Prerequisite:Algebra

Text: Calculus (Early Transcendenta Re) Edition, by James Stewart, 20,1 Thomson Brooks/ColdeSBN 978-0-538-49790-9.

HOURS	TOPICS	SECTION
2-2	Real Numbers, Sets, Inequalities, Absolute Value	Appendix A
1-3	Coordinate Geometry and Lines	Appendix B
1-4	Trigonometry	Appendix D
1-5	Function Concept and Representations; Domain and Ra	anige
1-6	Essential Elementary Functions; New Functions from O	1.2-1.3
2-8	ExponentialsInverse Functions and Logarithms	1.5,1.6
1-9	Limit Concept; Limicalculation Laws	2.1-2.3
1-10	Continuity	2.5
1-11	Limits at Infinity; Horizontal Asymptotes	
4.40	Derivetives on Eventions	0.0
1-13	Derivatives as Functions	2.8
1-14	Derivatives of Polynomials and Exponential Functions	3.1
1-15	Product and Quotient Rules	3.2
1-16	Derivatives of Trigonometric Functions	3.3
2-18	The Chain Rule	3.4
1-19	Implicit Differentiation	3.5
1-20	Logarithmic Differentiation	3.6
2-22	Related Rates	3.9
2-24	Linear Approximations; Differentials; Error Estimation	3.10
1-25	Derivatives of Hyperbolic Functions	3.11
1-26	Maximum and Minimum Values; Main Value Theorem	4.1-4.2
1-27	How Derivatives Affect Graph Shapes	4.3
1-28	Indeterminate Forms and L'Hospital's Rule	4.4
1-29	Curve Sketching	4.5
2-31	Optimization Problems	4.7
1-32	Newton's Method	4.8
1-33	Anti-derivatives	4.9
1-34	Areas and Distances	5.1
1-35	The Definite Integral	5.2
1-36	The Fundamental Theorem of Calculus	5.3
1-37	Indefinite Integrals and Net Change Theorem	5.4
1-38	The Substitution Rule (Change of Variable)	5.5
2-40	Integration by Parts	7.1
5-45	Reviews, Exams, Holidays	

- Be able to set up and solve optimization problems using calculus methods.
- Be able to describe Newton's method geometrically, and to use it to iteratively approximate the zeros of functions.
- Define what the antiderivative of a function is, and be able to find it for reasonable functions.

Integral Calculus

- Describe the onnection between the problems of finding areas and distances travelled, and how both problems lead to the same limit.
- Explain what a Riemann sum is, what a definite integral is, and be able to work with the properties of definite integrals.
- State the Fundamental Theorem of Calculus in words, describe how it connects integral and differential calculus, and how it helps in finding antiderivatives and in evaluating definite integrals.
- Define the indefinite integral of a function and state itsticen to the antiderivative.
- Describe the Total Change Theorem, and give examples of how it is used in applications.
- Recognize the Substitution Rule as an integral version of the chain rule, and be able to use the Substitution Rule to evaluate definite and indefinite integrals, and to extend the collection of functions that we can integrate.
- Recognize integration by parts as the integral version of the product rule, and be able to use it to evaluate appropriate integrals.