

College of Science  
Department of Mathematics  
**(M-106) Integral Calculus**  
First Semester (1435/1436)

**Book:** Calculus by Swokowski, Olinick, Pence (Sixth Edition)

Section	Topic	Exercise
4.1	Antiderivatives and Indefinite Integrals	1,5,7,11,14,15,17,23,27,29,35,41,43,49
4.2	Change of Variables in Indefinite Integrals	1,3,5,7,9,16,20,21,27,32,37
4.3	Summation Notation and Area	1,2,3,5,6,9,12,27,37
4.4	The Definite Integral	1,5,10,11,15,16,19,20,31,33,37
4.5	Properties of the Definite Integral	7,10,11,12,15,17,22,23,25,29,34
4.6	The Fundamental Theorem of Calculus	1,7,8,9,11,12,13,15,16,17,21,29,32,36,45,47
4.7	Numerical Integration	15,16,17,18,33,34
6.2	The Natural Logarithm Function	3,5,9,11,32,35,39,41,42
6.3	The Exponential Function	1,3,6,11,15,31,33
6.4	Integration Using Natural Logarithm and Exponential Function	1,3,6,11,15,18,19,30,31
6.5	General Exponential and Logarithmic Functions	1,5,15,17,23,29,37,39,41,42
6.7	Inverse Trigonometric Functions	31,33,37,43,51,52,56,57,60,61,62
6.8	Hyperbolic and Inverse Hyperbolic Functions	19,20,21,28,29,61,63,65,67,73,74,75,79,80
6.9	Indeterminate Forms and l'Hopital's Rule	49,51,57,58,59,64,65,74,76
7.1	Integration by parts	1,2,7,11,12,13,16,17,31
7.2	Trigonometric Integrals	1,3,4,5,7,9,11,13,15
7.3	Trigonometric Substitutions	1,3,5,7,9,10,21,22
7.4	Integrals of Rational Functions (Partial fractions)	1,2,5,6,9,11,25
7.5	Quadratic Expressions and Miscellaneous Substitutions	1,3,5,6,10,11,12,25,26,27,28,32,47,48,49,50
7.7	Improper Integrals	1,2,4,7,13,14,15,17
5.1	Area Between Curves	5,6,9,10,11,12,14,27,28,31
5.2	Volume (By Disk or Washer)	5,6,8,9,21,25
5.3	Volume (By Cylindrical Shells)	5,6,7,11,13,15,17,19,21
5.5	Arc Length and Surfaces of Revolution	5,7,11,12,13,29,30,32,35,36,42
9.1	Parametric Equations	1,3,5,7,25
9.2	Arc Length and Surface Area	1,5,7,9,21,23,29,31,33,35,37
9.3	Polar Coordinates	1,2,3,5,7,9,27,31,33,37,38,51,53,59
9.4	Integrals in Polar Coordinates	1,3,18,19,22,23,27,30,35,37
<p><b>NOTE:</b> Exercises for each section will be given during lectures. All exercises should be solved before or during tutorials.</p>		



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**Exams and Marks:**

Exam (1): Mid-Term (1) .....	25%
<b>Sections: 4.1 – 6.8</b>	
Exam (2): Mid-Term (2) .....	25%
<b>Sections: 6.9- 5.1</b>	
Final Exam .....	40%
<b>All sections</b>	
Tutorial .....	10%
Total .....	100%

**Note:**

1. There is a lecture note called Integral Calculus M-106 Dr. Muhammad Asif Qureshi. Students can find it in the photocopy shop in building 4.
2. Programmed calculator are not allowed.
3. Students who exceed the absence rate (25%) are not allowed to attend the final exam.