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SUGGESTED FOR
MTH 32
ANALYTIC GEOMETRY II & CALCULUS II**

Textbook: Calculus, 6th Ed.
Author: James Stewart

CODE NO. TITLE
Chapter 6: Applications of Integration

APPLICATIONS OF INTEGRATION

CALCULUS TELECOURSE (SERIES) - 30 min ea. c1973-1974

DVD710.1 6.1 THE AREA BETWEEN TWO CURVES
DVD710.2 6.2 VOLUME (Shells)

CACULUS (SERIES) - 20 min ea. c1989

Chapter 7: Inverse Functions

CALCULUS (SERIES) - 20min ea. c1989

V1377.10 DERIVATIVES OF TRIGONOMETRIC FUNCTIONS
V1377.11 7.2 EXPONENTIAL FUNCTIONS
V1377.12 7.2 DERIVATIVES OF EXPONENTIAL FUNCTIONS
V1377.29 7.3 LOGARITHMIC FUNCTIONS
V1377.30 7.4 DERIVATIVES OF LOGARITHMIC FUNCTIONS
V1377.34 7.6 INVERSE TRIGONOMETRIC FUNCTIONS
V1377.48 7.8 L'HOSPITAL'S RULE
V1377.49 EXTENSIONS OF L'HOSPITAL'S RULE

V2233.7 TRANSCENDENTAL FUNCTIONS (Pt. 1) - 60min, c1991

***THE NATURAL LOGARITHM FUNCTION**
***INVERSE FUNCTIONS**
***EXPONENTIAL FUNCTIONS**
***APPLICATIONS**

V2233.8 TRANSCENDENTAL (Pt. 2) - 60min, c1991

***INVERSE TRIGONOMETRIC FUNCTIONS - DIFFERENTIATION,
INTEGRATION AND COMPLETING THE SQUARE**
***HYPERBOLIC FUNCTIONS**

Chapter 8: Techniques of Integration

CALCULUS (SERIES)– 20 min. ea. c1989

TECHNIQUES OF INTEGRATION

V1377.33	8.1	INTEGRATION BY PARTIAL FUNCTIONS
V1377.37	8.3	INTEGRATION USING TRIGONOMETRIC SUBSTITUTION
V1377.36	8.4	INTEGRALS INVOLVING INVERSE TRIGONOMETRIC FUNCTIONS
V1377.47	8.8	IMPROPER INTEGRALS

FURTHER APPLICATIONS OF INTEGRALS

V1377.41	DEFINITE INTEGRAL AND ARC LENGTH
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PARAMETRIC EQUATIONS & POLAR COORDINATES

V1377.50	POLAR COORDINATES
V1377.51	AREA USING POLAR COORDINATES

CALCULUS (SERIES)– 20 min. ea. c1989

V1377.1	DEFINITION OF LIMIT
V1377.2	THE LIMIT THEOREM
V1377.3	LIMITS AT INFINITY
V1377.4	CONTINUITY
V1377.5	THE TANGENT PROBLEM
V1377.6	THE DERIVATIVE
V1377.7	DERIVATIVES OF POLYNOMIALS
V1377.8	PRODUCT AND QUOTIENT RULES FOR DERIVATIVES
V1377.9	THE CHAIN RULE FOR DERIVATIVES
V1377.10	DERIVATIVES OF TRIGONOMETRIC FUNCTIONS
V1377.11	EXPONENTIAL FUNCTIONS
V1377.12	DERIVATIVES OF EXPONENTIAL FUNCTIONS
V1377.13	DERIVATIVES AND CURVE SKETCHING
V1377.14	MAXIMUM-MINIMUM PROBLEMS
V1377.15	ABSOLUTE MAXIMA AND MINIMA
V1377.16	APPLIED MAXIMUM AND MINIMUM PROBLEMS
V1377.17	IMPLICIT DIFFERENTIATION
V1377.18	DIFFERENTIALS
V1377.19	NEWTON'S METHOD
V1377.20	VELOCITY, ACCELERATION, RELATED RATES
V1377.21	ANTIDERIVATIVES
V1377.22	THE INDEFINITE INTEGRAL
V1377.23	THE AREA PROBLEM
V1377.24	DEFINITE INTEGRALS AND AREAS
V1377.25	FUNDAMENTAL THEOREM OF CALCULUS

