<div align="center">

Department of Mathematics
Indian Institute of Technology Delhi
MTL 100: Calculus - Course information
Class teachers:

</div>

Name	Groups	Schedule	Email
Prof. N. Shravan Kumar	G1- G5	T,W,F (3pm-4pm)	shravankumar@maths.iitd.ac.in
Prof. Aparajita Dasgupta	G6-G10	T,W,F (3pm-4pm)	adasgupta@maths.iitd.ac.in
Prof. Surjeet Kour	G11-G15	T,W,F (3pm-4pm)	surjeetkour@maths.iitd.ac.in
Prof. Shiv Prakash Patel	G16-G20	T,W,F (3pm-4pm)	shiv.prakash.patel@maths.iitd.ac.in
Prof. P. V. Viswanathan	G21-G25	T,W,F (9am-10am)	viswa@maths.iitd.ac.in
Prof. S. Sivananthan	G26-G30	T,W,F (9am-10am)	siva@maths.iitd.ac.in
Prof. Biswajyoti Saha	G31-G35	T,W,F (2pm-3pm)	biswajyoti@maths.iitd.ac.in
Prof. Punit Sharma	G36-G40	T,W,F (2pm-3pm)	punit.sharma@maths.iitd.ac.in

For more details about the teachers see the department website:
http://maths.iitd.ac.in/drupal/faculty

Course coordinator: Prof. Surjeet Kour

Course Webpage: https://sites.google.com/view/surjeetkour/mtl-100

Course contents:

Sequences: Real number system, Archimedean Property, Sequences of real numbers: Definitions of sequence and convergence, bounded sequences, limit superior and inferior, Cauchy sequence.

Infinite Series: Series of real numbers, absolute and conditional convergence, comparison, Cauchy condensation, ratio, and root tests.

Differential Calculus: Limits, continuity, uniform continuity, differentiability, mean value theorems, Taylor's theorem, Taylor's series, power series, maxima and minima.

Multivariable Differential Calculus: Functions of several variables, limits, continuity, differentiability, gradient, directional derivatives, chain rule, Taylor's theorem, Maxima & minima and method of Lagrange multipliers.

Definite Integral: Definition of Riemann integral, fundamental theorems, improper integrals of the first and second kind, beta and gamma functions, applications to area and arc length.

Multivariable Integral Calculus: Double and triple integrals, Jacobian and change of variables formula. Applications to Area, Volume, Surface area and surface integrals. Vector Calculus: Vector fields, divergence and curl, line integrals, Tangents & Normal, Parameterization of curves and surfaces, Green, Gauss, and Stokes theorems and applications.

Reference books:
1. K. A. Ross, Elementary Analysis: The Theory of Calculus, Springer (for single variable calculus)
2. G. B. Thomas and R. L. Finney, Calculus, Pearson (all topics)

Remark: We recommend the students read the above-mentioned reference books.

Hand-out lecture notes by Prof. K. Sreenadh can be found at the following link: (http://web.iitd.ac.in/~sreenadh/MTL100/main.html).

Exam Weightage:
There will be **one minor** examination of 30%, **one major** examination of 40%, and **two quizzes** which carry the remaining 30%(each quiz will carry 15% weightage).

Attendance Policy: As per Institute rule.

Grading Policy:
The passing grade (**D** grade) will be at 30%(minimum). An **A** grade will be at 80% or higher (will be decided later). All other grades will be decided later.

Tentative examination schedule:

Exam	Date and time	Tentative syllabus
Quiz1	Nov 25 (Friday), 2022	Sequence and Series
Minor	Dec 17 – 20, 2022 (Refer to institute exam schedule)	Topics: Sequences, Series and Differential Calculus(one variable)
Quiz 2	Jan 13(Friday), 2023	To be announced later
Major	Feb 6 – 9, 2023 (Refer to institute exam schedule)	Entire syllabus

Re-quiz: If you have missed one or both quizzes due to medical reasons there will be one re-quiz (only ONE). Submit your medical certificate (IITD Hospital) to your class teacher within a week after the quiz**.**

Re-minor: If you have missed your minor exam due to medical reasons there will be a re-minor exam sometime before the major exam. Submit your medical certificate (IITD Hospital) to your class teacher within a week after the minor exam.