SHIV NADAR
INSTITUTION OF EMINENCE DEEMED TO BE
— UNIVERSITY —
DELHI NCR

Section A:										
Course Code		MAT102								
Course Title		Calculus Ii								
Course Credits		4	**No. of Contact Hours/week**		**L:**	3	**T:**	1	**P:**	0
School	School Of Natural Sciences									
Offered By	Mathematics									
Method of Instruction:		In Person		**Offered in:**		Spring Semester		Full Semster		
Check each box, when applicable, if the course covers one or more of the below listed attributes										
☐	**REALS**		☐	**VELS**			☐	**DISE**		
Prerequisites		Mat101								
None										
Fill this, if applicable: A Similar Course Was Offered With Code .... In Year										

NOTE:

Section B:This course is offered as (use checkbox) for which **Programs**				
☒	Major Core for:	Mathematics, Physics, Economics	Not required	
☐	Major Elective for:	Enter The Name Of the Program(S) For Which This Is a Major Elective	Instructor's Approval	
☒	UWE for:	All	Not required	
☐	Project /UG Thesis / Internship	Any Other Information	Instructor's Approval	
☐	CCC for:	Choose a Category	Instructor's Approval	
☐	Specialization (If applicable)	Mention The Specialization	Instructor's Approval	
☒	Minor (If applicable)	Mathematics	Not required	
Estimated No. of Seats:		120	Estimated Number of Sections	4

Section C: State the Program Learning Goals of the Major Degree Program mapped to the Core Course (Applicable to Major Core courses only)
PLG1
PLG2
PLG4

Section D: State the Course Objectives / Aim (Specific details of what the course intends to achieve in terms of student knowledge and ability. Items should begin with phrases such as "To provide students with …", "To enable students to …", "To develop students' skills in …" and so on.)
1. To provide students with an understanding of the fundamental concepts of multivariable calculus and sequences and series.   2. To enable students to develop a comprehensive view of calculus that integrates geometrical and physical intuition with formal reasoning.

Section E: State the Learning Outcomes (A list of what students will know or be able to do as a result of successfully completing the course. Should be expressed as knowledge, skills, or attitudes.)
On successful completion of the course, students will be able to:
1. Understand The Relationship Between Continuity, Partial Derivatives And Total Derivative Of A Function Of 2 Or 3 Variables.   2. Understand The Geometric Content Of The Total Derivative And Be Able To Apply It To Optimization And Other Problems.   3. Compute And Apply Double And Triple Integrals.   4. Determine The Convergence And Divergence Of Sequences And Series.

Section F: State if course contributes to any skill development
Click Here To List Course Contribution To Skill Development

Section G: Module-wise Curriculum Content (Syllabus, Lab work, Project, Term paper, Group work, etc.)
1. Sequences and Series: Limits of sequences, algebra of limits, series, divergence test, comparison test, integral test. [Lecture hours = 6] 2. Parametric Curves: Vector-valued functions, plane and space curves, tangent vectors and lines, polar coordinates, cylindrical coordinates, spherical coordinates, derivatives and integrals, arc-length. [Lecture hours = 8] 3. Differential Calculus in Several Variables: Functions of several variables, level curves and surfaces, quadric surfaces, limits and continuity, partial derivatives, tangent planes, chain rule, directional derivatives, gradient. [Lecture hours = 12] 4. Optimisation: Extreme values and saddle points, 1st and 2nd derivative tests, method of Lagrange multipliers. [Lecture hours = 5] 5. Multiple Integrals: Double integrals, polar coordinates, triple integrals, cylindrical and spherical coordinates, change of variables. [Lecture hours = 8]   Add additional sheet(s), if required

Section H: Text Book(s), Reference book(s) and any other study material

Books:

1. Essential Calculus – Early Transcendentals by James Stewart, Cengage, India Edition.
2. Basic Multivariable Calculus by J E Marsden, A J Tromba and A Weinstein, 1st edition, Springer (India).
3. Calculus, II and III, by Jerrold Marsden and Alan Weinstein, Springer.
http://www.cds.caltech.edu/~marsden/volume/Calculus/
4. G B Thomas and R L Finney, Calculus and Analytic Geometry, Addidon-Wesley.

