1.2.2 Percentage of programs in which Choice Based Credit System (CBCS)/ elective course system has been implemented (20)

Programme Code	Programme name	Year of Introduction	n of CBCS / Elect	on of CBCS / Elective	Year of revision (if any)	the syllabus during last 5 years, Percent	Link to the relevant documents
				CBCS:	CBCS:	CBCS:	CBCS:
619	MTech in Computer Science (Information Security)	2017	ECS	2017	2020	20 percentage	http://makautexam.net/aicte_details/CourseStructurel/MTECHITIS.pdf
109	MTech in Bioinformatics	2005	ECS	2018	2021	50 percentage	http://makautexam.net/aicte_details/CourseStructurel/MTECHBI.pdf
280	Msc in Molecular Biology	2005	ECS	2018	2019	30 percent	http://makautexam.net/aicte_details/Syllabusl/MSCMOL/AllSem.pdf
281	Msc in Microbiology	2007	ECS	2018	2019	30 percent	http://makautexam.net/aicte_details/Syllabusl/MSCMB/AllSem.pdf
282	Msc in Genetics	2013	ECS	2018	2019	30 percent	http://makautexam.net/aicte_details/Syllabusl/MSCGE/AllSem1.pdf
150	MTech in Material Science and Technology	2018	ECS	2018	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/MTECHMS/AllSem.pdf
609	MTech in Artificial Intelligence	2019	ECS	2019	2021	20 percent	http://makautexam.net/aicte_details/Syllabusl/MTECHITAI/AllSem.pdf
607	MTech in IT (Data Science)	2019	ECS	2019	2021	20 percent	http://makautexam.net/aicte_details/Syllabusl/MTECHITDS/AllSem20.pdf
887	M.Sc. in Food Science & Technology	2019	ECS	2019	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MSCFST/AllSem.pdf
191	M.Tech in Geoinformatics	2019	ECS	2019	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHGI/AllSem20.
889	MSc in Forensic Science	2019	ECS	2019	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/MSCFS/AllSem20.pdf
999	M.Tech in Renewable Energy	2019	ECS	2019	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHRE/AllSem.pdf
996	M.Sc Media Science	2019	ECS	2019	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/MSCMS/AllSem2
9	MBA(MBA)	2019	ECS	2019	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/MBA/AllSem.pdf
992	M.Sc in Biotechnology	2019	ECS	2019	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/MSCBT/AllSem20.pdf
179	M.Sc in Material Science	2019	ECS	2019	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/MTECHMS/AllSem.pdf
50	BBA	2019	CBCS	2020	2021	30 percentage	http://makautexam.net/aicte_details/MOOCSI/N1.pdf
834	BBA in Business Analytics	2019	CBCS	2020	2021	30 percentage	http://makautexam.net/aicte_details/CourseStructurel/BBABA20.pdf
39	BBA in Travel and Tourism	2019	CBCS	2020	2021	30 percentage	http://makautexam.net/aicte_details/CourseStructurel/BBATTM20.pdf
33	BBA in Hospital Management	2019	CBCS	2020	2021	30 percentage	http://makautexam.net/aicte_details/CourseStructurel/BBAHM20.pdf
562	BBA in Digital Marketing	2019	CBCS	2020	2021	30 percentage	http://makautexam.net/aicte_details/CourseStructurel/BBADM20.pdf
546	B.Sc in IT (Artificial Intelligence)	2019	CBCS	2020	2020	20 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCITAI/AllSem20.pdf
843	B.Sc in IT (Data Science)	2019	CBCS	2020	2020	20 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCDS/AllSem20.pdf
538	B.Sc in IT (Big Data Analytics)	2019	CBCS	2020	2020	20 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCITBDA/AllSem20.pdf
853	B.Sc in IT (Cyber Security)	2019	CBCS	2020	2020	20 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCCS/AllSem20.pdf
12	BCA	2019	CBCS	2020	2020	20 percentage	http://makautexam.net/aicte_details/CourseStructurel/BCA20.pdf
82	B.Sc. in Biotechnology	2019	CBCS	2020	2020	30 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCBT/AllSem20.pdf
599	B.Sc. in Bioinformatics	2020	CBCS	2020	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCBI/AllSem20.pdf
600	B.Sc Mathematics and Computer Applications	2020	CBCS	2020	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/BSCBMC/AllSem20.pdf
