

DEVI AHILYA VISHVAVIDYALAYA, INDORE

SCHOOL OF MATHEMATICS

B.Sc. (Honors) in Mathematics

Introduction:

Mathematics is a base to many sciences as well as other subjects offered in curriculum of education. Rigorous training in Mathematics enhances capability of an individual to think and analyse situations logically and critically. Bachelor of science(honors) in Mathematics is a three year under graduate program intended to cover in depth and provide rigorous training in all hardcore branches of Mathematics like geometry, Algebra, Analysis(Real and Complex), Linear Algebra and applications of these to allied subjects.

Objectives:

The main objectives of the course are to

1. Provide motivation behind several results being studied in the course.
2. Enhance logical thinking.
3. Enhance writing skills required for presenting mathematical material in a systematic and logical manner.
4. Create an ability to apply the knowledge gained to practical problems.
5. Provide hands on training on mathematical softwares and typesetting software like LaTeX.

Learning Outcomes:

On successful completion of the B.Sc.(Honors) in Mathematics students will be able to

1. Solve complex problems arising in various fields through critical understanding, analysis and synthesis.
2. Succeed in several competitive examinations based on UG mathematics.
3. Fare well in higher studies and pursue mathematics up to doctoral level.
4. Tackle real world problems arising in industries by applying certain mathematical techniques.
5. Type mathematical documents in the format required by journals and international publishers.
6. Use mathematical softwares to analyse mathematical problems of complex nature.

Fee Structure:

Semester	Academic Fee	Development & Maintenance Fee	Students' Services Fee		Examination Fee	Total (Rs.)	
			Boys	Girls		Boys	Girls
First	15000	7500	3300	3111	2500	28300	28111
Second	15000	7500	2911	2722	2500	27911	27722
Third	15000	7500	3300	3111	2500	28300	28111
Fourth	15000	7500	2911	2722	2500	27911	27722
Fifth	15000	7500	3300	3111	2500	28300	28111
Sixth	15000	7500	2911	2722	2500	27911	27722

- Caution money (Refundable) of Rs. 4000/- will be charged additionally in the first semester.
- Alumni fee of Rs. 500 will be charged separately in the first semester.
- If a student repeats a paper(s) in a semester, an additional fee of Rs.500/- per paper shall be payable.
- Hostel Fee and Central Library Fee will be extra.

Curriculum:**First Semester:**

Code	Title	Credits (L T P)
CORE COURSES		
MT4A-101	Calculus (P)	6 (4-0-2)
MT4A-102	Algebra I	6 (5-1-0)
ABILITY ENHANCEMENT COURSE		
MT4A-103	Communication Skills in English	2 (2-0-0)
ELECTIVE GENERIC: The students can choose following course or any other UG level generic course being run in this campus.		

MT4A-104	Programming In C++(P)	6 (4-0-2)
Comprehensive Viva-Voce		
MT4A-105	Comprehensive Viva-Voce	3
	Total credits	23

Second Semester:

Code	Title	Credits (L T P)
CORE COURSES		
MT4A-201	Real Analysis	6 (5-1-0)
MT4A-202	Differential Equations (P)	6 (4-0-2)
ABILITY ENHANCEMENT COURSE		
MT4A-203	Environmental Studies/MIL	2 (2-0-0)
ELECTIVE GENERIC: The students can choose following course or any other UG level generic course being run in this campus. (Any one)		
MT4A-204	Mathematical Finance	6 (5-1-0)
MT4A-205	Econometrics	6 (5-1-0)
Comprehensive Viva-Voce		
MT4A-206	Comprehensive Viva-Voce	3
	Total credits	23

Third Semester:

Code	Title	Credits (L T P)
CORE COURSES		
MT4A-301	Theory of Real functions	6 (5-1-0)
MT4A-302	Group Theory I	6 (5-1-0)

MT4A-303	PDE and systems of ODE(P)	6 (4-0-2)
SKILL ENHANCEMENT COURSE(Any one)		
MT4A-304	Logic and sets	2 (2-0-0)
MT4A-305	Computer Graphics	2 (0-0-2)
ELECTIVE GENERIC: The students can choose following course or any other UG level generic course being run in this campus.		
MT4A-306	Introduction to open source softwares of mathematics.	6 (4-0-2)
Comprehensive Viva-Voce		
MT4A-307	Comprehensive Viva-Voce	3
	Total Credits	29

Fourth Semester:

Code	Title	Credits (L T P)
CORE COURSES		
MT4A-401	Numerical Methods(P)	6 (4-0-2)
MT4A-402	Riemann integration and sequences of functions	6 (5-1-0)
MT4A-403	Ring Theory and Linear Algebra I	6 (5-1-0)
SKILL ENHANCEMENT COURSE(Any one)		
MT4A-404	Graph Theory	2 (2-0-0)
MT4A-405	Operating system Linux	2 (0-0-2)
ELECTIVE GENERIC: The students can choose following course or any other UG level generic course being run in this campus.(Any one)		
MT4A-406	Applications of Algebra	6 (4-0-2)
MT4A-407	Combinatorial Mathematics	6 (5-1-0)
Comprehensive Viva-Voce		

MT4A-408	Comprehensive Viva-Voce	3
	Total Credits	29

Fifth Semester:

Code	Title	Credits (L T P)
CORE COURSES		
MT4A-501	Multivariate Calculus	6 (5-1-0)
MT4A-502	Group Theory II	6 (5-1-0)
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any Two)		
MT4A-503	Number Theory	6 (5-1-0)
MT4A-504	Analytic Geometry	6 (5-1-0)
MT4A-505	Probability and Statistics	6 (5-1-0)
MT4A-506	Industrial Mathematics	6 (5-1-0)
Comprehensive Viva-Voce		
MT4A-507	Comprehensive Viva-Voce	3
	Total Credits	27

Sixth Semester:

Code	Title	Credits (L T P)
CORE COURSES		
MT4A-601	Metric spaces and complex analysis	6 (5-1-0)
MT4A-602	Ring Theory and Linear Algebra II	6 (5-1-0)
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any Two)		
MT4A-603	Theory of Equations	6 (5-1-0)
MT4A-604	Linear programming	6 (5-1-0)

MT4A-605	Mathematical modelling	6 (4-0-2)
MT4A-606	Project work	6
Comprehensive Viva-Voce		
MT4A-607	Comprehensive Viva-Voce	3
	Total Credits	27

Note:

1. The syllabi of the courses mentioned above shall be those prescribed by UGC for B.Sc.(Honors) with minor modifications.
2. As per ordinance 14, Credits allocated to comprehensive viva voce will not count towards total number of credits required for the award of the degree.