Department of Mathematics and Physics

Course Title:	**Calculus and Analytical Geometry II**
Course Code:	**MAT-130**
Section No:	
Semester:	**Spring 2018**

INSTRUCTOR & DEPARTMENT INFORMATION

Instructor's Name:	Mahboob Shaheen (MS1)
Office Room:	SAC-1034
Office Hours:	8:00 am – 9:35 am (ST), 1:30 pm – 2:00 pm (ST), 12:40 pm – 2:35 pm (MW)
Office Phone:	
Email Address:	mahboob.shaheen@northsouth.edu
Department:	**Mathematics and Physics**
Links:	North South University Website: http://www.northsouth.edu Department Website: http://www.northsouth.edu/academic/seps/mp.html

COURSE & SECTION INFORMATION

Prerequisites	MAT 120
Class Time	(ST)
Location	
Course Credit Hours	3:0
Course Description	This course provides students an overview ofthe basic principle of integral, methodology of finding area between curves, length of a plane curve, surface area and volume by revolving plane curves using integration.
Course Objectives	This course is designed to help students to develop competence in applying the mathematical concepts, skills and techniques learned, to problem-solving situations in the area of engineering.
Student Learning Outcomes	Upon the successful completion of this course, a student will be able to: 1. Apply the basic principle of integration to find the length of a curve, surface area, area between two curves and the volume by revolution of curves. 2. Understand and extend the concept of a definite integral to include infinite intervals of integration and integrands. 3. Have a thorough understanding of the relationship between the exponential and hyperbolic function with their graph and its application in the real life problems. 4. Understand the basic geometric properties of parabolas, ellipses, and hyperbolas. 5. Acquire the prerequisite knowledge and mathematical skills necessary to undertake higher level courses which have a quantitative focus in the engineering problems.

EARNING RESOURCES AND TEXTBOOK(S)

Required Text Book	
Author	Howard Anton, Irl Bivens, Stephen Davis
Title	"Calculus, Early Transcendentals**"**
Edition & Year	10th edition, 2013
Publisher	John Wiley & Sons, Inc
ISBN	978-1-11809240-8

TEACHING STRATEGY

The class will be conducted through various activities including discussion of concepts and problem-solving, student initiative and active involvement as well as practice of quantitative problems. Students are expected to actively involve and to take initiative for their own learning experience.

ASSESSMENT STRATEGY AND GRADING SCHEME	
Grading tool	**Marks**
Class Performance and attendance	10%
Assignment	05%
Quizzes	10%
Midterm I	20%
Midterm II	20%
Final Exam (Common Exam)	35%

Please Refer to NSU Student Handbook, Section: "Grading Policy"

CLASSROOM RULES OF CONDUCT

1. Electronic devices e.g**. cell phone**, **laptop, notepad, iPad, iPod, mp3, etc.** are strictly prohibited in the class.

2. It is imperative that the students maintain absolute discipline in class. Students are also expected to arrive on time for the class, as frequent late attendance will not be accepted.

3. **Academic Integrity Policy:** Department of Mathematics and Physics does not tolerate academic dishonesty by its students. At minimum, students must not be involved in cheating, copyright infringement, submitting the same work in multiple courses, significant collaboration with other individuals outside of sanctioned group activities, and fabrications.

Students are advised that violations of the Student Integrity Code will be treated seriously, with special attention given to repeated offences.

Please Refer to NSU Student Handbook, Sections: "Disciplinary Actions" and "Procedures and Guidelines".

EXAMS & MAKE UP POLICY

Three quizzes will be taken (best **Two** out of **Three** will be considered). **NO makeup for quizzes or midterms will be taken under any circumstances.** If a student misses any of the Midterm exams due to the circumstances beyond their control (official valid documents are required) and informed beforehand (if possible), reasonable arrangement may be considered. There will be **no extra question** in the Midterm and Final exams, so that students should have to answer all of the questions given in the exam script.

Cell phones are **prohibited** in exam sessions.

ATTENDANCE POLICY

Students are required and expected to attend all classes regularly and on time and participate in class discussions. North South University mandates to fail students who are absent 25% or more from their classes, even if such absences are excusable. It is the responsibility of the student to become aware of other course-related announcements missed during an absence.

Please Refer to NSU Student Handbook, Section: "Study Principles and Policies"

COMMUNICATION POLICY

All communications should take place using the instructor's **email**. Announcements in class will override any statement made here or in any other handouts. It is the student's responsibility to be aware of any announcements made in classes.

APPROPRIATE USE POLICY

All members of the North South University community must use electronic communications in a responsible manner. The University may restrict the use of its computers and network systems for electronic communications subject to violations of university policies/codes or local laws or national laws. Also, the university reserves the right to limit access to its networks through university-owned or other computers, and to remove or limit access to material posted on university-owned computers.

STUDENTS WITH SPECIAL NEEDS

North South University will provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities/special needs that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their instructors to ensure that their needs are met. The University through its Special Need section will exert all efforts to accommodate special needs.

Special Needs Section

Telephones: +88-02-5566 8200 ext-1220

Location: Room # 413/A**,** Admin Building **(**4th floor).

Please Refer to NSU Student Handbook, Section: "Special Needs Services"

STUDENTS COMPLAINTS POLICY

Students at North South University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-academic. For more information about the policy and processes related to this policy, you may refer to the students' handbook.

COURSE CONTENTS &LECTURE SCHEDULE

Lecture No.	*Topic*	Chapter
1	Integration by parts	7.2
2	Trigonometric integrals	7.3
3	Trigonometric substitution	7.4
4	Integrating rational functions by partial fractions	7.5
5	Integrating rational functions by partial fractions	7.5
6	Hyperbolic functions and hanging cables	6.9
7	Hyperbolic functions and hanging cables	6.9
8	***Midterm I***	
9	Area between two curves	6.1
10	Length of a plane curves	6.4
11	Area of a surface of revolution	6.5
12	Volumes by slicing disks	6.2
13	Volumes by slicing washers	6.2
14	Volumes by Cylindrical shells	6.3
15	***Midterm II***	
16	Improper Integrals	7.8
17	Improper Integrals	7.8
18	Polar coordinates, Area in polar coordinates	10.2
19	Area in polar coordinates	10.3
20	Tangent lines and arc length for parametric curves	10.1
21	Conic sections, parabola, ellipse	10.4
22	Conic sections ellipse, hyperbola	10.4
23	Conic sections in polar coordinates	10.6
24	Conic sections in polar coordinates	10.6
Final Exam (Declared by the Controller of Examinations)		

Note: The instructor reserves the right to make changes to the syllabus if necessary.