



SARALA
BIRLA
UNIVERSITY

Established under the Sarala Birla University Act 2017 Govt. of Jharkhand as per Section 2(f) of UGC Act. 1956

**CURRICULUM
FOR
B.Sc.
in
Mathematics Honours
With Option to Study Economics and / Or Statistics**

(Based on UGC- CBCS)

Effective from 2021-22

Breakup of Credits

Sl. No.	Category	Credits
1	Mandatory Mathematics Course	73
2	Basic Science Course	11
3	Engineering Science Course	4
4	Humanities and Social Sciences including Management Course	5
5	Mandatory Course	2
6	Dicipline Specific Elective Course	21
7	General Elective Course	17
8	Professional Core Course	3
9	Project	8
Total Credits:		144

Definition of Credit

1 Hr. Lecture (L) Per Week	1 Credit
1 Hr. Tutorial (T) Per Week	1 Credit
1 Hr. Practical (P) Per Week	0.5 Credit
2 Hr. Practical (P) Per Week	1 Credit

Course Code Definitions

Course code	Definitions
MMC-BSMH	Mandatory Mathematics Course
BSC-BSMH	Basic Science Course
ESC-BSMH	Engineering Science Course
HSMC-BSMH	Humanities and Social Sciences including Management Course
MC -BSMH	Mandatory Course
DSEC-BSMH	Dicipline Specific Elective Course
GEC-BSMH	General Elective Course
PCC-BSMH	Professional Core Course
P-BSMH	Project

CREDITS DISTRIBUTION (SEMESTER-WISE AND COURSE-WISE)

Semester	MMC- BSMH	GEC- BSMH	BSC- BSMH	HSMC- BSMH	ESC- BSMH	DSEC- BSMH	PCC- BSMH	MC- BSMH	P-BSMH	Total Credit Semester-wise
1st	11	4	5.5	0	0	0	0	2	0	22.5
2nd	10	4	5.5	5	0	0	0	0	0	24.5
3rd	16	4	0	0	4	0	0	0	0	24
4th	16	5	0	0	0	0	3	0	0	24
5th	10	0	0	0	0	10	0	0	4	24
6th	10	0	0	0	0	11	0	0	4	25
Total Credit Course- wise	73	17	11	5	4	21	3	2	8	144
Total Credit										144

Mandatory Mathematics Course

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MMC-BSMH-101	Calculus	4	1	0	5	I
2	MMC-BSMH-102	Algebra	4	1	0	5	I
3	MMC-BSMH-103	Lab on basic Mathematics and its operation using MATLAB	0	0	2	1	I
4	MMC-BSMH-201	Real Analysis	4	1	0	5	II
5	MMC-BSMH-202	Differential Equations	4	1	0	5	II
6	MMC-BSMH-301	Theory of Real Function	4	1	0	5	III
7	MMC-BSMH-302	Group Theory-I	4	1	0	5	III
8	MMC-BSMH-303	Multivariate Calculus	4	1	0	5	III
9	MMC-BSMH-304	Programming on Real Function using MATLAB	0	0	2	1	III
10	MMC-BSMH-401	Partial Differential Equation	4	1	0	5	IV
11	MMC-BSMH-402	Riemann Integration and Series of Functions	4	1	0	5	IV
12	MMC-BSMH-403	Ring Theory and Linear Algebra-I	4	1	0	5	IV
13	MMC-BSMH-404	Lab on Partial Differential Equation using MATLAB	0	0	2	1	IV
14	MMC-BSMH-501	Metric Spaces	4	1	0	5	V
15	MMC-BSMH-502	Group Theory-II	4	1	0	5	V
16	MMC-BSMH-601	Complex Analysis	4	1	0	5	VI
17	MMC-BSMH-602	Ring Theory and Linear Algebra-II	4	1	0	5	VI
Total Credit:						73	

BASIC SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-BSMH-101	Physics	3	1	0	4	I
2	BSC-BSMH-102	Physics Lab	0	0	3	1.5	I
3	BSC-BSMH-201	Chemistry	3	1	0	4	II
4	BSC-BSMH-202	Chemistry Lab	0	0	3	1.5	II
Total Credit:						11	

