Curriculum Structure for Four-Year Under Graduate Programme with Multiple Entry and Exit Option

Program: B.Sc. Mathematics (Honors / Honors with Research)

Mathematics as a MAJOR with another subject as a MINOR

(Effective from Session 2025-26)

(The revised syllabus Sem. III onwards will also be implemented for the students admitted in session 2024-25)

Semester	Course Code and Name	L	T	P	Credits
I	BMA24-MJ101 **(CALCULUS)**	**45**	**15**	**-**	4
	Vocational Course-1 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	Multi-Disciplinary Generic Elective Course-1 **(TO BE OPTED FROM OTHER DEPARTMENT)**				3
	Ability Enhancement Course-1 (**ENGLISH)**				4
	Value Added Course-1 **(DIGITAL AND TECHNOLOGICAL SOLUTIONS)**				2
	Value Added Course-2 **(PROFESSIONAL ETHICS AND GENDER STUDIES)**				2
	Skill Enhancement Course-1 **(TO BE OPTED FROM OTHER DEPARTMENT)**				3
	Total				**22**
II	BMA24-MJ201 **(ADVANCED CALCULUS)**	**45**	**15**	**-**	4
	Vocational Course-2 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	Multi-Disciplinary Generic Elective Course-2 **(TO BE OPTED FROM OTHER DEPARTMENT)**				3
	Ability Enhancement Course-2 **(HINDI / SANSKRIT)**				4
	Value Added Course-3 **(UNDERSTANDING INDIA)**				2
	Value Added Course-4 **(ENVIRONMENT SCIENCE)**				2
	Skill Enhancement Course-2 **(TO BE OPTED FROM OTHER DEPARTMENT)**				3
	Total				**22**
Grand Total (Semester I and II)					**44**

NOTE: The students on exit shall be awarded an **Undergraduate Certificate (in Mathematics)** after securing the requisite **44 Credits on completion of semester II**, provided they complete **one vocational course of 4 credits** (as part of the minor) or complete an **Internship / Apprenticeship within one year from the completion of the Second semester examination.**

Semester	Course Code and Name	L	T	P	Credits
III	BMA24-MJ301 **(ORDINARY DIFFERENTIAL EQUATIONS)**	**45**	**15**	**-**	4
	BMA24-MJ302 **(ALGEBRA)**	**45**	**15**	**-**	4
	Vocational Course-3 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	Multi-Disciplinary Generic Elective Course-3 **(TO BE OPTED FROM OTHER DEPARTMENT)**				3
	Value Added Course-5 **(HEALTH & WELLNESS, YOGA EDUCATION, SPORTS & FITNESS)**				2
	Value Added Course-6 **(PANCHMAHAYAJNA)**				2
	Skill Enhancement Course-3 **(SOFT SKILLS)**				3
	Total				**22**
IV	BMA24-MJ401 **(REAL ANALYSIS)**	**45**	**15**	**-**	4
	BMA24-MJ402 **(PARTIAL DIFFERENTIAL EQUATIONS)**	**45**	**15**	**-**	4
	BMA24-MJ403 **(NUMBER THEORY)**	**45**	**15**	**-**	4
	BMA24-MJ404 **(MOOC / ONLINE COURSE-1)**	**45**	**15**	**-**	4
	Minor Course-1 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	Community engagement **(NCC / NSS / Adult Education / Student Mentoring / NGO / Govt. Institutions, etc.) / Internship**				2
	Total				**22**
Grand Total (Semester I , II, III and IV)					**88**

NOTE: The students on exit shall be awarded an **Undergraduate Certificate (in Mathematics)** after securing the requisite **88 Credits on completion of semester IV**, provided they complete **one additional vocational course of 4 credits** (as part of the minor) or complete an **Internship / Apprenticeship within one year from the completion of the Fourth semester examination.**

Semester	Course Code and Name	L	T	P	Credits
V	BMA24-MJ501 **(LINEAR PROGRAMMING)**	**45**	**15**	**-**	4
	BMA24-MJ502 **(VECTOR AND TENSOR CALCULUS)**	**45**	**15**	**-**	4
	BMA24-MJ503 **(LINEAR ALGEBRA)**	**45**	**15**	**-**	4
	BMA24-MJ504 **(MECHANICS)**	**45**	**15**	**-**	4
	Minor Course-2 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	Internship				2
	Total				**22**
VI	BMA24-MJ601 **(ANALYTICAL GEOMETRY)**	**45**	**15**	**-**	4
	BMA24-MJ602 **(MATHEMATICAL MODELLING)**	**45**	**15**	**-**	4
	BMA24-MJ603 **(NUMERICAL ANALYSIS)**	**45**	**15**	**-**	4
	BMA24-MJ604 **(MOOC / ONLINE COURSE-2)**	**45**	**15**	**-**	4
	Minor Course-3 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	BMA24-PR601 **(PROJECT)** **OR** Any one of following: BMA24-MJ605 (**RESEARCH ETHICS)** BMA24-MJ606 **(FLUID DYNAMICS)** BMA24-MJ607 **(DIFFERENTIAL GEOMETRY)** BMA24-MJ608 **(SPECIAL FUNCTIONS)**				2
	Total				**22**
Grand Total (Semester I , II, III, IV, V and VI)					**132**

