SYLLABUS

Embry-Riddle Aeronautical University

Daytona Beach Campus

Course Number:	MA 441
Term:	Fall 2021
Instructor:	Dr. E. Jacobs
Office Hours:	See Canvas site for office hours this week
E-Mail Address:	jacobs50@xecu.net
Office:	COAS 301-36
Course Title:	Advanced Engineering Mathematics I Cr. Hrs. 3
Meetings:	Section 08: MWF 5:45 - 6:35 PM in COAS 126
Recommended Text:	*Advanced Engineering Mathematics* by Dennis Zill and Warren Wright
Course Description:	

Line and surface integrals; vector fields with the study of Green, Gauss and Stokes Theorems; applications of vector field theory; Fourier series.
Prerequisite: MA 243

Goals:

A required course for the Aerospace Engineering, Electrical Engineering and Engineering Physics degrees. MA 441 strives to provide the student with enough mathematical tools to solve problems encountered in his upper level courses.

Performance Objectives: The following is a minimal list of skills that you must attain. The requirements of the course include but are not limited to this list.

1. Calculate the divergence, the curl and the equations of the flow line, given a vector field.
2. Calculate the Laplacian of a scalar-valued function.
3. Prove vector identities involving div, curl and gradient operations.
4. Evaluate the line integral of the vector field over a path, given a vector field and the three-dimensional path.
5. Test whether or not a vector field is conservative.
6. Calculate the scalar potential function for a conservative vector field and use it to evaluate line integrals.
7. Apply these techniques to science and engineering.
8. Calculate the surface integral of a vector field, given the vector field and the equation of the surface or a geometric description of the surface.
9. State and prove the Divergence Theorem, Stokes' Theorem and Green's Theorem.
10. Apply these theorems to the computation of line integrals, surface integrals and volume integrals.
11. Determine the Fourier coefficients of the Fourier series of a given function.
12. See how Fourier series can be applied to the solution of simple partial differential equations with homogeneous boundary conditions.

Grading:

The grade in this course will be computed from homework and exams. There are four exams altogether, including the final exam. All exams are equally weighted.

Exam Average	85%
Assignments	15%

There will be four exams altogether. The fourth exam is the final exam. All exams are equally weighted.

Grade in the course is determined by the following scale:

Avge of HW and Exams:	90 - 100	80 - 89	70 - 79	60 - 69	Below 60
Grade in Course:	A	B	C	D	F

Conduct During Exams:

Students will not be allowed to use any formula sheets or notes on exams. Students may not receive assistance from classmates or attempt to copy the work of a classmate during an exam.

Missed Exams:

A student who misses a regularly scheduled exam may, at the discretion of the instructor, take a make-up exam. However, the student must contact the instructor within 24 hours of the original exam to be eligible for a make-up exam.

Disability Support Services:

Those students who have been appropriately certified by the DSS office may take their exams there. Students will be required to complete all relevant DSS paperwork no later than one week before the exam. Since exams are announced a month in advance, this should pose no hardship to any student.

Homework Assignments:

All homework will be submitted online via Canvas. Write your homework on paper and upload a scanned copy to Canvas. I prefer .pdf format for the file. If your homework is two or more pages long, merge all the scans of your pages into one file before uploading. Make sure that your submitted assignments are legible, clear and concise.

Attendance:

Attendance in class may be recorded but a student's attendance record does count towards the grade.