

Course title: Applied Mathematics				
Course code: NRE 113		No. of credits: 3	L-T-P: 31-11-0	Learning hours: 42
Pre-requisite course code and title (if any): For students who have not done courses in mathematics at 10+2/bachelor's level, a boot camp of 2 weeks will be held in the beginning of each academic session. Passing the course will be a mandatory requirement for such candidates, prior to registration for the programme.				
Department: Energy and Environment				
Course coordinator:			Course instructor: Ms I.Y. Bhanu Sree Rao	
Contact details:				
Course type: Audit			Course offered in: Semester 1	
Course Description The course is designed to serve as a foundation course in order to meet the requirement of mathematical knowledge in various subsequent courses offered in the master's degree program.				
Course objectives				
Course content				
SNo	Topic	L	T	P
1.	Introduction: Quantitative aspects in decision making, tools available–deterministic (analytical and numerical), stochastic processes	1		
2.	Review of trigonometry, logarithms and quadratic equations	3		
3.	Linear algebra: Linear algebraic equations, solution methods, system conditioning, applications	6	2	
4.	Differential calculus: Relations and functions, limits and continuity, derivatives and differentiation, applications of differential calculus	7	3	
5.	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	7	3	
6.	Differential equations: Ordinary differential equations, partial differential equations, applications	7	3	
	Total	31	11	
Evaluation criteria				
▪ Tutorials/assignment:		20%		
▪ Minor test:		30%		
▪ 1 major test (end semester):		50%		
Learning outcomes				
Pedagogical approach				
Materials				
1. Mackenzie A. (2005) <i>Mathematics and Statistics for Life Scientists</i> , Taylor & Francis, New York.				
2. Parkhurst D.F. (2006) <i>Introduction to Applied Mathematics for Environmental Science</i> , Springer, New York.				
Suggested Readings				
1. Prasad G. (2004) <i>Differential Calculus</i> , Pothishala Pvt. Ltd., Allahabad				
2. Prasad G. (2004) <i>Integral Calculus</i> , Pothishala Pvt. Ltd., Allahabad.				
Additional information (if any)				
Student responsibilities				

Attendance, feedback, discipline, guest faculty etc