Lecture Videos:

• Single Variable Calculus lectures by David Jerison, MIT Online.
https://ocw.mit.edu/courses/18-01-single-variable-calculus-fall-2006/video_galleries/video-lectures/
• Multivariable Calculus lectures by Denis Auroux, MIT Online.
https://ocw.mit.edu/courses/18-02-multivariable-calculus-fall-2007/video_galleries/video-lectures/

Section I: Please fill in all the rows for the applicable rows. For evaluation component not included in the list, use the last two rows and mention the evaluation component in the corresponding last column. Please see the NOTE below this box for the prorate policy.

	Component	Weightage %	Missed Graded Component Policy	Use of Gen AI policy	Any Other Information
☒	Mid Sem Exam	30.00	Retake of Graded Component	Prohibited: No Gen AI	other info
☒	End Sem Exam	40.00	I grade awarded on approval from De	Prohibited: No Gen AI	other info
☒	Quiz(s)	15.00	Choose the best n from m componen	Prohibited: No Gen AI	other info
☒	Assignment(s)	15.00	Assign marks on a Prorated basis	Prohibited: No Gen AI	other info
☐	Lab	0.00	Please Select	Please Select	other info
☐	Project	0.00	Please Select	Please Select	other info
☐	Case Studies	0.00	Please Select	Please Select	other info
☐	Group Discussion	0.00	Please Select	Please Select	other info
☐	Any Other Component	0.00	Please Select	Please Select	other info
☐	Any Other Component	0.00	Please Select	Please Select	other info
	Total **Weightage** (%)	100.00			

Note:
a) While you may mark multiple evaluation components for pro-rate. However, if a particular student misses multiple evaluations, *not more than 20% of the evaluation can be prorated for that student*.
b) The best n out of m: Please make sure that n < m.
c) *Award of 'I' grade is applicable only in the case of the End-term Exam. Additionally, end-term exams or final assessments cannot be prorated or waived*.
d) *Individual faculty can decide the prorate policy for each component*.
e) *'None' as an option can only be used in exceptional cases, for example lab evaluated by an external expert*

Section J: Grading Policy (*Tick the one You intend to follow*)			
☒ **Relative** Grading		90% Will Guarantee A And 40% Will Guarantee D. Cutoffs May Be Lowered From These Based On Difficulty Level Of Assessment.	Total marks will be rounded up
☐ Absolute Grading	**Grade**	**Range** (*replace M's appropriately*)	
	A	M1 <= marks <= M2	
	A⁻	M1 <= marks <= M2	
	B	M1 <= marks <= M2	
	B⁻	M1 <= marks <= M2	
	C	M1 <= marks <= M2	Please Mention The Rounding Off Policy And Any Other Information
	C⁻	M1 <= marks <= M2	
	D	M1 <= marks <= M2	
	E	M1 <= marks <= M2	
	F	M1 <= marks <= M2	

Section K: Details about instructors teaching this course. For multiple *instructors* in a course, mention each name once after the other					
Name of the Instructor(s):	Amber Habib Prof XYZ Prof ABC			**Section(s)**	L1 L1, L2, L3
Office Location	A111-B K 120 L 325	**Tel. Extension***	836	**Email:**	amber.habib@snu.edu.in abc@snu.edu.in xyz@snu.edu.in
About the Instructor(s): Click Here To Enter About 250 Words about each instructor teaching the course`					

* - Optional

Section L: Office Hours

Please let the students know the day(s) and time slot(s) for any consultation. You may update this at the start of the semester.

Section M: Any other information

Any other information you would like to specify in relation to the above course