CALCULUS (SERIES) (Cont'd)

V1377.26	PROPERTIES OF THE DEFINITE INTEGRAL
V1377.27	COMPUTING AREAS
V1377.28	INTEGRALS OF TRIGONOMETRIC FUNCTIONS
V1377.29	LOGARITHMIC FUNCTIONS
V1377.30	DERIVATIVES OF LOGARITHMIC FUNCTIONS
V1377.31	INTEGRALS OF EXPONENTIAL FUNCTION
V1377.32	INTEGRALS BY PARTIAL FRACTION FUNCTIONS
V1377.33	INTEGRATION BY PARTS
V1377.34	INVERSE TRIGONOMETRIC FUNCTIONS
V1377.35	DERIVATIVES OF INVERSE TRIGONOMETRIC FUNCTIONS
V1377.36	INTEGRALS INVOLVING INVERSE TRIGONOMETRIC FUNCTIONS
V1377.37	INTEGRALS USING TRIGONOMETRIC SUBSTITUTIONS
V1377.38	INTEGRALS WITH QUADRATIC DENOMINATORS
V1377.39	INTEGRALS OF POWERS OF TRIGONOMETRIC FUNCTION
V1377.40	DEFINITE INTEGRAL AND VOLUME
V1377.41	DEFINITE INTEGRAL AND ARC VOLUME
V1377.42	CYLINDRICAL SHELLS
V1377.43	DEFINITE INTEGRAL AND WORK
V1377.44	MOMENTS AND CENTROIDS
V1377.45	TRAPEZOIDS RULE
V1377.46	SIMPSON'S RULE
V1377.47	IMPROPER INTEGRALS
V1377.48	L'HOSPITAL'S RULE
V1377.49	EXTENSIONS OF L'HOSPITAL'S RULE
V1377.50	POLAR COORDINATES
V1377.51	AREA USING POLAR COORDINATES
V1377.52	INDEFINITE SEQUENCES
V1377.53	INFINITE SERIES
V1377.54	SERIES OF POSITIVE TERMS
V1377.55	RATIO TEST
V1377.56	LINER APPROXIMATIONS
V1377.57	TAYLOR'S THEOREM

INTEGRATION TECHNIQUES – 60min, c1991

V2233.10	BASIC INTEGRATION FORMULAS
8.1	INTEGRATION BY PARTS
	TRIGONOMETRIC INTEGRALS

INTEGRATION (PT. I) – 30min, c1991

V2233.5	ANTIDERIVATIVES & INDEFINITE INTEGRATION AREA
	RIEMANN SUMS & THE DEFINITE INTEGRAL

V2233.6 **INTEGRATION (PT. II)** – 30min, c1991
FUNDAMENTAL THEOREM OF INTEGRAL CALCULUS
8.3 **INTEGRATION BY SUBSTITUTION**

Chapter 9: Further Applications of Integrals

FURTHER APPLICATIONS OF INTEGRALS

V1377.40 **DEFINITE INTEGRAL & VOLUME** – 22min, c1989

V1377.41 **DEFINITE INTEGRAL & ARC LENGTH** – 15min, c1989

Chapter 11: Parametric Equations & Polar Coordinates:

EDUCATIONAL VIDEO SERIES (TRIGONOMETRY)

DVD770.4 **11.3** **POLAR COORDINATES** – 29min, c1988

CALCULUS (SERIES)

V1377.50 **11.3** **POLAR COORDINATES** – 16min, c1989

V1377.51 **11.4** **AREA USING POLAR COORDINATES** – 13min, c1989

Bronx Community College of the City University of New York
Department of Mathematics and Computer Science

SYLLABUS: Math 32 – Calculus and Analytic Geometry II (4 credits/ 6 hours per week)

PREREQUISITE: Math 31 or equivalent

TEXT: Calculus (Sixth Edition) by James Stewart, published by Brooks/Cole.

