MGM University, Chhatrapati Sambhajinagar

Name of Faculty: Faculty of Basic and Applied Sciences
Name of the College/Institute/Department/School: University Department of Basic and Applied Science
Name of the Programme: 3/4 Years UG ProgrammeB.Sc./B.Sc. (Hons.) Mathematics /B.Sc. (Hons) with Research in Mathematics
Programme Type (UG/PG): UG   **Duration: 3/4 Years (6/8 Semesters)**

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
					L	**P**	**Internal**	**External**	**Total**	**Internal**	**External**	**Total**
MM	BSM43MML101	Calculus-I	L	2	2	-	30	20	50	-	08	20
MM	BSM43MML102	Algebra	L	2	2	-	30	20	50	-	08	20
MM	BSM43MMP101	Lab Course –I(Practical based on Calculus-I and Algebra)	P	2	-	4	30	20	50	-	08	20
OE	MGMXXOEXXXX	*Open Elective - I	L	2	2	-	30	20	50	-	08	20
OE	MGMXXOEXXXX	*Open Elective - II	L	2	2	-	30	20	50	-	08	20
VSC	BSM43VSL101	Computer Fundamental-I	L	2	2	-	30	20	50	-	08	20
SEC	BSM43SEP101	Basic of MATLAB	P	2	-	4	30	20	50	-	08	20
AEC	MGM54AEL10X	Ability Enhancement Course I	L	2	2	-	30	20	50	-	08	20
VEC	MGMXXVELXXX	*Value Education course I	L	2	2	-	30	20	50	-	08	20
IKS	BSM43IKL101	Development of Sciences in India: "Ancient to Modern"	L	2	2	-	30	20	50	-	08	20
CC	MGMXXCCPXXX	*Co – curricular course I	P	2	-	4	30	20	50	-	08	20
Total=28				**22**	**16**	**12**			**550**			

Note: *To be chosen from MGM University basket
 # To be chosen from department basket
Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

MGM University, Chhatrapati Sambhajinagar

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
					L	P	Internal	External	Total	Internal	External	Total
MM	BSM43MML103	Calculus-II	L	2	2	-	30	20	50	-	08	20
MM	BSM43MML104	Analytical Geometry	L	2	2	-	30	20	50	-	08	20
MM	BSM43MMP102	Lab Course –II(Practical based on Calculus-II and Analytical Geometry)	P	2	-	4	30	20	50	-	08	20
MIN		*Minor I	L	2	2	-	30	20	50	-	08	20
OE	MGMXXOEXXXX	*Open Elective - III	L	2	2	-	30	20	50	-	08	20
OE	MGMXXOEXXXX	*Open Elective - IV	L	2	2	-	30	20	50	-	08	20
VSC	BSM43VSL102	Computer Fundamental-II	L	2	2	-	30	20	50	-	08	20
SEC	BSM43SEP102	Programming using MATLAB	P	2	-	4	30	20	50	-	08	20
AEC	MGM54AEL10X	*Ability Enhancement course II	L	2	2	-	30	20	50	-	08	20
VEC	MGMXXVELXXX	*Value Education course II	L	2	2	-	30	20	50	-	08	20
CC	MGMXXCCPXXX	*Co – curricular course II	P	2	-	4	30	20	50	-	08	20
		Total = 28		22	16	12			550			

First Year - Semester II

Note: *To be chosen from MGM University basket
Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

Level 4.5 Award of UG certificate with 44 credits and an additional 4-credits core NSQF course / internship OR continue with major and minor.

(Annexture I)

MGM University, Chhatrapati Sambhajinagar

List of Options to select from Bucket of Courses provided in various categories:

Major
Mathematics

Minor options Within Faculty of Basic Sciences	Web Technology	Animation
	Forensic Science	Statistics
	Food Nutrition and Dietetics	Bioinformatics
	Chemistry	Material Science
	Geo-Informatics	

	Faculty of Engineering and Technology	Faculty of Social Sciences and Humanities	Faculty of Design	Faculty of Management and Commerce	Interdisciplinary Faculty	Performing Arts
Minor options from Other Faculty	Geo-Informatics and Applications	Filmmaking	Product Design	Financial Management	Cosmetic Technology	Theatre Arts
	Data Science	Photography	Visual Communication	E-Commerce	Education	Dance
	IoT	Psychology	Contemporary Arts	International Business Management	Yoga Sciences	Music
	Energy management	Economics	Interior Design	Hospitality Mgmt	Physical Education	Folk Art
	EV Technology	English	Fashion Technology	Travel and Tourism	Home Science	
	Drone Technology					
	Robotics Technology					

