PROGRAME NAME: : B.A PROGRAMME
COURSE NAME : SEC-I: COMPUTER ALGEBRA SYSTEMS
SEMESTER DURATION: JULY TO DECEMBER

Week	Topic(s)	Teaching Methodology Adopted/ Continuous Internal Evaluation
1.	Use of a CAS as a calculator.	Presentations
2.	Simple programming in a CAS.	Lectures/Discussions
3.	Computing and plotting functions in 2D, Customizing Plots.	Lectures
4.	Animating Plots, Producing table of values.	Presentations/lectures
5.	. Working with piecewise defined functions, Combining graphics.	Case Study/Practicals
6.	Factoring, Expanding and finding roots of polynomials.	Practicals
7.	Working with rational and trigonometric functions.	Lectures

8.	Solving general equations.	Demonstration/Lectures
9.	Computing limits, First and higher order derivatives.	Lectures
10.	Maxima and minima, Integration.	Practicals
11.	Computing definite and indefinite integrals.	Practicals
12.	Performing Gaussian elimination, Solving systems of linear equations.	Case study/Lectures
13.	Operations (transpose, determinant, and inverse), Minors and cofactors.	Assignments
14.	Rank and nullity of a matrix, Eigenvalue, Eigenvector and diagonalization.	Assignments

Course Objectives: This course aims at providing basic knowledge to Computer Algebra Systems (CAS) and their programming language in order to apply them for plotting functions, finding roots to polynomials, computing limits and other mathematical tools.

Course Learning Outcomes: This course will enable the students to use CAS:

i) as a calculator;

ii) for plotting functions;

iii) for various applications of algebra, calculus and matrices.