

# **Mahakaushal University, Jabalpur (M.P.)**



## **Scheme & Syllabus**

**For**

**B.Sc. with Research/honors**

**Mathematics**

**2022-23**

**Duration of Course: 4 Years**

**Examination Mode: Semester**

**Examination System: CBCS**

## Credit Distribution

SEMESTER SYSTEM			Credits Required								
			Sem	MJ	MI	DSE	GEC/ OEC	AECC	SEC SB/VB	FW	Total Credit
Level 5	Certificate	1 <sup>st</sup> Year Pass (Sem I+Sem II)	I	6	6		4	4			20
			II	6	6		4	4			20
Level 6	Diploma	2 <sup>nd</sup> Year Pass (Sem III+Sem IV)	III	6	6		4		4		20
			IV	6	6		4		4		20
Level 7	Degree	3 <sup>rd</sup> Year Pass (Sem V+Sem VI)	V	6		4			4	6	20
			VI	6		8				6	20
Level 8	Honors/ Research	4 <sup>th</sup> Year Pass (Sem VII+Sem VIII)	VII	6	4	4				6	20
			VIII	6	4					10	20
<b>Total Credit</b>				<b>48</b>	<b>32</b>	<b>16</b>	<b>16</b>	<b>8</b>	<b>12</b>	<b>28</b>	<b>160</b>

SEMESTER SYSTEM			Credits Required							
			MJ	MI	DSE	GEC/ OEC	AECC	SEC SB/VB	FW	Total Credit
Level 5	Certificate	1 <sup>st</sup> Year Pass	12	12		8	8			40
Level 6	Diploma	2 <sup>nd</sup> Year Pass	12	12		8		8		40
Level 7	Degree	3 <sup>rd</sup> Year Pass	12		12			4	12	40
Level 8	Honors/ Research	4 <sup>th</sup> Year Pass	12	8	4				16	40
<b>Total Credit</b>			<b>48</b>	<b>32</b>	<b>16</b>	<b>16</b>	<b>8</b>	<b>12</b>	<b>28</b>	<b>160</b>

### For Regular Students Course Duration:

Min. Years for Completing UG Degree	3 Years
Min Years for Completing UG (Hons.) Degree	4 Years
Maximum Years for Completing UG Degree	6 Years
Max Years for Completing UG (Hons.) Degree	8 Years

**Faculty of Science**

**Major: Mathematics**

Sem	Major	Minor	DSE	Open Elective/ Generic Elective	AECC	SEC		FW	Total Credits
						Skill Based	Value Based		
1	MJ-I (4+2)	MN-I (4+2)		OEC-I (4)	AECC-I (4)				20
2	MJ-II (5+1)	MN-II (4+2)		OEC-II (4)	AECC-II (4)				20
3	MJ-III (5+1)	MN-III (4+2)		OEC-III (4)		SECSB-I (4)			20
4	MJ-IV (4+2)	MN-IV (4+2)		OEC-IV (4)		SECSB-II (4)			20
5	MJ-V (5+1)		DSE-I (4)				SECVB (4)	Field Work (6)	20
6	MJ-VI (5+1)		DSE-II (4) DSE-III (4)					Internship (6)	20
7	MJ-VII (4+2)	MN-V (4)	DSE-IV (4)					Minor Project (6)	20
8	MJ-VIII (4+2)	MN-VI (4)						Major Research Project (10)	20
<b>Total Credits</b>	<b>48</b>	<b>32</b>	<b>16</b>	<b>16</b>	<b>8</b>	<b>8</b>	<b>4</b>	<b>28</b>	<b>160</b>

**Major/Minor**

Course Code	Category	Paper	Credits
BMAT0101-T	MJ	Calculus	4
BMAT0102-T	MI	Calculus	4
BMAT0101-P	MJ	Calculus Lab	2
BMAT0102-P	MI	Calculus Lab	2
BMAT0201-T	MJ	Algebra	6
BMAT0202-T	MI	Algebra	6
BMAT0301-T	MJ	Real Analysis	6
BMAT0302-T	MI	Real Analysis	6
BMAT0401-T	MJ	Differential Equations	4
BMAT0402-T	MI	Differential Equations	4
BMAT0401-P	MJ	Differential Equations Lab	2
BMAT0402-P	MI	Differential Equations Lab	2
BMAT0501-T	MJ	Theory of Real Functions	6
BMAT0601-T	MJ	Group Theory	6
BMAT0701-T	MJ	PDE and Systems of ODE	4
BMAT0701-P	MJ	PDE and Systems of ODE Lab	2
BMAT0801-T	MJ	Numerical Methods	4
BMAT0801-P	MJ	Numerical Methods Lab	2

**Department Specific Elective**

BMAT0101D-T	DSE	Number Theory	4
BMAT0102D-T	DSE	Ring Theory and Linear Algebra	4
BMAT0103D-T	DSE	Multivariate Calculus	4
BMAT0104D-T	DSE	Industrial Mathematics	4
BMAT0105D-T	DSE	Riemann Integration and Series of Functions	4
BMAT0106D-T	DSE	Boolean Algebra and Automata Theory	4
BMAT0107D-T	DSE	Metric Spaces and Complex Analysis	4
BMAT0108D-T	DSE	Probability and Statistics	4

**Skill Enhancement Course (Skill Based) (Any Two)**

Course Code	Category	Paper	Credits
BMAT101SB-T	SEC-SB	Logic and Sets	4
BMAT102SB-T	SEC-SB	Computer Graphics	4
BMAT103SB-T	SEC-SB	Graph Theory	4
BMAT104SB-T	SEC-SB	Operating System: Linux	4
BMAT105SB-T	SEC-SB	Mathematical Finance	4

### Open Elective Compulsory Course/ Generic Elective Compulsory Course

Course Code	Category	Paper	Credits
OECC0101-T	OEC	Fundamental of Computer	4
OECC0102-T	OEC	Environmental Studies	4
OECC0103-T	OEC	Entrepreneurship	4
OECC0104-T	OEC	Principle of Management	4
OECC0105-T	OEC	Nutrition and Fitness	4
OECC0106-T	OEC	Current Concerns in Public Health Nutrition	4
OECC0107-T	OEC	Travel and Tourism	4
OECC0108-T	OEC	Tourism Operation Software Skills	4

Course Code	Paper	Credits
ENVT0101-T	Environmental Education	0

### Ability Enhancement Compulsory Course

Course Code	Category	Paper	Credits
AECC0101-T	AECC	English Language-I	4
AECC0102-T	AECC	English Language-II	4

### Skill Enhancement Course (Value Based) (Any One)

Course Code	Category	Paper	Credits
SECVB0101-T	SEC-VB	Constitution of India	4
SECVB0102-T	SEC-VB	Yoga in Life	4
SECVB0103-T	SEC-VB	National Service Scheme (NSS)	4
SECVB0104-T	SEC-VB	Health & Wellness	4
SECVB0105-T	SEC-VB	Sports	4

### Field Work

Course Code	Category	Paper/Description	Credits
BFWF0501-P	FW	Field work is the process of observing and collecting data about people, cultures, and natural environments.	6
BFWI0601-P	FW	The aim of the internship provides a direction to the activities, helps to focus on a result, and to assess the result achieved.	6
BFWP0701-P	FW	The objective of the minor project is to provide an opportunity for students to undertake short research training outside the classroom to solve real-world issues.	6
BFWR0801-P	FW	Project objectives describe the desired outcome of a project, which is often a tangible object. It's beneficial to create objectives for your project because creating a specific goal for you helps everyone know what they're supposed to be working toward.	10