NOTE: The students on exit shall be awarded **Bachelor of Science in Mathematics** after securing the requisite **132 Credits on completion of semester VI** .

Semester	Course Code and Name	L	T	P	Credits
VII	BMA24-MJ701 **(ADVANCED REAL ANALYSIS)**	**45**	**15**	**-**	4
	BMA24-MJ702 **(MATHEMATICAL STATISTICS)**	**45**	**15**	**-**	4
	BMA24-MJ703 **(ABSTRACT ALGEBRA)**	**45**	**15**	**-**	4
	BMA24-PR701 **(RESEARCH PROJECT)** **OR** Any two of the following: BMA24-MJ704 **(ANCIENT INDIAN AND VEDIC MATHEMATICS)** BMA24-MJ705 **(GRAPH THEORY)** BMA24-MJ706 **(FRACTIONAL CALCULUS)** BMA24-MJ707 **(CRYPTOGRAPHIC MATHEMATICS)**	**45**	**15**	**-**	6 3x2=6
	Minor Course-4 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	Total				**22**
VIII	BMA24-MJ801 **(TOPOLOGY)**	**45**	**15**	**-**	4
	BMA24-MJ802 **(COMPLEX ANALYSIS)**	**45**	**15**	**-**	4
	BMA24-MJ803 **(OPTIMIZATION TECHNIQUES)**	**45**	**15**	**-**	4
	BMA24-MJ804 **(DISSERTATION)**				6
	Minor Course-5 **(TO BE OPTED FROM OTHER DEPARTMENT)**				4
	Total				**22**
Grand Total (Semester I , II, III, IV, V, VI, VII and VIII)					**176**

NOTE: The students on exit shall be awarded **Bachelor of Science in Mathematics(Honors or Honors with Research)** after securing the requisite **176 Credits on completion of semester VIII** .

Mathematics as a MINOR with another subject as a MAJOR

(Effective from Session 2024-2025)

Semester	Course Code and Name	L	T	P	Credits
I	Major-1 **(Another Subject)**				4
	Vocational Course-1	**45**	**15**	**-**	4
	Multi-Disciplinary Generic Elective Course-1 BMA24-MD101 (**BASIC MATHEMATICS)***	**34**	**11**	**-**	3
	Ability Enhancement Course-1 (**ENGLISH)**				4
	Value Added Course-1 **(DIGITAL AND TECHNOLOGICAL SOLUTIONS)**				2
	Value Added Course-2 **(PROFESSIONAL ETHICS AND GENDER STUDIES)**				2
	Skill Enhancement Course-1	**34**	**11**		3
	Total				**22**
II	Major-2 **(Another Subject)**				4
	Vocational Course-2	**45**	**15**	**-**	4
	Multi-Disciplinary Generic Elective Course-2 BMA24-MD201 **(BASIC PROBABILITY AND STATISTICS)***	**34**	**11**	**-**	3
	Ability Enhancement Course-2 **(HINDI / SANSKRIT)**				4
	Value Added Course-3 **(UNDERSTANDING INDIA)**				2
	Value Added Course-4 **(ENVIRONMENT SCIENCE)**				2
	Skill Enhancement Course-2	**34**	**11**	**-**	3
	Total				**22**
Grand Total (Semester I and II)					**44**

NOTE: The students on exit shall be awarded an **Undergraduate Certificate (in Mathematics)** after securing the requisite **44 Credits on completion of semester II**, provided they complete **one vocational course of 4 credits** (as part of the minor) or complete an **Internship / Apprenticeship within one year from the completion of the Second semester examination.**

Semester	Course Code and Name	L	T	P	Credits
III	Major-3 **(Another Subject)**				4
	Major-4 **(Another Subject)**				4
	Vocational Course-3	**45**	**15**	**-**	4
	Multi-Disciplinary Generic Elective Course-3 BMA24-MD301 (**BASIC MATHEMATICAL MODELLING**)*	**34**	**11**	**-**	3
	Value Added Course-5 **(HEALTH & WELLNESS, YOGA EDUCATION, SPORTS & FITNESS)**				2
	Value Added Course-6 **(PANCHMAHAYAJNA)**				2
	Skill Enhancement Course-3				3
	Total				**22**
IV	Major-5 **(Another Subject)**				4
	Major-6 **(Another Subject)**				4
	Major-7 **(Another Subject)**				4
	Major-8 **(Another Subject)**				4
	BMA24-MI401 **(DIFFERENTIAL EQUATIONS)***	**45**	**15**	**-**	4
	Community engagement **(NCC / NSS / Adult Education / Student Mentoring / NGO / Govt. Institutions, etc.) / Internship**				2
	Total				**22**
Grand Total (Semester I , II, III and IV)					**88**

