

Course title: Applied mathematics				
Course code: NRC 113	No. of credits: 1 ^{eq}	L-T-P: 4-6-0	Learning hours: 10	
Pre-requisite course code and title (if any):				
Department: Department of Energy and Environment				
Course coordinator(s):		Course instructor(s): Ms Manshu Madan		
Contact details:				
Course type: Bridge course		Course offered in: Semester 1		
Course description The course is designed to serve as a foundation course even for students with no prior mathematical experience in higher education in order to meet the requirement of mathematical knowledge in various subsequent courses offered in the master's degree program. The course will introduce the students to fundamentals of mathematics applicable to climate science.				
Course objective ▪ Is to introduce basic Numeric method approach				
Course contents				
Module	Topic	L	T	P
1.	Differential calculus: Relations and functions, limits and continuity, derivatives and differentiation, applications of differential calculus. Differential equations: Ordinary differential equations, partial differential equations, applications	2	3	
2.	Integral calculus: Indefinite integrals, methods of integration–integration by substitution, by parts, decomposition into sums etc, applications. Definite integrals, theorems of definite integrals and evaluation of definite integrals, applications. Introduction of differential equations and its applications.	2	3	
		4	6	0
Evaluation criteria ▪ Final Exam: 100%				
Learning outcomes ▪ Understanding of basic concepts of mathematics applicable to climate science				
Pedagogical approach Classroom teaching and assignments				
Materials Mackenzie A. (2005) Mathematics and Statistics for Life Scientists, Taylor & Francis, New York. Parkhurst D.F. (2006) Introduction to Applied Mathematics for Environmental Science, Springer, New York.				
Textbooks				
Journals				
Suggested readings Prasad G. (2004) Differential Calculus, Pothishala Pvt. Ltd., Allahabad Prasad G. (2004) Integral Calculus, Pothishala Pvt. Ltd., Allahabad				
Student responsibilities The students are expected to submit assignments in time and come prepared with readings when provided.				

Course Reviewers

1. Dr. Phil Walker, Director of Student Education in Mathematics at the University of Leeds, United Kingdom.
2. Young-suk Jang, Maths Analyst, Seattle.