592	B.Sc in Forensic Science	2020	CBCS	2020	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/BSCFS/AllSem20.pdf
601	B.Sc in Food Science & Technology	2020	CBCS	2020	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/BSCFST/AllSem20.pdf
591	B.Sc in Robotics & 3D Printing	2019	CBCS	2020	2020	30 percentage	http://makautexam.net/aicte_details/CourseStructurel/BSCR3DP20.pdf
593	B.Sc in Animation & Film Making	2019	CBCS	2020	2020	66 percent	http://makautexam.net/aicte_details/Syllabusl/BSCAFM/AllSem20.pdf
38	B.Sc in Media Science	2020	CBCS	2020	2021	40 percent	http://makautexam.net/aicte_details/Syllabusl/BSCMS1/AllSem20.pdf
550	B.Sc in Gaming & Mobile Application development	2020	CBCS	2020	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/BSCGMAD/AllSem21.pdf
604	B.Sc in Statistics	2021	CBCS	2021	2022	20 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCS/AllSem21.pdf
888	M.Sc in Applied Chemistry	2019	ECS	2021	N/A	N\A	http://makautexam.net/aicte_details/Syllabusl/MSCAC/AllSem21.pdf
155	B.Sc in Materials Science	2019	CBCS	2021	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/BSCMS/AllSem20.pdf
886	M.Sc in Food Science and Nutrition	2021	ECS	2021	N\A	N\A	http://makautexam.net/aicte_details/Syllabusl/MSCFSN/AllSem21.pdf
180	M.Sc in Applied Statistics	2020	ECS	2020	N\A	N\A	http://makautexam.net/aicte_details/Syllabusl/MSCAC/AllSem21.pdf
101	M.Tech in Embeded System and VLSI desgin	2021	ECS	2021	N\A	N\A	http://makautexam.net/aicte_details/Syllabusl/MTECHEVLSI/AllSem21.pdf
1	BTech in Computer Science and Engineering	2007	ECS	2007	2019	20 percentage	http://makautexam.net/aicte_details/Syllabusl/CSE/AllSem20.pdf
603	B.Sc in Economics	2022	CBCS	2022	N\A	N\A	http://makautexam.net/aicte_details/Syllabusl/BSCE/AllSem21.pdf
988	M.Sc in Applied Economics	2022	ECS	2022	N\A	N\A	http://makautexam.net/aicte_details/Syllabusl/MSCAC/AllSem21.pdf
605	B.Sc in Psychology	2022	CBCS	2022	N\A	N\A	makautexam.net/aicte_details/CourseStructurel/BSCPSYCHOLOGY21.pdf
989	M.Sc Applied Psychology	2022	ECS	2022	N\A	N\A	utexam.net/aicte_details/CourseStructurel/MSCAPPLIEDPSYCHOLOGY21.p
610	M.tech in Biotechnology	2019	ECS	2019	2019	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHBT/AllSem21.pdf
113	Mtech in Software Engineering	2019	ECS	2019	2019	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHSE/AllSem.pdf
136	Mtech in Microelectronics and VLSI Technology	2019	ECS	2019	N/A	N\A	http://makautexam.net/aicte_details/Syllabusl/MTECHMVLSI/AllSem.pdf
991	M.Sc Applied Mathematics	2022	ECS	2022	N/A	N\A	p://makautexam.net/aicte_details/Syllabusl/MSCAM/AllSem21.pdf
172	MSc in IT (Cybersecurity)	2020	ECS	2020	N/A	N\A	http://makautexam.net/aicte_details/Syllabusl/MSCITCS/AllSem20.pdf
171	M.Sc in IT (Artificial Intelligence)	2020	ECS	2020	N/A	N\A	http://makautexam.net/aicte_details/Syllabusl/MSCITAI/AllSem20.pdf
981	M.Sc in IT(Data Science)	2020	ECS	2020	N/A	N\A	http://makautexam.net/aicte_details/Syllabusl/MSCITDS/AllSem20.pdf
628	M.Tech in Internet of Things	2019	ECS	2019	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHITIOT/AllSem20.pdf
2	B.Tech in Information Technology	2003	CBCS	2003	2019	20percentage	http://makautexam.net/aicte_details/CourseStructurel/IT.pdf
614	M.Tech in Information Technology	2003	ECS	2003	2019	20percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHIT/AllSem.pdf
251	PG Diploma in Geoinformatics	2019	ECS	2019	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHGI/AllSem20.pdf
710	MCA	2020	ECS	2020	N/A	N/A	http://makautexam.net/aicte_details/CourseStructurel/MCA20.pdf
132	M.Tech in Industrial Engineering and Managem	2008		2008	2021	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHIEM/AllSem.pdf
178	M.Sc in Bioinformatics	2021	ECS	2021	N/A	N/A	http://makautexam.net/aicte_details/Syllabusl/MSCBI/AllSem21.pdf
612	M.Tech in Computer Science and Engineering	2003	ECS	2003	2019	20 percentage	http://makautexam.net/aicte_details/Syllabusl/MTECHCSE/AllSem.pdf

