

# The Asian International School Curriculum Mapping

Grade: 12 (TOEFL-Intermediate)

Subject: Mathematics

School Year: 2018-2019

Month	# of Days	Core Standard	Strand	Content	Skills	Activities	Assessments
Aug.	4	AERO. 8.F.5	Patterns, Functions and Algebra	<p><b>Chapter 1: Graphical Applications of the Derivative</b></p> <p><b>Unit 1: Increasing and Decreasing Functions</b></p> <ul style="list-style-type: none"> <li>• Definitions</li> <li>• Definition of monotonicity</li> <li>• Theorems on the sign of derivatives</li> <li>• Rules for assessing monotonicity of a function</li> </ul>	<ul style="list-style-type: none"> <li>• Identify intervals on which a given function is increasing or decreasing.</li> <li>• Identify when a function is monotonic or not.</li> <li>• Explain the difference between monotonic and non-monotonic functions.</li> <li>• State and explain the fundamental theorems on the sign of the derivative.</li> </ul>	<ul style="list-style-type: none"> <li>• Group Work</li> <li>• Mini-Research Projects</li> <li>• Computer Projects</li> <li>• Worksheets</li> </ul>	<ul style="list-style-type: none"> <li>• Group Presentations</li> <li>• Individual Presentations</li> <li>• Worksheets</li> </ul>
Sept.	4	AERO.HSA.S SE.3	Patterns, Functions and Algebra	<p><b>Chapter 1: Graphical Applications of Differentiation</b></p> <p><b>Unit 2: Extrema of a function</b></p> <ul style="list-style-type: none"> <li>• Definitions</li> <li>• Maximum</li> <li>• Minimum</li> <li>• Sufficient condition for a function to attain extrema</li> <li>• Rules for finding extrema</li> <li>• Absolute maximum and minimum</li> <li>• Rules for finding absolute maximum and minimum</li> </ul>	<ul style="list-style-type: none"> <li>• Define a maximum (local and absolute) and give examples.</li> <li>• Define a minimum (local and absolute) and give examples.</li> <li>• State the necessary conditions for a function to attain an extremum.</li> <li>• Explain how extrema helps us solve certain problems in physics.</li> </ul>	<ul style="list-style-type: none"> <li>• Group Work</li> <li>• Mini-Research Projects</li> <li>• Computer Projects</li> <li>• Worksheets</li> </ul>	<ul style="list-style-type: none"> <li>• Group Presentations</li> <li>• Individual Presentations</li> <li>• Worksheets</li> </ul>

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	4	AERO.HSF.1 F.7	Patterns, Functions and Algebra	<b>Chapter 1: Graphical Applications of Differentiation</b> <b>Unit 3: Assessing and Graphing functions</b> <ul style="list-style-type: none"> <li>• Asymptote</li> <li>• Definition of asymptote (vertical and horizontal)</li> <li>• How to find asymptote</li> <li>• Graphing functions with asymptotes</li> <li>• Graphing functions</li> <li>• Assessing some polynomials and rational functions</li> <li>• Graph polynomials and rational functions</li> </ul>	<ul style="list-style-type: none"> <li>• Understand and identify asymptotes.</li> <li>• Know the difference between vertical, horizontal, and oblique asymptotes.</li> <li>• Explain how the combination of lessons 1, 2, and 3 help us graph most functions.</li> <li>• Explain how graphing functions helps us solve problems in geometry, physics, and other subjects.</li> </ul>	<ul style="list-style-type: none"> <li>• Group Work</li> <li>• Mini-Research Projects</li> <li>• Computer Projects</li> <li>• Worksheets</li> </ul>	<ul style="list-style-type: none"> <li>• Group Presentations</li> <li>• Individual Presentations</li> <li>• Worksheets</li> </ul>

