Larisa Alikhanova
Spring 2009
Calculus II, Math 256, 4 credit hours

Pre-requisite: Calculus I, MAT 254

Text: Essential Calculus by James Stewart

Supplementary

Material: TI Graphing Calculator is required.

Course Description: The course is continuation of Calculus I. The topics include: areas, volumes, transcendental functions, techniques of integration, applications of integration, parametric equations and polar coordinates, vectors and operations on vectors, sequences and series

Measurements: Quizzes, projects - 15%, each test – 20%, and final exam - 25%.

Attendance: It is very important that you attend **ALL** classes. Your attendance in the classroom, participation in classroom work /projects and preparation for each class is required and is essential to your success in the course.

Support Services: Tutorial services. Meeting with me for an extra help.

Office Hours: M and W, 11:00 a.m. – 12:00 p.m., and T 4:30 p.m. – 5:30 p.m., R 4:30 p.m. – 5:30 p.m.; Phone 885-2375, .**Room C104**
 E-mail lalikhanova@trcc.commnet.edu Check your e-mail regularly for test/quiz/homework announcements. Check you email and MyCommNet for class cancellations.

Disabilities

Statement: Students with disabilities, who may require special accommodations and support services, are encouraged to notify:

1. Chris Scarborough, who is coordinating services to students with disabilities.
2. The instructor during the first two weeks of class.

Course Outline, Content, and Assignments

Section	Topic	Exercises
4.2	Definite Integral (review)	216/15 – 21, 39 – 42
4.3		
4.4	Evaluating definite integrals (review)	225/1 - 27
4.5	The fundamental Theorem of Calculus (review)	234/1 – 11, 19
4.6	Substitution (review)	241/1 – 47
5.2	The natural Logarithmic Function (review)	261/ 13 – 31, 51 – 61
5.3	The Natural exponential function (review)	266/ 21 – 35, 57- 63
5.4	General logarithmic and Exponential Functions	274/ 23 – 45
5.6	Inverse Trigonometric Functions	288/ 17 – 25
5.8	Indeterminate Forms and L'Hospital's Rule	301/1 - 35
6.1	Integration by parts	311/ 1 - 15
6.2	Trigonometric Integrals and Substitution	321/1 – 25, 41 - 53
6.3	Partial Fractions	329/ 1 – 23
6.4	Integration with Tables	336/ 1 – 13
6.5	Approximate integration	345/7 – 13
6.6	Improper integrals	347/5 - 31

TEST

Section	Topic	Exercises
7.1	Areas between curves	363/ 1 – 17
7.2	Volumes	372/ 1 - 11
7.3	Volumes by Cylindrical Shells	378/ 1 - 19
7.4	Arc Length (time permitting)	385/3 – 7
7.5	Applications to Physics and Engineering	396/1 – 9, 21
7.6	Differential Equations	406/ 1 – 13, 37, 39
5.5	Exponential Growth and Decay	281/1, 3, 9

TEST

TEST

QUIZ

 FINAL EXAM

Course Objectives:
Student should be able to:

1. Integrate the functions using substitution, integration by parts, the method of partial fractions, trigonometric substitutions, tables

2. Perform approximate integration

3. Show that the improper integral converges and find its value, or show that it diverges

4. Find the area bounded by the curves.

5. Find the volumes of revolution: disks, washers, and cylindrical shells.

6. Find the arc length.

7. Use integration on varies applications to physics and engineering

8. Find general and particular solution of separable differential equations; first order linear differential equations

9. Determine whether the sequence is convergent or divergent, and find the limit of the convergent sequences.

10. Determine whether the geometric series converges or diverges, and find the sum of each convergent series.

11. Use divergence test, limit comparison test, ratio test, root test, Integral test, direct comparison test to determine whether the series is convergent or divergent.

12. Represent functions as power series, Taylor and Maclaurin series

13. Plot polar-form points.

14. Convert from polar to rectangular coordinates and from rectangular coordinates to polar

15. Find areas and lengths in polar coordinates

16. Graph in polar coordinates.

17. Find the derivative of equations of curves defined by parametric equations.

18. Find the arc length of a curve defined by parametric equations.

19. Perform operations on vectors.

20. Find the standard representative of a vector.

21. Compute a resultant vector.

22. Find the dot and the cross product of two vectors.