Maulana Abul Kalam Azad University of Technology, West Bengal
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Registrar

Maulana Abul Kalam Azad University of Technology, West Bengal(formerly West Bengal University of Technology)

CBCS

COURSE

STRUCTURE

CBCS

UG COURSE

1.BACHELOR OF BUSINESS ADMINISTRATION (BBA)

Curriculum Structure

SEM-1

Sl	Subject type	Code	Subject name	Credits			Total credits
				L	T	P	
1	CC	BBA101	Principles of Management	5	1		6
2		BBA 102	Business Economics	5	1		6
3	GE		Any one from GE Basket				6
4	AECC	BBA 104	Business Communication	2			2
Total Credit							20

SEM-2

Sl	Subject type	Code	Subject name	Credits			Total credits
				L	T	P	
1	CC	BBA201	Operations Management	5	1		6
2		BBA 202	Organizational Behaviour	5	1		6
3	GE		Any one from GE Basket				6
4	AECC	BBA 204	Environment & Sustainable Development	2			2
Total Credit							20

SEM-3

Sl	Subject type	Code	Subject name	Credits			Total credits
				L	T	P	
1	CC	BBA301 BBA391	Business Research Methods	4		2	6
2		BBA 302	Financial Accounting	5	1		6
3		BBA 303	Marketing Management	5	1		6
4	GE		Any one from GE Basket				6
5	AECC	BBA 305	Personality Development			2	2
Total Credit							26

SEM-4

Sl	Subject type	Code	Subject name	Credits			Total credits
				L	T	P	
1	CC	BBA401	Human Resource Management	5	1		6
2		BBA 402	Sales & Distribution Management	5	1		6
3		BBA 403	Customer Relationship Management	5	1		6
4	GE		Any one from GE Basket				6
5	AECC	BBA 405	Computer Applications	2			2
Total Credit							26

SEM-5

Sl	Subject type	Code	Subject name	Credits			Total credits
				L	T	P	
1	CC	BBA 501	Financial Management and Risk Analysis	5	1		6
2		BBA 502	Entrepreneurship	5	1		6
3	DSE	BBA 503 (ANY ONE)	BBA 503(A): Consumer Behaviour or BBA 503(B): Financial Markets, Institutions and Financial Services or BBA 503(C): Industrial Relations	5	1		6
4		BBA 504 (ANY ONE)	BBA 504(A): Data Analytics Skills for Managers or BBA 504(B) :Business Intelligence	5	1		6
Total Credit							24

SEM-6

Sl	Subject type	Code	Subject name	Credits			Total credits
				L	T	P	
1	CC	BBA 601	Project Management	5	1		6
2		BBA 602	Supply Chain and Logistics Management	5	1		6
3	DSE	BBA 603 (ANY ONE)	BBA 603 (A): Marketing Analytics or BBA 603 (B): Financial Analytics or BBA 603 (C): Human Resource Analytics	5	1		6
4		BBA 694 (ANY ONE)	Project* or Internship*		1	5	6
Total Credit							24

