

**King Fahd University of Petroleum & Minerals**

**Department of Mathematics**

**Math 102 Lab Syllabus, Semester 261**

Coordinator: Dr. Said Algarni (garnis@kfupm.edu.sa)

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**Course Code and Title:** Math 102, Calculus II

**Textbook:** Larson, R. & Edwards, B., Calculus: Early Transcendental Functions, Metric Version, 7th edition, Cengage Learning, Inc., 2019.

**Lab Manual:** Math 102 Lab Manual for MATLAB, Department of Mathematics, KFUPM, 2026.

**Lab Objective:**

1. Familiarize students with MATLAB within the context of integral Calculus
2. Apply techniques of integral Calculus in real-life applications for problem-solving and analysis.

**Grading Policy:**

|            | Date   | Time and Place                           | Material    | Points                     |
|------------|--------|------------------------------------------|-------------|----------------------------|
| Midterm    | 14 Oct | The same regularly scheduled lab section | Lab 1-Lab 7 | 10 points<br>(7 Questions) |
| Final Exam | 9 Dec  |                                          | All Labs    | 20 points<br>(8 Questions) |
| Total      |        |                                          |             | 30 points                  |

**Other Exam Issues:**

- No student will be allowed to take the exam if he/she does not bring his/her KFUPM ID, National/Iqama ID, or Driver's License with him/her to the exam hall.
- Students are not allowed to have their mobile phones, smartwatches, or any other electronic devices in the exam hall. A violation of this will be considered an attempt at cheating.

During lab examinations, students are permitted to use only the following:

- Blackboard (restricted to the exam page only), used to access and submit the exam, and
- Approved software required for the exam (e.g., MATLAB for MATH 102).

Opening any additional Blackboard pages, browser tabs, windows, AI tools, files, or software applications is strictly prohibited.

Any student found in violation of this policy will have their exam immediately terminated, and the incident will be treated as a case of cheating.

**Missing an Exam:** In case a student misses an exam (Midterm or the Final Exam) for a legitimate reason (such as medical emergencies), the student must submit an official excuse approved by the Deanship of Student Affairs within **seven calendar days** of the missed exam date. Without an approved excuse, the student will receive a score of zero for the missed exam. When the excuse is accepted, the coordinator will arrange a makeup exam for the missed exam.

**Attendance:** Students are expected to attend all lab classes.

If a student misses a lab, he/she is responsible for any announcement made in that lab.

**The Usage of Mobiles in Lab:** Students are not allowed to use mobiles for any purpose during lab time. Students who want to use electronic devices to take notes must take permission from their instructor. Violations of these rules will result in a penalty decided by the instructor.

**Academic Integrity:** All KFUPM policies regarding ethics apply to this course. See the Undergraduate Bulletin on the Registrar's website.

### Coverage Plan

| Week                            | Date   | Lab          | Topic                                                                 |
|---------------------------------|--------|--------------|-----------------------------------------------------------------------|
| 1                               | 19 Aug | Lab# 1       | Introduction                                                          |
| 2                               | 26 Aug | Lab# 2       | Areas and Distances                                                   |
| 3                               | 2 Sep  | Lab# 3       | Antiderivatives and The Fundamental Theorem of Calculus               |
| 4                               | 9 Sep  | Lab# 4       | Practical Application I: Circle Area Formula                          |
| 5                               | 16 Sep | Lab# 5       | Practical Application II: Siding a Barn – Part 1                      |
| 23–24 Sep: National Day Holiday |        |              |                                                                       |
| 7                               | 30 Sep | Lab# 6       | Practical Application II: Siding a Barn – Part 2                      |
| 8                               | 7 Oct  | Lab# 7       | Volumes + Practical Application III: Embankments                      |
| 9                               | 14 Oct | Midterm Exam |                                                                       |
| 20–22 Oct: Mid-term break       |        |              |                                                                       |
| 10                              | 28 Oct | Lab# 9       | Arc Length and Surface of Revolution                                  |
| 11                              | 4 Nov  | Lab# 10      | Practical Application IV: Non-Traditional Rotation                    |
| 13                              | 11 Nov | Lab# 11      | Trigonometric Substitution, Partial Fractions, and Improper Integrals |
| 14                              | 18 Nov | Lab# 12      | Sequences + Practical Application V: Recursive Sequences              |
| 22-23 Nov: Autumn break         |        |              |                                                                       |
| 15                              | 25 Nov | Lab# 13      | Series                                                                |
| 16                              | 2 Dec  | Lab# 14      | Practical Application VI: Approximating Series                        |
| 17                              | 9 Dec  | Final Exam   |                                                                       |