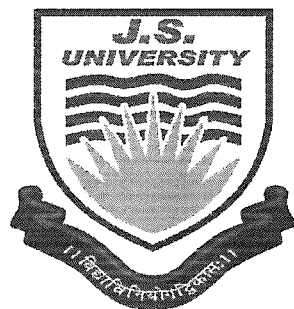# J.S. University, Shikohabad

Established by UP Govt. Act No. 07 of 2015

Recognized by U.G.C. under section 2 (f) of Act-1956

Value Added Course

(MATHEMATICA)

Faculty of Science

MATHEMATICA

Learning Outcome:

This Course will provide knowledge Mathematica.

Duration: 30 Hours. (Theory and Practical)

Course Outcomes: -

After completion of the course the student shall be able to:-
- Solve higher degree equation using Mathematica.
- Solve system of non-linear equations.
- Find the Integration of different functions with limits.
- Solve ordinary differential equations with initial condition.
- Create and plotting 2-D and 3-D graphs.

Syllabus Outline

1. Module-1

- Solving higher degree equations.
- Solving system of equations by matrix method and find the eigen values and eigen vectorsof a matrix of order 4 by 4 or #higher order#.

2. Module-2

- Solving system of non-linear equations.
- Finding the differentiation of different functions of second and third derivatives.

3. Module-3

- Finding the Integration of different functions with limits.
- Evaluation of double integrals and triple integrals.

4. Module-4

- Solving ordinary differential equations with initial condition.
- Solving system of ordinary differential equations.

5. Module-5

- Creating and plotting 2-D and 3-D graphs.
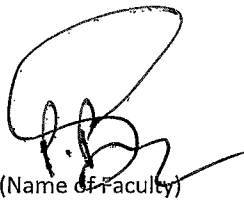- Solving Linear programming problems.

R

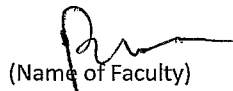## eferences:-

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1. Ananta Kumar Bora, *Mathematicva:A Research Book of Mathematics*, Scholarink Publishers (2017)

2. Sal Mangano, *Mathematica Cookbook*, O'Reilly Media, Inc., 1005 Gravenstein Highway North, Sebastopol,USA (2010)

3. Eugene Don, *Mathematica*, Scham's Outline Series, Mc Graw Hill Publisher, New York. (2009)

4. Pragathi Gautam and Swapnil Verma, *Practical Mathematica*, Ane Books Publisher (2019).

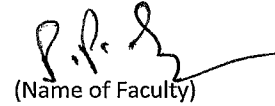| (Name of Faculty)	(Name of Faculty)	(Name of Faculty)
Course Coordinator	Dean Academics	Director/Principle/Dean of Faculty/Department