2. BBA IN BUSINESS ANALYTICS

SEM-1

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA(BA) 101	Principles of Management	5	1		6
2.		BBA(BA) 102	Business Economics	5	1		6
3.	GE		Any one from GE BAsket				6
4.	AECC	BBA(BA) 104	Business Communication	2			2
Total Credit							20

SEM-2

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA(BA) 201 BBA(BA) 291	Inferential Statistics and Applications	4		2	6
2.		BBA(BA) 202	Organizational Behaviour	5	1		6
3.	GE		Any one from GE Basket				6
4.	AECC	BBA(BA) 204	Environment & Sustainable Development	2			2
Total Credit							**20**

SEM-3

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA(BA) 301 BBA(BA) 391	Business Research Methods	4		2	6
2.		BBA(BA) 302	Financial Accounting & Management	5	1		6
3.		BBA(BA) 303	Marketing Management & Metrics	5	1		6
4.	GE		Any one from GE Basket				6
5.	SEC	BBA(BA) 305	Personality Development			2	2
Total Credit							**26**

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA(BA) 401	Predictive Analytics	5	1		6
2.		BBA(BA) 402	Supply Chain Management	5	1		6
3.		BBA(BA) 403	Customer Relationship Management	5	1		6
4.	GE		Any one from GE Basket				6
5.	SEC	BBA(BA) 405	Data Analysis using R	2			2
Total Credit							26

SEM-5

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA(BA) 501	Business Ethics and Corporate Social Responsibility	5	1		6
2.		BBA(BA) 502	Entrepreneurship	5	1		6
3.	DSE	BBA(BA) 503 (Any One)	BBA (BA) 503(A): Data Analytics Skills for Managers or BBA (BA) 503 (B): Business Intelligence	5	1		6
4.		BBA(BA) 504 (Any One)	BBA(BA)504(A): Human Resource Analytics or BBA(BA)504(B): Health Care Analytics or BBA(BA)504(C): Financial Analytics	5	1		6
Total Credit							**24**

SEM-6

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA(BA) 601	Project Management	5	1		6
2.		BBA(BA) 602	Data Structures and Algorithms	5	1		6
3.	DSE	BBA(BA) 603 (Any One)	BBA(BA)603(A): E-Commerce and M-Commerce or BBA(BA)603(B): Data Mining	5	1		6
4.		BBA(BA) 694 (Any One)	Project* or Internship*		1	5	6
Total Credit							**24**

*(Students have to engage in a full length project with a pre-specified Internal Guide (faculty member) throughout the semester). Industry collaboration is highly encouraged wherever possible.

(At least two-three times progress needs to be checked and evaluation needs to be done through PCA.) It will followed by areport submission and viv

3. BBA IN TRAVEL AND TOURISM:

Curriculum Structure

SEM-1

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA (TTM)-101	Tourism Principles & Practices	5	1		6
2.		BBA (TTM)-102	Principles of Management	5	1		6
3.	GE		GE Any one course from GE Baskets				6
4.	AECC	BBA (TTM)-104	Business Communication	2			2
Total Credit							20

	Subject Type	Code	Subject Name	**Credits**			**Total Credits**
				L	**T**	**P**	
	CC	BBA (TTM)-201	Transport in Travel & Tourism	5	1		6
		BBA (TTM)-202	Travel Agency & Tour Operation Management	5	1		6
	GE		GE Any one course from GE Baskets				6
	AECC	BBA (TTM)-204	Environment & Sustainable Development	2			2
							20

SEM-3

	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
	CC	BBA (TTM)-301	Tourism Products & Destination Management	5	1		6
		BBA (TTM)-302	Introduction to Hospitality in Tourism	5	1		6

		BBA (TTM)-303	Tourism Economics	5	1		6
	GE		GE Any one course from GE Baskets				6
	SEC	BBA (TTM)-305	Foreign Language (French)-I	2			2
							26

	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
	CC	BBA (TTM)-401	Tourism Marketing	5	1		6
		BBA (TTM)-402	Accounts & Finance for Tourism	5	1		6
		BBA (TTM)-403	Organizational Behaviour & HRM in Tourism	5	1		6
	GE		GE Any one course from GE Baskets				6
	SEC	BBA (TTM)-405	Foreign Language (French)-II	2			2
							26