MGM University, Chhatrapati Sambhajinagar

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
Second Year - Semester III												
					L	P	Internal	External	Total	Internal	External	Total
MM	BSM43MML201	Group Theory	L	3	3	-	60	40	100	-	16	40
MM	BSM43MML202	Real Analysis	L	3	3	-	60	40	100	-	16	40
MM	BSM43MMP201	Lab Course –III (Practical based on Group Theory and RealAnalysis)	P	2	-	4	30	20	50	-	08	20
MIN		*Minor – II	L	4	4	-	60	40	100	-	16	40
OE	MGMXXOEXXXX	*Open Elective - V	L	2	2	-	30	20	50	-	08	20
VSC	BSM43VSP201	Introduction to R Programming	P	2	-	4	30	20	50	-	08	20
AEC	MGM54AEL20X	*Ability Enhancement course III	L	2	2	-	30	20	50	-	08	20
FP	BSM43FPJ201	Field project I	J	2	-	4	30	20	50	-	08	20
CC	MGMXXCCPXXX	*Co – curricular course III	P	2	-	4	30	20	50	-	08	20
Total=30				22	14	16			600			

Note: *To be chosen from MGM University basket
Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

MGM University, Chhatrapati Sambhajinagar

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
					L	P	Internal	External	Total	Internal	External	Total
MM	BSM43MML203	Ordinary Differential Equations	L	3	3	-	60	40	100	-	16	40
MM	BSM43MML204	Ring Theory	L	3	3	-	60	40	100	-	16	40
MM	BSM43MMP202	Lab Course –IV (Practical based on Ordinary Differential Equations and RingTheory)	P	2	-	4	30	20	50	-	08	20
MIN		*Minor – III	L	4	4	-	60	40	100	-	16	40
OE	MGMXXOEXXXX	*Open Elective - VI	L	2	2	-	30	20	50	-	08	20
SEC	BSM43SEP201	Introduction to Python Programming	P	2	-	4	30	20	50		08	20
AEC	MGM54AEL20X	*Ability Enhancement course IV	L	2	2	-	30	20	50	-	08	20
CEP	BSM43CEJ201	@CommunityEngagement Program	J	2	-	4	30	20	50	-	08	20
CC	MGMXXCCPXXX	*Co – curricular course IV	P	2	-	4	30	20	50	-	08	20
Total = 30				**22**	**14**	**16**			**600**			

Second Year - Semester IV

Note: *To be chosen from MGM University basket
@Community Engagement Program will consist of program for Secondary students about Importance of Mathematics.
Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

Level 5.0 Award of UG Diploma in major and minor with (44+44) =88 credits and an additional 4-credits core NSQF course / internship OR continue with major and minor

MGM University, Chhatrapati Sambhajinagar

					Teaching (Contact hrs/week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
Course Category	**Course Code**	**Course Title**	**Nature of Course**	**No. of Credits**	**L**	**P**	**Internal**	**External**	**Total**	**Internal**	**External**	**Total**
MM	BSM43MML301	Metric Spaces	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML302	Linear Algebra	L	4	4	-	60	40	100	-	16	40
MM	BSM43MMP301	Lab Course –V (Practical based on Metric Spaces and Linear Algebra)	P	2	-	4	30	20	50	-	8	20
ME	BSM43MEL30X	$Major Elective I	L	4	4	-	60	40	100	-	16	40
MIN		* Minor – IV	L	4	4	-	60	40	100	-	16	40
VSC	BSM43VSP301	Introduction to Latex	P	2	-	4	30	20	50	-	8	20
FP	BSM43FPJ301	Field project II	J	2	-	4	30	20	50	-	8	20
		Total = 28		**22**	**16**	**12**			**550**			

Note: *To be chosen from MGM University basket. $Elective I: To be chosen from1. Operational Research/ Numerical Analysis

Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
Third Year - Semester VI												
					L	P	Internal	External	Total	Internal	External	Total
MM	BSM43MML303	Complex Analysis	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML304	Integral Transform	L	4	4	-	60	40	100	-	16	40
MM	BSM43MMP302	Lab Course –VI (Practical based on Complex Analysis and Integral Transform)	P	2	-	4	30	20	50	-	8	20
ME	BSM43MEL30X	$Major Elective II	L	4	4	-	60	40	100	-	16	40
MIN		* Minor – V	L	4	4	-	60	40	100	-	16	40
OJT	BSM43JTI301	On Job Training	I	4	-	8	60	40	100	-	16	40
	Total = 28			**22**	**16**	**12**			**550**			

Note: *To be chosen from MGM University basket. $Major Elective II: To be chosen from Mechanics/ Topology

Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

Level 5.5 Award of UG degree in major and minor (88+44) =132 credits OR continue with major and minor

MGM University, Chhatrapati Sambhajinagar

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
Fourth Year - Semester VII												
					L	P	Internal	External	Total	Internal	External	Total
MM	BSM43MML401	Abstract Algebra	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML402	Advance Real Analysis	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML403	Advance Complex Analysis	L	4	4	-	60	40	100	-	16	40
MM	BSM43MMP401	Introduction to SCILAB	P	2	-	4	30	20	50	-	08	20
ME	BSM43MEL40X	$Major Elective III	L	4	4	-	60	40	100	-	16	40
RM	BSM43RML401	Research Methodology	L	4	4		60	40	100	-	16	40
Total = 24				22	20	04			550			

Note: $Major Elective III: To be chosen from Elementary Number Theory/Probability and Statistics

Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

MGM University, Chhatrapati Sambhajinagar

							Fourth Year - Semester VIII					

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
					L	P	Internal	External	Total	Internal	External	Total
MM	BSM43MML404	Linear Algebra	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML405	Measure and Integration	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML406	Partial Differential Equation	L	4	4	-	60	40	100	-	16	40
MM	BSM43MMP402	Introduction to Sage Math	P	2	-	4	30	20	50	-	08	20
ME	BSM43MEL40X	$Major Elective IV	L	4	4	-	60	40	100	-	16	40
OJT	BSM43JTI402	On Job Training	I	4	-	8	60	40	100	-	16	40
	Total=28			**22**	**16**	**12**			**550**			

Note$Major Elective IVTo be chosen fromGraph Theory/ Multivariate Calculus/ Advanced Discrete Mathematics

Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

Level 6.0 Four-year UG Honors Degree in major and minor (132 +44) = 176 credits

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MGM University, Chhatrapati Sambhajinagar

Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)		
					L	P	Internal	External	Total	Internal	External	Total
MM	BSM43MML404	Linear Algebra	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML405	Measure and Integration	L	4	4	-	60	40	100	-	16	40
MM	BSM43MML406	Partial Differential Equation	L	4	4	-	60	40	100	-	16	40
MM	BSM43MMP402	Introduction to Sage Math	P	2	-	4	30	20	50	-	08	20
ME	BSM43MEL40X	$Major Elective IV	L	4	4	-	60	40	100	-	16	40
OJT	BSM43JTI402	On Job Training	I	4	-	8	60	40	100	-	16	40
	Total=28			**22**	**16**	**12**			**550**			

(Table title: **Fourth Year - Semester VIII**)

Note$Major Elective IVTo be chosen fromGraph Theory/ Multivariate Calculus/ Advanced Discrete Mathematics

Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

Level 6.0 Four-year UG Honors Degree in major and minor (132 +44) = 176 credits

					Fourth Year - Semester VII								
Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)			
					L	P	Internal	External	Total	Internal	External	Total	
MM	BSM43MML401	Abstract Algebra	L	4	4	-	60	40	100	-	16	40	
MM	BSM43MML402	Advance Real Analysis	L	4	4	-	60	40	100	-	16	40	
ME	BSM43MEL40X	$Major Elective III	L	4	4	-	60	40	100	-	16	40	
MM	BSM43MMP401	Introduction to SCILAB	P	2	-	4	30	20	50	-	08	20	
RM	BSM43RML401	Research Methodology	L	4	4	-	60	40	100	-	16	40	
RP	BSM43RPJ401	Research Project I	J	4	-	8	60	40	100	-	16	40	
	Total = 28			22	16	12			550				

Note$Major Elective III: To be chosen fromElementary Number Theory/Probability and Statistics

Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

MGM University, Chhatrapati Sambhajinagar

Fourth Year - Semester VIII													
Course Category	Course Code	Course Title	Nature of Course	No. of Credits	Teaching (Contact hrs/ week)		Evaluation Scheme (Marks)			Minimum Passing (Marks)			
					L	P	Internal	External	Total	Internal	External	Total	
MM	BSM43MML404	Linear Algebra	L	4	4	-	60	40	100	-	16	40	
MM	BSM43MML405	Measure and Integration	L	4	4	-	60	40	100	-	16	40	
MM	BSM43MMP402	Introduction to Sage Math	P	2	-	4	30	20	50	-	08	20	
ME	BSM43MEL402	$Major Elective IV	L	4	4	-	60	40	100	-	16	40	
RP	BSM43RPJ402	Research Project II	J	8	-	16	60	40	100	-	16	40	
		Total = 32		22	12	20			450				

Note: $Major Elective IV To be chosen from Graph Theory/ Multivariate Calculus/ Advanced Discrete Mathematics

Nature of Course: L- Lecture, P-Practical, S-Seminar, J-Project, I-Internship, D-Dissertation,
Course Category: MM-Major Mandatory, ME-Major Elective, MI-Minor, OE-Generic / Open electives, VSC-Vocational skill course, SEC-Skill Enhancement course, AEC-Ability Enhancement course, IKS-Indian Knowledge system, VEC-Value Education course, OJT-On Job Training / Internship / Apprenticeship, FP-Field project, CEP-Community engagement and service, CC-Co – curricular course, RM-Research methodology, RP-Research project

Level 6.0 Four-year UG Honors Degree in major and minor (132 +44) = 176 credits

MGM University, Chhatrapati Sambhajinagar

Annexture II
List of Major Electives

Sr.No	Semester	Course Code	Course Title	Nature of Course
1	V	BSM43MEL301	Operational Research	L
		BSM43MEL302	Numerical Analysis	L
3	VI	BSM43MEL303	Mechanics	L
		BSM43MEL304	Topology	L
5	VII	BSM43MEL401	Elementary Number Theory	L
		BSM43MEL402	Probability and Statistics	L
7	VIII	BSM43MEL403	Graph Theory	L
		BSM43MEL404	Multivariate Calculus	L
8		BSM43MEL405	Advanced Discrete Mathematics	L