Long Term Plan Prepared by: Hifzurarhman Patel

| Course: M CV4U (Vectors and Calculus) |  | Teacher: Br. Hifzurrahman |  |
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|  |  | Course Textbook: Calculus and Vectors (Nelson) |  |
| Periods | Section |  | Homework |
| Chapter 1: Introduction to Calculus |  |  |  |
| 1 | 1.1 Radical Expressions: Rationalizing Denominators |  | Pg. 9 \#1-7 |
| 1 | 1.2 The Slope of a Tangent |  | pg. 20 \#4,5,8-11.20,21 |
| 1 | 1.3 Rates of Change |  | Pg. 29 \#1-4,7,13,15 |
| 1 | 1.4 Limit of a Function |  | Pg. 37 \#1,3,5,6-13 |
| 1 | 1.5 Properties of Limits |  | Pg. 45 \#4-6,7-10(odd), 16 |
| 1 | 1.6 Continuity |  | Pg. 51 \#1,2,4,5,11,14-16 |
| 1 | Chapter Review |  |  |
| 1 | Test 1 |  |  |
| Chapter 2: Derivatives |  |  |  |
| 1 | 2.1 The Derivative Function |  | pg 73 \#1-3,6,7,11,14,20 |
| 1 | 2.2 The Derivative of Polynomial Functions |  | Pg 82 \#5,11,12,18,25 |
| 1 | 2.3 The Product Rule |  | Pg. 90 \#1,2,4,5,6-8,10 |
| 1 | 2.4 The Quotient Rule |  | Pg. 97 \#2,3,6-8,9,4,5, |
| 1 | 2.5 The Derivative of Composite Functions |  | 105 \#4,5,6-9,15,17-19 |
| 1 | Chapter Review |  |  |
| 1 | Test 2 |  |  |

Chapter 3: Derivatives and their Applications

| 1 | 3.1 Higher Order Derivatives, Velocity, \& Acceleration | Pg. 127 \#1-5,9-11,15 |
| :---: | :---: | :---: |
| 1 | 3.2 M inimum and M aximum on an Interval | pg 135 \#1,2, 3-4 (a,c,e), 7-9 |
| 2 | 3.3 Optimization Problems | pg 145 \#1, 3-7, 10, 20 |
| 1 | 3.4 Optimization Problems in Economics \& Science | pg 151 \#1-7, 13 |
| 1 | Chapter Review |  |
| 1 | Twiz |  |
| Chapter 4: Curve Sketching |  |  |
| 1 | 4.1 Increasing and Decreasing Function | pg 169 \#1, 3(a,b), 5-6, 9, 11 |
| 1 | 4.2 Critical Points, Local M axima and M inima | pg 178 \#2-5, 7 (a,c,f), 8, 15 |
| 1 | 4.3 Vertical and Horizontal Asymptotes | $\begin{aligned} & \text { pg } 193 \text { \#1-3 4(a,c), 5(d), 7(d), } \\ & 10(a, b), 17 \end{aligned}$ |
| 1 | 4.4 Concavity and Points of Inflection | pg 205 \#1-5, 8, 914 |
| 1 | 4.5 An Algorithm for Curve Sketching | pg 212 \#3, 4, 6, 7, 10(b) |
| 1 | Chapter Review |  |
| 1 | Test 3 |  |
| Chapter 5: Derivatives of Exponential \& Trigonometric Functions |  |  |
| 1 | Review of prerequisite skills | Pg224 \#1-11 |
| 1 | 5.1 Derivative of Exponential Functions | pg 232 \#1, 2-4 (e.0.0), 5a, 12, 13, 17a |
| 1 | 5.2 Derivative of the General Exponential Function | pg 240 \#1-8 |
| 1 | 5.3 Optimization Problems Involving Exponentials | pg 245 \#2a, 3-6, 8-9, 11-12 |
| 1 | 5.4 Derivative of $y=\sin x$ and $y=\cos x$ | pg 256 \#1, 2, 3(c, f), 4a, 5-6(a,c), 14 |
| 1 | 5.5 The Derivative of $\mathrm{y}=\tan \mathrm{x}$ | pg 260 \#1-11 |
| 1 | Chapter Review |  |
| 1 | Test 4 |  |