NOTE: The students on exit shall be awarded an **Undergraduate Certificate (in Mathematics)** after securing the requisite **88 Credits on completion of semester IV**, provided they complete **one additional vocational course of 4 credits** (as part of the minor) or complete an **Internship / Apprenticeship within one year from the completion of the Fourth semester examination.**

Semester	Course Code and Name	L	T	P	Credits
V	Major-9 **(Another Subject)**				4
	Major-10 **(Another Subject)**				4
	Major-11 **(Another Subject)**				4
	Major-12 **(Another Subject)**				4
	BMA24-MI501 **(LINEAR ALGEBRA)***	**45**	**15**	**-**	4
	Internship				2
	Total				**22**
VI	Major-13 **(Another Subject)**				4
	Major-14 **(Another Subject))**				4
	Major-15 **(Another Subject)**				4
	Major-16 **(Another Subject)**				4
	BMA24-MI601 **(NUMERICAL ANALYSIS)***	**45**	**15**	**-**	4
	Project **or Any one DSE**				2
	Total				**22**
Grand Total (Semester I , II, III, IV, V and VI)					**132**

NOTE: The students on exit shall be awarded **Bachelor of Science in Mathematics** after securing the requisite **132 Credits on completion of semester VI** .

Semester	Course Code and Name	L	T	P	Credits
VII	Major-17 **(Another Subject)**				4
	Major-18 **(Another Subject)**				4
	Major-19 **(Another Subject)**				4
	BMA24-MI701 **(MATHEMATICAL STATISTICS)***	**45**	**15**	**-**	4
	Research Project **or Any two DSE**				6
	Total				**22**
VIII	Major-20 **(Another Subject)**				4
	Major-21 **(Another Subject)**				4
	Major-22 **(Another Subject)**				4
	Dissertation **(Another Subject)**				6
	BMA24-MI801 **(OPTIMIZATION TECHNIQUES)***	**45**	**15**	**-**	4
	Total				**22**
Grand Total (Semester I , II, III, IV, V, VI, VII and VIII)					**176**

NOTE: The students on exit shall be awarded **Bachelor of Science in Mathematics(Honors or Honors with Research)** after securing the requisite **176 Credits on completion of semester VIII** .

Annexure-II: Semester-wise Distribution of Credits

Semester	Major (Core)	Minor	Multi-Disciplinary Generic Elective course	Ability Enhancement Course (AEC)	Value Added Course (VAC)	Skill Enhancement Course (SEC)	Others	Total Credit	Exit Option (With Certificate /Diploma and Degree)
I	4	4	3	4	2 x 2=4	3	--	22	UG Certificate 44
II	4	4	3	4	2 x 2=4	3	--	22	
III	4 x 2=8	4	3	2	2	3	--	22	UG Diploma 88
IV	4 x 4=16	4	--	--	--	--		22	
V	4 x 4=16	4	--	--	--	--	2(Internship)	22	Three Year UG 132
VI	4 x 4=16	4	--	--	--	--	2(Project)/2 x1 (DSE)	22	
VII	4 x 3=12	4	--	--	--	--	6 (Research Methodology and Project)/ 3x2=6(DSE)	22	Four Year UG (Honors / (Honors with Research) 176
VIII	4 x 3=12	4	--	--	--	--	6(Dissertation)	22	
Total	88	32	9	10	10	9	18	176	

Programme Outcome/ Programme Specific Outcome

Programme Outcome: After completing the Four-Year B.Sc. Mathematics (Hons/Hons with research) Degree programme the students will be able to -

PO1: Inculcate foundation knowledge to understand basics of mathematics including applied aspect for the same.

PO2: Evolve in-depth knowledge of various branches of pure and applied mathematics.

PO3: Enhance the ability to develop solution-oriented approach towards various real world problems.

PO4: Develop scientific and mathematical temper.

Programme Specific Outcome: After completing the Four-Year B.Sc. Mathematics (Hons/Hons with research) Degree programme the students will be able to-

PSO1: Formulate and develop mathematical arguments in a logical manner.

PSO2: Apply their skills and knowledge in various fields of studies including, science, engineering, commerce and management etc.