

**SYLLABUS**  
**IT 307-APPLIED CALCULUS FOR TECHNOLOGY**  
(Revised for 9<sup>th</sup> Edition Text)

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Course Description: Application of mathematical techniques to technology problems, including formulation, analysis, and problem solution. Techniques of differentiation, min-max problems, and integration will be discussed.

Textbook: *CALCULUS for Business, Economics, and the Social and Life Sciences*, Hoffman and Bradley, McGraw Hill, 9th Ed.

Equipment: A scientific calculator with exponential function capability is required.

Course Objectives: Develop the ability to apply advanced mathematical techniques to technology and business problems. This includes the development of advanced mathematics and its use as a tool in the solution of practical problems. This also includes the ability to analyze and formulate a problem into mathematical terms so that the tools of calculus can be used in its solution.

Evaluation of Student Performance: Three tests and a final exam will be given. All of these will be heavily based on assigned homework problems. At least 70% of each test, including the final exam, will be taken directly from the homework. The attached assignment sheet shows the test schedule.

Grades: Letter grades are assigned based on the following averages:

90-100%	A	3 Tests @ 100	300 points
80-90%	B	<u>Final Exam @ 200</u>	<u>200 points</u>
70-80%	C		
60-70%	D	Total	500 points
below 60%	F		

Grading Policy: Missed tests and exams have a 10% penalty when taken late unless an appropriate excuse is provided to the Base Coordinator or instructor prior to the regularly scheduled date for examination. Incomplete grades may be given if conditions warrant and the student contacts the instructor. The deadline for completion is four (4) weeks after the last Sunday of the course. After that the grade will change to an "F".

ASSIGNMENT SHEET  
 IT 307-APPLIED CALCULUS FOR TECHNOLOGY  
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A sound foundation in college algebra is necessary. The credits required for entry into the B.S. in Industrial Technology program are adequate. **If your knowledge of algebra is not current (over two years old) you should review the subject.**

Answers to all odd-numbered problems are given in the back of the text. Since the assigned problems will make up the bulk of the tested material, you should be able to do every problem. Grading emphasis will be on technique as much as on final answers, so your concentration should be on problem solving techniques.

I will provide time in every class to work on problems. For those students that need extra help, I will have help sessions each Saturday after class. I will also be available for extra help at 07:30 AM each class day.

<u>Prior to the First Weekend</u>	<u>Problems</u>
Appendix A1 - Algebra Review	Pages 650 thru 651: Work all odd-numbered problems 1 thru 53.
Appendix A2 - Algebra Review	Pages 658 thru 659: 1, 3, 5, 7, 11, 13, 15, 17, 19, 25, 27, 31, 33, 37, 39, 41  Pages 664 thru 666: Work all odd-numbered problems 1 thru 23 and 31, 33, 35, 37, 43, 45, 47, 49, 55, 57
<u>First Weekend</u>	
Chapter 1    Section 1. Functions	Pages 9 thru 12: 1, 3, 5, 7, 9, 13, 15, 17, 21, 23, 25, 45, 53, 55, 64
Chapter 1    Section 2. Graphs	Pages 22 & 23: 3, 5, 7, 11, 21, 29, 31
Chapter 1    Section 3. Linear Functions	Pages 36 thru 39: 1, 3, 11, 15, 19, 21, 25, 29, 35, 39, 49
Chapter 1    Section 4. Functional Models	Pages 55 thru 61: 1, 3, 5, 7, 25, 27, 29, 33, 45
Chapter 1    Section 5. Limits/Continuity	Pages 69 thru 70: 7, 9, 17, 19, 21

**Test #1 @ 9:00 am Sunday - Appendix and Chapter 1**

Chapter 2	Section 1. The Derivative	Page 108: 1, 3, 5, 7, 21
Chapter 2	Section 2. Differentiation	Pages 121 thru 123: 1, 9, 11, 13, 17, 19, 21, 23, 45, 49, 57
Chapter 2	Section 3. Product and Quotient Rules	Pages 134 thru 135: 1, 3, 5, 7, 9, 11, 13, 15, 21
Chapter 2	Section 5. Chain Rule	Pages 147 thru 149: 1, 3, 5, 7, 11, 13, 17, 19, 21, 25, 59, 61

Second Weekend

**Test #2 @ 10:00 am Saturday - Chapters 2, Sections 1, 2, 3, and 5**

Chapter 3	Section 1. Increasing and Decreasing Functions	Pages 198 thru 200: 1, 3, 9, 11, 13, 23, 25, 27, 33, 35, 37
Chapter 2	Section 6. Second Derivative	Pages 132 thru 135: 43, 45, 47, 55, 61
Chapter 3	Section 2. Concavity	Pages 216 thru 219: 13, 15, 17, 27, 43, 55, 56, 57
Chapter 3	Section 4. Optimization	Pages 249 thru 250: 1, 3, 5, 7, 9, 33

**Test #3 @ 10:00 am Sunday - Through Chapter 3, Section 4**

Chapter 3	Section 5. Practical Optimization	Pages 265 thru 270: 5, 7, 15, 29, 35, 49
Chapter 5	Section 1. Antidifferentiation	Pages 371 thru 374: 1, 3, 5, 11, 13, 15, 19, 41, 63

### Third Weekend

Chapter 5	Section 2. Integration by Substitution	Pages 383 thru 385: 3, 5, 7, 9, 11, 13, 15, 17, 40, 51
Chapter 5	Section 3. The Definite Integral	Pages 399 thru 400: 1, 3, 5, 13, 15, 17, 19, 21, 23, 37
Chapter 5	Section 4. Applying Definite Integration	Pages 416 thru 417: 5, 7, 17
Chapter 5	Section 5. Applications to Business and Economics	Pages 430 thru 432: 20, 21, 25, 33

**Final Exam @ 1:30 pm Sunday - All sections but emphasis on material since the last test.**