SEM-5

	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
	CC	BBA (TTM)-501	Event Tourism & Public Relations	5	1		6
		BBA(TTM)-502	Entrepreneurship & Community Development in Tourism	5	1		6
	DSE		Specialization Paper-I*				
		BBA(TTM)-503 A	Travel Agency & Tour Operation Management I 0r	5	1		6
		BBA (TTM)-503 B	MICE Management I Or				
		BBA (TTM)-503 C	Airline & Cargo Management I				
		BBA (TTM)-594	Study Tour Report ##		1	5	6
							24

SEM-6

	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
	CC	BBA (TTM)-601	ICT & E-Tourism	5	1		6
		BBA(TTM)-602	Travel Preparation, Safety and Wellness	5	1		6
	DSE		Specialization Paper-II*	5	1		6
		BBA(TTM)-603A	Travel Agency & Tour Operation Management II				
			0r				
		BBA (TTM)-603 B	MICE Management II				
			Or				
		BBA (TTM)-603 C	Airline & Cargo Management II				
		BBA (TTM)-694	Dissertation (Post Industrial Training) ##		1	5	6

* Specialization: Students have to opt for any one specialization amongst three electives.

(Students have to engage in a full-length project with a pre-specified Internal Guide [faculty member] throughout the semester). Industry collaboration is highly encouraged wherever possible.

(At least two-three times progress needs to checked and evaluation needs to be done through PCA.) It will be followed by a report submission and viva.

4.BBA in Hospital Management

SEM-1:

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA (HM) 101	Hospital Operations Management	5	1		6
2.		BBA (HM) 102	Hospital and Health Systems	5	1		6
3.	GE		Any one from GE Basket				6
4.	AECC	BBA(HM) 104	English Communication	2			2
Total Credit							20

SEM-2

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	CC	BBA(HM) 201	Medical Terminology	5	1		6
2.		BBA(HM) 202	Hospital Overview (Field Visit)	5	1		6
3.	GE		Any one from GE Basket				6
4.	AECC	BBA(HM) 204	Environment & Sustainable Development	2			2
Total Credit							20

SEM-3

Sl.	**Subject Type**	**Code**	**Subject Name**	**Credits**			**Total Credits**
				L	**T**	**P**	
1.	**CC**	BBA(HM) 301	Medical Record Science	5	1		6
2.		BBA(HM) 302	Health Care Marketing	5	1		6
3.		BBA(HM) 303	Health Information Systems	5	1		6
4.	**GE**		Any one from GE Basket				6
5.	**SEC**	BBA (HM) 305	Computer Applications	2			2
Total Credit							**26**

SEM-4

Sl.	**Subject Type**	**Code**	**Subject Name**	**Credits**			**Total Credits**
				L	**T**	**P**	

1.	**CC**	BBA(HM) 401	Public Health and Health Care Planning	5	1		6
2.		BBA (HM) 402	Support Utility Systems-I	5	1		6
3.		BBA(HM) 403	Hospital Inventory Management	5	1		6
4.	**GE**		Any one from GE Basket				6
5.	**SEC**	BBA(HM) 405	Basic Healthcare Analytics	2			2
Total Credit							**26**

SEM-5

Sl.	**Subject Type**	**Code**	**Subject Name**	**Credits**			**Total Credits**
				L	**T**	**P**	
1.	**CC**	BBA (HM) 501	Epidemiological Transitions in Healthcare	5	1		6
2.		BBA (HM) 502	Support and Utility Services-II	5	1		6
3.	**DSE 1** (Any one)	BBA(HM) 503 (A) BBA(HM) 503 (B)	Financial Management and Risk Analysis Concepts of Digital Health	5	1		6
4.	**DSE 2** **(** Any One)	BBA (HM) 594 (A/B) *	Minor Project Internship		1	5	6
Total Credit							**24**

SEM 6:

Sl.	**Subject Type**	**Code**	**Subject Name**	**Credits**			**Total Credits**
				L	**T**	**P**	
1.	**CC**	BBA(HM)601	Quality in Healthcare	5	1		6
2.		BBA(HM)602	Health Insurance	5	1		6
3.	**DSE 3** (Any one)	BBA(HM)603 (A) BBA(HM) 603 (B)	Health Economics Human Resource Management	5	1		6
4.	**DSE 4** (Any one)	BBA(HM)694 *(A/B)	Major Project/ Internship		1	5	6
Total Credit							**24**