ENGINEERING SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	ESC-BSMH-301	C Programming	2	1	0	3	III
2	ESC-BSMH-302	C Programming LAB	0	0	2	1	III
Total Credit:						4	

Humanities and Social Sciences including Management Course

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	HSMC-BSMH-201	English	3	1	0	4	II
2	HSMC-BSMH-202	Technical Communication Lab	0	0	2	1	II
Total Credit:						5	

Mandatory Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MC-BSMH-101	Induction Programme	0	0	0	0	I
2	MC-BSMH-104	PT and Games/NSS/NCC-I	0	0	2	0	I
3	MC-BSMH-103	PDP-I	2	1	0	0	I
4	MC-BSMH-102	Environmental Science	2	0	0	2	I
5	MC-BSMH-202	PT and Games/NSS/NCC-II	0	0	2	0	II
6	MC-BSMH-201	PDP-II	2	1	0	0	II
7	MC-BSMH-301	Values & Ethics	2	0	0	0	III
8	MC-BSMH-302	PDP-III	2	1	0	0	III
9	MC-BSMH-401	PDP-IV	2	1	0	0	IV
10	MC-BSMH-501	PDP-V	2	1	0	0	V
11	MC-BSMH-601	PDP-VI	2	1	0	0	VI
Total Credit:						2	

Dicipline Specific Elective Course

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	DSEC-BSMH-501/DSEC-BSMH-502/DSEC-BSMH-503	Number Theory/ Integral Transform/Theory of Equations	4	1	0	5	V
2	DSEC-BSMH-504/DSEC-BSMH-505/DSEC-BSMH-506	Discrete Mathematics/ Integral Equation and Calculus of Variations/ Cryptography and Network Security	4	1	0	5	V
3	DSEC-BSMH-601/DSEC-BSMH-602/DSEC-BSMH-603	Numerical Method/ Analytical Geometry/Data structure	4	1	0	5	VI
4	DSEC-BSMH-604/DSEC-BSMH-605/DSEC-BSMH-606	Operation Research/ Data Base Management Systems/ Boolean Algebra and Automata Theory	4	1	0	5	VI
4	DSEC-BSMH-607/DSEC-BSMH-608/DSEC-BSMH-609	Lab on Numerical Methods/ Mathematical Modeling using Matlab/ Using data structure using C	0	0	2	1	VI
Total Credit:						21	

General Elective Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	GEC- BSMH- 101/GEC- BSMH-102	Statistics-I /Business Mathematics	3	1	0	4	I
2	GEC- BSMH- 201/GEC- BSMH-202	Statistics-II / Statistical Inference	3	1	0	4	II
3	GEC- BSMH- 301/GEC- BSMH-302	Mathematical Finance/ Sampling Theory	3	1	0	4	III
4	GEC- BSMH- 401/GEC- BSMH- 402/GEC- BSMH-403	Mechanics / Mathematical Modeling and Graph Theory / Biomathematics	4	1	0	5	IV
Total Credit:						17	

Professional Core Courses

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	PCC-BSMH-401	Computer Algebra Systems and Related Software	2	1	0	3	IV
Total Credit:						3	

Project

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	P -BSMH-501	System Research Phase-I	2	1	1	4	V
2	P-BSMH -601	System Research Phase-II (continued from 5th Sem)	2	1	1	4	VI
Total Credit:						8	

COURSE STRUCTURE

SEMESTER-I (1st YEAR)