Students who do not need Math 33 may use Single Variable Calculus (Sixth Edition) by James Stewart, published by Brooks/Cole.

<u>SECTION</u>	<u>TOPIC</u>	<u>SUGGESTED EXERCISES</u>
<u>Chapter 6: Applications of Integration</u>		
6.1	Areas between Curves	pg. 352: 1–29 odd
6.2	Volumes	pg. 362: 1–35 odd, 56-62
6.3	Volumes by Cylindrical Shells	pg. 368: 1–25 odd
	Review	pg. 378: 1, 7, 9, 15, 23, 25
<u>Chapter 7: Inverse Functions</u>		
7.1	Inverse Functions	pg. 391: odd 1–15, 23-27, 33- 41
	Instructor's option: 7.2-7.4 or 7.2*-7.4*	
7.2	Exponential Functions and Their Derivatives	pg. 402: 1, 7–13 odd, 23–45 odd, 73-81 odd
7.3	Logarithmic Functions	pg. 409: 1–17 odd, 25–33 odd, 45, 47, 49
7.4	Derivatives of Logarithmic Functions	pg. 419: 1–29 odd, 41–51 odd, 69–79 odd
7.2*	The Natural Logarithmic Function	pg. 428: 1-35 odd, 59-71 odd
7.3*	The Natural Exponential Function	pg. 435: 5-11 odd, 27-47 odd, 75-83 odd
7.4*	General Logarithmic and Exponential Functions	pg. 445: 1-9 odd, 21-41 odd, 45-49 odd
7.6	Inverse Trigonometric Functions	pg. 461: 5–13 odd, 23–35 odd, 43, 45, 59–69 odd
7.7	Hyperbolic Functions	pg. 468: 7–23 odd, 31–47 odd, 57–65 odd
7.8	Indeterminate Forms and L'Hospital's Rule	pg. 478: 1–4, 5–63 odd, 93, 94, 95
	Review	pg. 483: 5–47 odd, 63–77 odd, 93–105 odd
<u>Chapter 8: Techniques of Integration</u>		
8.1	Integration by Parts	pg. 493: 1–37 odd, 43–52
	Instructor's option: 8.4 can be done immediately after 8.1.	
8.2	Trigonometric Integrals	pg. 501: 1–31 odd
8.3	Trigonometric Substitution	pg. 508: 1–29 odd

8.4	Integration of Rational Functions by Partial Fractions	pg. 517: 1–29 odd, 39–49 odd
8.5	Strategy for Integration	pg. 524: 1–57 odd
8.8	Improper Integrals Review	pg. 551: 1, 5–31 odd, optional 49–54 pg. 554: 1–25 odd, 41–49 odd

Chapter 9: Further Applications of Integrals

9.1	Arc Length	pg. 566: 1–17 odd
9.2	Area of a Surface of Revolution	pg. 573: 1–15 odd, 25

Chapter 11: Parametric Equations and Polar Coordinates

11.3	Polar Coordinates	pg. 683: 1–11 odd, 15–25 odd 29–47 odd
11.4	Areas and lengths in Polar Coordinates	pg. 689: 1–31 odd, optional 45–48
11.5	Conic Sections	pg. 696: 1–47, odd
Section 11.6 is an instructor's option.		
11.6	Conic Sections in Polar Coordinates Review	pg. 704: 1–15 odd pg. 706: 9–15 odd, 31–39 odd, 45–55 odd

Remark: Some elements of sections 11.1 and 11.2 can be discussed as a general introduction to the curves covered in Chapters 9 and 11.

5/08 I.P.