| Chapter 6: An Introduction to Vectors |  |  |
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| 1 | 6.1 Introduction to Vectors | Pg 279 \#1, 2, 4-9, 11 |
| 1 | 6.2 Vector Addition | pg 290 \#1-7, 12, 17 |
| 1 | 6.3 M ultiplication of a Vector by a Scalar | Pg 298 \# 1-4, 5(a,b), 7, 13-15 |
| 1 | 6.4 Properties of Vectors | Pg 306 \#1, 3, 5-9 |
| 1 | 6.5 Vectors in R2 and R3 | pg 316 \#1, 2b, 3, 4, 6, 8, 10(a,b), 15, 16 |
| 1 | 6.6 Operations with Algebraic Vectors in R2 | Hwk: pg 324 \#1-8, 10, 13, 16 |
| 1 | 6.7 Operations with Vectors in R3 | Hwk: pg 332 \#1-12 |
| 1 | 6.8 Linear Combinations and Spanning Sets | pg 340 \#1-13 |
| 1 | Chapter Review |  |
| 1 | Test 5 |  |
| Chapter 7: Applications to Vectors |  |  |
| 1 | 7.1 Vectors as Forces | $\begin{aligned} & \text { pg } 362 \text { \#2, } 3,5,6,8,10,11,13 \text {, } \\ & 14,16-17 \end{aligned}$ |
| 1 | 7.2 Velocity | pg 369 \#1-8 |
| 1 | 7.3 The Dot Product of Two Geometric Vectors | pg 377 \# 1, 2, 5, 6-7 (odd), 8, 9, 11, 12 |
| 1 | 7.4 The Dot Product of Algabraic Vectors | pg 385 \#1, 2, 4, 6-8, 10, 11 |
| 1 | 7.5 Scaler and Vector Projections | pg 399 \#1, 3, 5, 7, 11, 13 |
| 1 | 7.6 The Cross Product of Two Vectors | pg 407 \#4, 5, 8, 9, 11 |
| 1 | 7.7 Applications of the Dot Product and Cross Product | pg 414 \#2, 3(b,c,d), 5, 7, 8, 10 |
| 1 | Chapter Review |  |
| 1 | Test 6 |  |
| Chapter 8: Equations of Lines and Planes |  |  |
| 1 | 8.1 Vector and Parametric Equations of a Line | Pg 433 \#1-7, 12 |
| 1 | 8.2 Cartesian Equation of a Line | pg 443 \#1-10 |
| 1 | 8.3 Vector, Parametric \& Symmetric Eqn of a Line | pg 449 \#1-10, 12 |
| 1 | 8.4 Vector \& Parametric Equations of a Plane | pg 459 \#1-7 |
| 1 | 8.5 Cartesian Equation of a Plane | pg 468 \#1-6, 9, 13 |
| 1 | 8.6 Sketching Planes in R3 |  |
| 1 | Chapter Review |  |
| 1 | Test 7 |  |
| Chapter 9: Relationships between Points, Lines \& Planes |  |  |
| 1 | 9.1 Intersection of a Line with a Plane \& Two Lines | Pg 496 \#1-9, 17 |
| 1 | 9.2 Systems of Equations |  |
| 1 | 9.3 The Intersection of Two Planes |  |
| 1 | 9.4 The Intersection of Three Planes |  |
| 1 | 9.5 The Distance from Point to a Line in R2 and R3 |  |
| 1 | 9.6 The Distance from a Point to a Plane |  |
| 1 | Chapter Review |  |
| 1 | Test 8 |  |