Mathematics Honours (B. Sc.)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Mandatory Mathematics Course	MMC-BSMH-101	Calculus	4	1	0	5	30	70	100
2	Mandatory Mathematics Course	MMC-BSMH-102	Algebra	4	1	0	5	30	70	100
3	General Elective Course	GEC-BSMH-102	Business Mathematics	3	1	0	4	30	70	100
4	Basic Science Course	BSC-BSMH-101	Physics	3	1	0	4	30	70	100
5	Mandatory Course	MC-BSMH-102	Environmental Science	2	0	0	2	30	70	100
Total(A)							20	150	350	500
Lab / Practical										
1	Mandatory Mathematics Course	MMC-BSMH-103	Lab on basic Mathematics & its operation using MATLAB	0	0	2	1	30	20	50
2	Basic Science Course	BSC-BSMH-102	Physics Lab	0	0	3	1.5	30	20	50
Total(B)							2.5	60	40	100
Mandatory Courses										
1	Mandatory Course	MC-BSMH-101	Induction Programme	0	0	0	0	0	0	0
2	Mandatory Course	MC-BSMH-104	PT & Games/NSS/NCC-I	0	0	2	0	0	0	0
3	Mandatory Course	MC-BSMH-103	PDP-I	2	1	0	0	0	0	0
Total(C)							0	0	0	0
Grand Total (A+B+C)							22.5	210	390	600
L-Lecture, T-Tutorial, P-Practical IA- Internal Assessment, ESE-End Semester Examination										

COURSE STRUCTURE

SEMESTER-II (1st YEAR)

Mathematics Honours (B. Sc.)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Mandatory Mathematics Course	MMC-BSMH-201	Real Analysis	4	1	0	5	30	70	100
2	Mandatory Mathematics Course	MMC-BSMH-202	Differential Equations	4	1	0	5	30	70	100
3	General Elective Course	GEC-BSMH-201/GEC-BSMH-202	Statistics-II / Statistical Inference	3	1	0	4	30	70	100
4	Basic Science Course	BSC-BSMH-201	Chemistry	3	1	0	4	30	70	100
5	Humanities and Social Sciences including Management Course	HSMC-BSMH-201	English	3	1	0	4	30	70	100
Total(A)							22	150	350	500
Lab/ Practical										
1	Basic Science Course	BSC-BSMH-202	Chemistry Lab	0	0	3	1.5	30	20	50
2	Humanities and Social Sciences including Management Course	HSMC-BSMH-202	Technical Communication Lab	0	0	2	1	30	20	50
Total(B)				0	0	5	2.5	60	40	100
Mandatory Courses										
1	Mandatory Course	MC-BSMH-202	PT and Games/NSS/NCC-II	0	0	2	0	0	0	0
2	Mandatory Course	MC-BSMH-201	PDP-II	2	1	0	0	0	0	0
Total(C)							0	0	0	0
Grand Total (A+B+C)							24.5	210	390	600
L-Lecture, T-Tutorial, P-Practical										
IA- Internal Assessment, ESE-End Semester Examination										

COURSE STRUCTURE

SEMESTER-III (2nd YEAR)

Mathematics Honours (B. Sc.)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Mandatory Mathematics Course	MMC-BSMH-301	Theory of Real Function	4	1	0	5	30	70	100
3	Mandatory Mathematics Course	MMC-BSMH-302	Group Theory-I	4	1	0	5	30	70	100
2	Mandatory Mathematics Course	MMC-BSMH-303	Multivariate Calculus	4	1	0	5	30	70	100
4	General Elective Course	GEC-BSMH-301/GEC-BSMH-302	Mathematical Finance/ Sampling Theory	3	1	0	4	30	70	100
5	Engineering Science Course	ESC-BSMH-301	C Programming	2	1	0	3	30	70	100
Total(A)							22	150	350	500
Lab/ Practical										
1	Engineering Science Course	ESC-BSMH-302	C Programming LAB	0	0	2	1	30	20	50
2	Mandatory Mathematics Course	MMC-BSMH-304	Programming on Real Function using MATLAB	0	0	2	1	30	20	50
Total(B)							2	60	40	100
Mandatory Courses										
1	Mandatory Course	MC-BSMH-301	Values & Ethics	2	0	0	0	0	0	0
2	Mandatory Course	MC-BSMH-302	PDP-III	2	1	0	0	0	0	0
Total(C)							0	0	0	0
Grand Total (A+B+C)							24	210	390	600

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-IV (2nd YEAR)