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Oct.	4		Patterns, Functions and Algebra	<p><b>Chapter 1: Graphical Applications of Differentiation</b></p> <p><b>Unit 4: Comprehensive Project</b></p> <ul style="list-style-type: none"> <li>Comprehensive group project intended to demonstrate the student's comprehensive understanding and functional knowledge of the material from Chapter 1.</li> </ul>	<ul style="list-style-type: none"> <li>Students will demonstrate their functional knowledge of the material from Chapter 1.</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive Group Project</li> <li>Preferred for the students to do the project outside of class and present their results to the class.</li> </ul>	<ul style="list-style-type: none"> <li>Presentation of the Group Project to the class.</li> </ul>
	2		Patterns, Functions and Algebra	<p><b>Review for Midterm Exam</b></p>	<p><b>Chapter 1: Graphical Applications of Differentiation</b></p> <ul style="list-style-type: none"> <li>Unit 1: Increasing and Decreasing Functions</li> <li>Unit 2: Extrema of a function</li> <li>Unit 3: Assessing and Graphing functions</li> </ul>		
<b>MIDTERM EXAM</b>							

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Nov.	3	I.3.C.4	Patterns, Functions and Algebra	<b>Chapter 2: Integrals</b> <b>Unit 1: Indefinite Integrals (Antiderivatives)</b> <ul style="list-style-type: none"> <li>• Definition</li> <li>• Indefinite Integrals of common functions</li> <li>• Indefinite integrals of the trigonometric functions</li> </ul>	<ul style="list-style-type: none"> <li>• Understand that antiderivative and indefinite integral are two names for the same mathematical concept.</li> <li>• Understand that the integral undoes the derivative.</li> <li>• Understand that integral is the common term used throughout mathematics.</li> <li>• Understand how to take integrals of common functions.</li> </ul>	<ul style="list-style-type: none"> <li>• Group Work</li> <li>• Mini-Research Projects</li> <li>• Computer Projects</li> <li>• Worksheets</li> </ul>	<ul style="list-style-type: none"> <li>• Group Presentations</li> <li>• Individual Presentations</li> <li>• Worksheets</li> </ul>
	5	I.3.C.1	Patterns, Functions and Algebra	<b>Chapter 2: Integrals</b> <b>Unit 2: Techniques of Integration</b> <ul style="list-style-type: none"> <li>• u-substitution</li> <li>• Integration by parts</li> </ul>	<ul style="list-style-type: none"> <li>• Understand how to use u-substitution and integration by parts to take some integrals.</li> </ul>	<ul style="list-style-type: none"> <li>• Group Work</li> <li>• Mini-Research Projects</li> <li>• Computer Projects</li> <li>• Worksheets</li> </ul>	<ul style="list-style-type: none"> <li>• Group Presentations</li> <li>• Individual Presentations</li> <li>• Worksheets</li> </ul>
Dec.	2	I.3.C.2	Geometry	<b>Chapter 2: Integrals</b> <b>Unit 3: Definite Integrals</b> <ul style="list-style-type: none"> <li>• Definitions</li> <li>• Area under a curve</li> <li>• Area between two curves</li> </ul>	<ul style="list-style-type: none"> <li>• Understand how to apply the lessons in unit 1 to the calculation of definite integrals.</li> </ul>	<ul style="list-style-type: none"> <li>• Group Work</li> <li>• Mini-Research Projects</li> <li>• Computer Projects</li> <li>• Worksheets</li> </ul>	<ul style="list-style-type: none"> <li>• Group Presentations</li> <li>• Individual Presentations</li> <li>• Worksheets</li> </ul>

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	2		Patterns, Functions and Algebra  Geometry	<p><b>Chapter 2: Integrals</b></p> <p><b>Unit 4: Comprehensive Project</b></p> <p>Comprehensive group project intended to demonstrate the students comprehensive understanding and functional knowledge of the material from Chapter 2.</p>	<ul style="list-style-type: none"> <li>Students will demonstrate their functional knowledge of the material from Chapter 2.</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive Group Project</li> <li>Preferred for the students to do the project outside of class and present their results to the class.</li> </ul>	<ul style="list-style-type: none"> <li>Presentation of the Group Project to the class.</li> </ul>
	2		Patterns, Functions and Algebra  Geometry	<p><b>Review for Final Exam</b></p>	<p><b>Chapter 2: Integrals</b></p> <ul style="list-style-type: none"> <li>Unit 1: Indefinite Integrals (Antiderivatives)</li> <li>Unit 2: Techniques of Integration</li> <li>Unit 3: Definite Integrals</li> </ul>		
<b>FINAL EXAM</b>							