湖北工業大學
HUBEI UNIVERSITY OF TECHNOLOGY

Course Title	Calculus II
Course Code	MATH 1112
Semester	Winter 2027
Course Length	4 Weeks, 60 Contact Hours
Credits	4
Instructor	Wang Mei
Office	NO.2 Teaching Building B206
Email	15072447699@163.com
Prerequisite	MATH 1111 Calculus I

Course Description:

Calculus II is a continuation and extension of the topics and concepts introduced in Calculus I. Major emphasis is on the techniques of integration, applications of definite integrals, improper integrals, parametric equations, polar coordinates, and infinite sequences and series including Taylor series. This course provides the essential foundation for subsequent studies in engineering, physics, and advanced mathematics.

Delivery Mode: In-Person, Face-to-Face Instruction

Course Goals:

Students who successfully complete this course will demonstrate competency in the following general education core goals:

- **Critical thinking skills** – Students will engage in creative and/or innovative thinking, and/or inquiry, analysis, evaluation, synthesis of information, organizing concepts, and constructing solutions.
- **Communication skills** – Students will demonstrate effective written, oral, and visual communication.
- **Teamwork** – Students will demonstrate the ability to work effectively with others to support a shared purpose or goal and consider different points of view.
- **Social responsibility** – Students will demonstrate intercultural competency and civic knowledge by engaging effectively in local, regional, national, and global communities.

Student Learning Outcomes:

Upon completion of this course, students will be able to:

- apply the definite integral to finding plane areas, volumes and surface areas of solids, and lengths of curves, and to selected problems in physics.

- learn to differentiate and integrate inverse trigonometric functions;
- learn standard techniques of integration: Integration by parts, integration of powers of trigonometric functions, trigonometric substitution, partial fractions, and selected special substitutions;
- construct Taylor and Maclaurin series for functions and apply them in calculations.

Textbooks/Supplies/Materials/Equipment/ Technology or Technical Requirements:

Robert Smith and Roland Minton, *Calculus (4th edition, early transcendentals functions)*. McGraw-Hill, 2012.

Course Requirements:

Attendance
Students are expected to attend all class meetings. If you must be absent from class, you are expected to complete class requirements (e.g. homework assignments) prior to the absence. If you know you will be absent on the day of a test, you must notify me before the time the test is scheduled to receive permission to take a make-up test. Students who miss a test should provide a valid excuse, otherwise, you will not be allowed to make up the test. There will be no final exam exemptions.

Homework
Students are expected to do their homework and participate in class. Homework exercises help students review and reinforce concepts covered in class. The textbook exercises are arranged in an increasing level of difficulty. All assigned homework exercises must be worked on until successful completion.

Tests
There will be three tests and a comprehensive final examination.

Assessments: Activity	**Percent Contribution**
Attendance	10%
Homework	20%
Tests	45%
Final Exam	25%

Grading:

Final grades will be based on the sum of all possible course points as noted above.

Grade	**Percentage of available points**
A	94-100
A-	90-93
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73

D	64-69
D-	60-63
F	0-59

Course Schedule:
The schedule of activities is subject to change at the reasonable discretion of the instructor. Minor changes will be announced in class, major ones provided in writing.

MATH 1112 Schedule		
Lecture	Topic	Readings
L1	Course Introduction Course Review	---
L2	Applications of the Definite Integral Area Between Curves	Chapter 5
L3	Volume: Slicing, Disks and Washers Volumes by Cylindrical Shells	Chapter 5
L4	Arc Length and Surface Area	Chapter 5
L5	**TEST 1**	---
L6	Integration Techniques Integration by Parts	Chapter 6
L7	Trigonometric Techniques of Integration	Chapter 6
L8	Integration of Rational Functions Using Partial Fractions	Chapter 6
L9	Improper Integrals	Chapter 6
L10	**TEST 2**	---
L11	Sequences and Series	Chapter 8
L12	Sequences of Real Numbers	Chapter 8
L13	Infinite Series	Chapter 8
L14	The Integral and Comparison Tests	Chapter 8
L15	Alternating Series	Chapter 8
L16	Absolute Convergence and the Ratio Test	Chapter 8
L17	Power Series	Chapter 8
L18	Taylor Series	Chapter 8
L19	Applications of Taylor Series	Chapter 8
L20	**TEST 3**	---
L21	Parametric Equations and Polar Coordinates Calculus and Parametric Equations	Chapter 9
L22	Arc Length and Surface Area in Parametric Equations	Chapter 9
L23	Polar Coordinates Calculus and Polar Coordinates	Chapter 9
L24	Area in Polar Coordinates	Chapter 9
L25	**Final Exam**	---

Accommodation Statement:

Academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow.

Academic Integrity Statement

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in coursework may receive a reduced or failing grade for the work in question and/or for the course.

Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Other Items:

Attendance and Expectations
All students are required to attend every class, except in cases of illness, serious family concerns, or other major problems. We expect that students will arrive on time, be prepared to listen and participate as appropriate, and stay for the duration of a meeting rather than drift in or out casually. In short, we anticipate that students will show professors and fellow students maximum consideration by minimizing the disturbances that cause interruptions in the learning process. This means that punctuality is a must, that cellular phones be turned off, and that courtesy is the guiding principle in all exchanges among students and faculty. You will be responsible for the materials and ideas presented in the lecture.

Assignment Due Dates
All written assignments must be turned in at the time specified. Late assignments will not be accepted unless prior information has been obtained from the instructor. If you believe you have extenuating circumstances, please contact the instructor as soon as possible.

Make-Up Work
The instructor will not provide students with class information or make-up assignments/quizzes/exams missed due to an unexcused absence. Absences will be excused and assignments/quizzes/exams may be made up only with written documentation of an authorized absence. Every effort should be made to avoid scheduling appointments during class. An excused student is responsible for requesting any missed information from the instructor and setting up any necessary appointments outside of class.

Access, Special Needs and Disabilities
Please notify the instructor at the start of the semester if you have any documented disabilities, a medical issue, or any special circumstances that require attention, and the school will be happy to assist.