Mathematics Honours (B. Sc.)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Mandatory Mathematics Course	MMC-BSMH-401	Partial Differential Equation	4	1	0	5	30	70	100
2	Mandatory Mathematics Course	MMC-BSMH-402	Riemann Integration and Series of Functions	4	1	0	5	30	70	100
3	Mandatory Mathematics Course	MMC-BSMH-403	Ring Theory and Linear Algebra-I	4	1	0	5	30	70	100
4	General Elective Course	GEC-BSMH-401/GEC-BSMH-402/GEC-BSMH-403	Mechanics / Mathematical Modeling and Graph Theory / Biomathematics	4	1	0	5	30	70	100
5	Professional Core Course	PCC-BSMH-401	Computer Algebra Systems and Related Software	2	1	0	3	30	70	100
Total(A)							23	150	350	500
Lab/ Practical										
1	Mandatory Mathematics Course	MMC-BSMH-404	Lab on Partial Differential Equation using MATLAB	0	0	2	1	30	20	50
Total(B)							1	30	20	50
Mandatory Courses										
1	Mandatory Course	MC-BSMH-401	PDP-IV	2	1	0	0	0	0	0
Total(C)							0	0	0	0
Grand Total (A+B+C)							24	180	370	550
L-Lecture, T-Tutorial, P-Practical IA- Internal Assessment, ESE-End Semester Examination										

COURSE STRUCTURE

SEMESTER-V (3rd YEAR)

Mathematics Honours (B. Sc.)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Mandatory Mathematics Course	MMC-BSMH-501	Metric Spaces	4	1	0	5	30	70	100
2	Mandatory Mathematics Course	MMC-BSMH-502	Group Theory-II	4	1	0	5	30	70	100
3	Dicipline Specific Elective Course	DSEC-BSMH-501/DSEC-BSMH-502/DSEC-BSMH-503	Number Theory/ Integral Transform/Theory of Equations	4	1	0	5	30	70	100
4	Dicipline Specific Elective Course	DSEC-BSMH-504/DSEC-BSMH-505/DSEC-BSMH-506	Discrete Mathematics/ Integral Equation and Calculus of Variations/ Cryptography and Network Security	4	1	0	5	30	70	100
Total(A)							20	120	280	400
Mandatory Courses/Project										
1	Mandatory Course	MC-BSMH-501	PDP-V	2	1	0	0	0	0	0
2	Project	P-BSMH-501	System Research Phase-I	2	1	1	4	30	70	100
Total(B)							4	30	70	100
Grand Total (A+B)							24	150	350	500
L-Lecture, T-Tutorial, P-Practical IA- Internal Assessment, ESE-End Semester Examination										

COURSE STRUCTURE

SEMESTER-VI (3rd YEAR) Mathematics Honours (B. Sc.)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Mandatory Mathematics Course	MMC-BSMH-601	Complex Analysis	4	1	0	5	30	70	100
2	Mandatory Mathematics Course	MMC-BSMH-602	Ring Theory and Linear Algebra-II	4	1	0	5	30	70	100
3	Dicipline Specific Elective Course	DSEC-BSMH-601/DSEC-BSMH-602/DSEC-BSMH-603	Numerical Method/ Analytical Geometry/Data structure	4	1	0	5	30	70	100
4	Dicipline Specific Elective Course	DSEC-BSMH-604/DSEC-BSMH-605/DSEC-BSMH-606	Operation Research/ Data Base Management Systems/ Boolean Algebra and Automata Theory	4	1	0	5	30	70	100
Total(A)							20	120	280	400
Lab/ Practical										
1	Dicipline Specific Elective Course	DSEC-BSMH-607/DSEC-BSMH-608/DSEC-BSMH-609	Lab on Numerical Methods/ Mathematical Modeling using Matlab/ Using data structure using C	0	0	2	1	30	20	50
Total(B)							1	30	20	50
Mandatory Courses/Project										
1	Mandatory Course	MC-BSMH-601	PDP-VI	2	1	0	0	0	0	0
2	Project	P-BSMH - 601	System Research Phase-II (continued from 5th Sem)	2	1	1	4	30	70	100
Total(C)							4	30	70	100
Grand Total (A+B+C)							25	180	370	550
L-Lecture, T-Tutorial, P-Practical IA- Internal Assessment, ESE-End Semester Examination										