				X						X		
AF2.2.2 Apply given transformations (e.g., vertical or horiz shifts, stretching or shrinking, or reflections about th to basic functions, and represent symbolically				X								
AF2.2.3 Recognize whether a function (given in tabular or g form) has an inverse and recognize simple inverse pa x3 and g(x) = x1/3).										X		
AF2.3 Exponential and Logarithmic Functions										X		
AF2.5.1 Write the symbolic form and sketch the graph of a exponential function given appropriate information. (e initial value of 4 and a rate of growth of 1.5, w										X		
AF2.6 Quadratic Functions										X	X	
AF2.6.1 Write the symbolic form and sketch the graph of a quadratic function given appropriate information (e.g., intercepts, etc.).										X	X	
AF2.9 Rational Functions								X				
AF2.9.1 Write the symbolic form and sketch the graph of ti rational functions.								X				
AF2.10 Trigonometric Functions										X		
AF2.10.5 Graph transformations of basic trigonometric funct (involving changes in period, amplitude, and midline) the relationship between constants in the for transformed graph.										X		
STANDARD A3: MATHEMATICAL MODELING										X	X	
AFMM3.1 Models of Real-world Situations Using Families of Functions										X	X	
AFMM3.1.1 Identify the family of function best suited for mo given real-world situation (e.g., quadratic functions fo object under the force of gravity; exponential compound interest; trigonometric funct phenomena. In the example above general function is exponer											X	
AFMM3.1.2 Adapt the general symbolic form of a function fa that fits the specifications of a given situation by usi information to replace arbitrary constants with e example above, substitute the given valu to obtain P = 30007.02(k.										X		
STRAND 3: GEOMETRY AND TRIGONOMETRY	X X X X X X X X X X X X X						X X X X X		X		X	X X
STANDARD G1: FIGURES AND THEIR PROPERTIES	X X X X X X X X										X	
GTFP1.1 Lines and Angles: Basic Euclidean and Coordinate Ge	X X X											
GTFP1.1.3 Perform and justify constructions, including midpo line segment and bisector of an angle, using straightec compass.	X X X											
GTFP1.1.5 Given a line segment in terms of its endpoints in a coordinate plane, determine its length and midpoint.	X											
GTFP1.1.6 Recognize Euclidean Geometry as an axiom syster the key axioms and theorems and the meaning of and re between undefined terms (e.g., point, line, plane definitions, and theorems.	X											
GTFP1.3 Triangles and Trigonometry	X											
GTFP1.3.1 Define the sine, cosine, and tangent of acute angl right triangle as ratios of sides; solve problems about lengths, or areas using trigonometric ratios a	X											
GTFP1.4 Quadrilaterals and Their Properties	X											
GTFP1.4.1 Solve multi-step problems and construct proofs re angle measure, side length, diagonal length, perimete squares, rectangles, parallelograms, kites, and	X											
GTFP1.5 Other Polygons and Their Properties	X											
GTFP1.5.2 Know, justify, and use formulas for the perimeter area of a regular n-gon and formulas to find interior a angles of a regular n-gon and their sums.	X											
GTFP1.7 Conic Sections and Their Properties	X X											
GTFP1.7.2 Identify and distinguish among geometric representations of parabolas, circles, ellipses, and hyper describe their symmetries, and explain how the cones.	X X											
GTFP1.8 Three-Dimensional Figures	X										X	
GTFP1.8.1 Solve multi-step problems involving surface area a volume of pyramids, prisms, cones, cylinders, hemisp spheres.	X										X	
STANDARD G2: RELATIONSHIPS BETWEEN FIGURES	X X X						X X X X X		X		X	X X
GTRG2.1 Relationships Between Area and Volume Formulas	X											
GTRG2.1.3 Know and use the relationship between the volum pyramids and prisms (of equal base and height) and co cylinders (of equal base and height).	X											
GTRG2.2 Relationships Between Two-dimensional and Three- dimensional Representations	X X X						X X X		X		X	X X
GTRG2.2.1 Identify or sketch a possible 3-dimensional figure, dimensional views (e.g., nets, multiple views), create representation of a 3-dimensional figure.	X X X						X X X X X		X		X	X X
GTRG2.2.2 Identify or sketch cross-sections of 3-dimensional identify or sketch solids formed by revolving 2-dime around lines.	X X X						X X X X X		X		X	X X
GTRG2.3 Congruence and Similarity	X											
GTRG2.3.5 Know and apply the theorem stating that the effe scale factor of k relating one two-dimensional figure to one three-dimensional figure to another, or the volume of the figure is to multiply each	X											
STRAND 4: STATISTICS AND PROBABILITY	X						X			X X		
STANDARD S1: UNIVARIATE DATA - EXAMINING DISTRIBUTIONS							X					
SPUD1.3 The Normal Distribution							X					
SPUD1.3.2 Describe characteristics of the normal distribution including its shape and the relationships among its m and mode.							X					
STANDARD S3: SAMPLES, SURVEYS, AND EXPERIMENTS										X		
SPSS3.1 Data Collection and Analysis										X		
SPSS3.1.2 Identify possible sources of bias in data collectio sampling methods and simple experiments; describe h can be reduced and controlled by random sam impact of such bias on conclusions mad and know the effect of replicati										X		
STANDARD S4: PROBABILITY MODELS AND PROBABILITY CALCULATION	X									X		
SPRMFC4.2 Application and Representation	X									X		
SPRMFC4.2.1 Compute probabilities of events using tree diag formulas for combinations and permutations, Venn dia other counting techniques										X		
SPRMFC4.2.2 Apply probability concepts to practical situatio such settings as finance, health, ecology, or epidemio informed decisions	X											