S. No.	Existing	Proposed
1	Skill Enhancement Courses (SEC) offered to B.Sc. (H) Mathematics (in 3rd and 4th Semester) are of 3 Credits	Since these courses should of 4 Credits according to UGC Guidelines, amendments have been made in the existing Courses to make them of 4 Credits
2	Skill Enhancement Courses (SEC) offered to B.A./ B.Sc. Programme (in 3rd, 4th, 5th and 6th Semesters) are of 3 Credits	Since these courses should of 4 Credits according to UGC Guidelines, amendments have been made in the existing Courses to make them of 4 Credits
3	Only One Generic Elective Paper is offered (in 1st, 2nd and 3rd Semester) to students of B.Sc. (H), B.A. (H) & B.Com (H) other than B.Sc. (H) Mathematics.	Two Generic Elective Papers are now offered each semester to students of B.Sc. (H), B.A. (H) & B.Com (H) other than B.Sc. (H) Mathematics.
4	No Generic Elective papers were being offered to students of B.A, B.Sc. & B.Com Programme in the 5th and 6th Semester	Generic Elective papers are now offered to students of B.A, B.Sc. & B.Com Programme in the 5th and 6th Semester

SKILL ENHANCEMENT COURSES (SEC)
IN
B.SC. (H) MATHEMATICS

Semester	Core Course (14)		Ability Enhancement Compulsory Course (AECC) (2)	Skill Enhancement Course (SEC) (2)	Discipline Specific Elective (DSE) (4)	Generic Elective (GE) (4)
I	C1		(English/ Hindi/ MIL Communication) OR Environmental Science			GE-1
	C2					
II	C3		Environmental Science OR (English/ Hindi/ MIL Communication)			GE-2
	C4					
III	C5			SEC-1 (LaTeX and HTML)		GE-3
	C6					
	C7					
IV	C8			SEC-2 (Computer Algebra Systems and Related Softwares)		GE-4
	C9					
	C10					
V	C11				DSE-1	
	C12				DSE-2	
VI	C13				DSE-3	
	C14				DSE-4	

SEC-1: LaTeX and HTML

4 Credits (2 Lectures + 4 Practical per week)
Theory: 50 marks (including internal assessment)
Practical: 50 marks

UNIT-I
Introduction to TeX and LaTeX, typesetting a simple document, adding basic information to a document, environments, footnotes, sectioning and displayed material

Assents and symbols, Mathematical Typesetting (Elementary and Advanced): subscript/ superscript, fractions, roots, ellipsis, mathematical symbols, arrays, delimiters, multiline formulas, spacing and changing style in math mode

Graphics in LaTeX, simple pictures using PS Tricks, Plotting of functions

Beamer Presentation

[1] Chapter 9 (9.1-9.8), Chapter 10 (10.1-10.3), Chapter 11 (11.1-11.4)
[2] Chapter 2 (2.1-2.5), Chapter 3 (3.1-3.3), Chapter 7 (7.1-7.2)

UNIT-II
HTML, creating simple web pages, images and links, design of web pages

[1] Chapter 15 (15.1-15.5)

Practical
(Ideal Lab Practical Batch Size: 15-20 Students)
[1] Chapter 9 (Exercises 4-10), Chapter 10 (Exercises 1, 3, 4, 6-9), Chapter 11 (Exercises 1, 3, 4, 5), Chapter 15 (Exercises 5, 6, 8, 9, 10, 11)

References:
[1] Martin J. Erickson and Donald Bindner, *A Student's Guide to the Study, Practice, and Tools of Modern Mathematics*, CRC Press, Boca Raton, FL, 2011.
[2] L. Lamport, *LATEX: A Document Preparation System, User's Guide and Reference Manual*. Addison-Wesley, New York, 2nd edition, 1994.

SEC-2: Computer Algebra Systems and Related Softwares

4 Credits (2 Lectures + 4 Practical per week)
Theory: 50 marks (including internal assessment)
Practical: 50 marks

UNIT-I
Computer Algebra Systems (CAS), use of a CAS as a calculator

Computing and plotting functions in 2D, Plotting functions of two variables using Plot3D and ContourPlot, plotting parametric curves and surfaces, Customizing Plots, Animating plots, producing table of values, working with piecewise defined functions, combining graphics

Simple Programming in a CAS

Working with matrices, performing gauss elimination, operations (transpose, determinant, inverse), minors and cofactors, working with large matrices, solving system of linear equations, rank and nullity of a matrix, eigenvalue, eigenvector and diagonalization

[1] Chapter 12 (12.1-12.5)
[2] Chapter 1, Chapter 3 (3.1-3.6, 3.8), Chapter 6 (6.2, 6.3), Chapter 7 (7.1-7.8)
Note: Theoretical and Practical demonstration should be carried out only in one of the CAS: Maxima/ Mathematica/ Maple or any other.

UNIT-II
Statistical software R, R as a calculator, reading and getting data into R: combine and scan commands, types and structure of data items with their properties, Manipulating vectors, data frames, matrices & lists, viewing objects within objects, constructing data objects & conversions, Summary commands, Summary statistics for vectors, data frames, matrices & lists, summary tables, Stem & leaf Plot, Histogram, Plotting in R: Box-whisker Plots, Scatter Plot, Pairs Plot, line charts, Pie Chart, Cleveland Dot Charts, Bar Charts, explore data & relations, saving graphs
[1] Chapter 14 (14.1-14.4, 14.7)
[2] Chapters 2-5, 7

Practical
(Ideal Lab Practical Batch Size: 15-20 Students)
[1] Chapter 12 (Exercises 1-4, 8-12), Chapter 14 (Exercises 1-3)
[2] Chapter 3 [Exercises 3.2 (1), 3.3 (1, 2, 4), 3.4 (1, 2), 3.5 (1-4), 3.6 (2, 3)], Chapter 6 [Exercises 6.2, 6.3], Chapter 7 [Exercises 7.1 (1), 7.2, 7.3 (2), 7.4 (1), 7.5, 7.6]
[3] Relevant exercises of Chapters 2-5, 7 (The practical may be done on the database to be downloaded from https://data.gov.in/)

References:
[1] Martin J. Erickson and Donald Bindner, *A Student's Guide to the Study, Practice, and Tools of Modern Mathematics*, CRC Press, Boca Raton, FL, 2011.

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[2] Bruce F. Torrence and Eve A. Torrence, *The Student's Introduction to MATHEMATICA: A Handbook for Precalculus, Calculus, and Linear Algebra*, Cambridge University Press, 2009.
[3] M. Gardener, *Beginning R: The Statistical Programming Language*, Wiley Publications, 2012.