5.BBA IN DIGITAL MARKETING:

SEM-1

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits	Delivery
				L	T	P		
1.	**CC**	BBA(DM) 101 & BBA(DM)191	Introduction to Media and Computer Applications	4		2	6	
2.		BBA(DM) 102	Business Economics	5	1		6	
3.	**GE**		Any one course from GE Baskets				6	
4.	**AECC**	BBA(DM) 104	English Communication	2			2	
Total Credit							20	

SEM-2

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits	Delivery
				L	T	P		
1.	**CC**	BBA(DM) 201	Marketing Management	5	1		6	
2.		BBA(DM) 202	Organisational Behaviour	5	1		6	
3.	**GE**		Any one course from GE Baskets				6	
4.	**AECC**	BBA(DM) 204	Environment & Sustainable Development	2			2	
Total Credit							**20**	

SEM-3

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits	Delivery
				L	T	P		
1.	**CC**	BBA(DM) 301 BBA(DM)391	Business Research Methods	4		2	6	
2.		BBA(DM) 302	Financial Accounting & Management	5	1		6	
3.		BBA(DM) 303	Advertising and Brand Management	5	1		6	
4.	**GE**		Any one course from GE Baskets				6	
5.	**SEC**	BBA(DM) 305	Personality Development			2	2	
Total Credit							**26**	

SEM-4

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits	Delivery
				L	T	P		
1.	**CC**	BBA(DM) 401	Consumer Behaviour	5	1		6	
2.		BBA(DM) 402	Integrated Marketing Communication	5	1		6	
3.		BBA(DM) 403	Digital Marketing and Content Development	5	1		6	
4.	**GE**		Any one course from GE Baskets				6	
5.	**SEC**	BBA(DM) 495	R /Python Fundamentals			2	2	
Total Credit							26	

SEM-5

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	**CC**	BBA(DM)501	E-Commerce and M-Commerce	5	1		6
2.		BBA(DM)502	Media Ethics and Law	5	1		6
3.	**DSE**	BBA(DM)503 (Any one)	BBA (DM) 503 (A): Data Analytics Skills for Managers. or BBA(DM) 503 (B): Business Intelligence.	5	1		6
4.		BBA(DM)504 (Any one)	BBA (DM) 504 (A): Online Reputation Management. or BBA (DM) 504 (B): Lead management and Customer Experience.	5	1		6
Total Credit							**24**

SEM-6

Sl.	Subject Type	Code	Subject Name	Credits			Total Credits
				L	T	P	
1.	**CC**	BBA(DM)601	Project Management	5	1		6
2.		BBA(DM)602 & BBA (DM) 692	Data Visualization and Interpretation	4		2	6
3.	**DSE**	BBA(DM)603 (Any one)	BBA(DM)603(A):Data Mining or BBA(DM)603(B): Marketing Analytics	5	1		6

4.		BBA(DM)694 (Any one)	Project* or Internship*		1	5	6
Total Credit							**24**

*(Students have to engage in a full length project with a pre-specified Internal Guide (faculty member) throughout thesemester). Industry collaboration is highly encouraged wherever possible.

(At least two-three times progress needs to be checked and evaluation needs to be done through PCA.) It will followed by areport submission and viva.

Bachelor's in Computer Application (BCA)

L T P - Indicates Theory Lectures (L), Tutorial(T) and Practical (P) classes per week.

1L Earns 1 credits 1P
Earns 0.5 credits 1T
Earns 1 Credit

Semester I

Sl. No.	Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC1	BCAC101 BCAC191	Programming for Problem Solving	4	0	4	6
2	CC2	BCAC102 BCAC192	Digital Electronics	4	0	4	6
3	AECC-1	BCAA101	Soft Skills	2	0	0	2
4	GE-1	BCAG101 BCAG102 BCAG103 BCAG104	A.MOOCS Basket 1 B.MOOCS Basket 2 C.MOOCS Basket 3 D.MOOCS Basket 4	4 / 5	0 / 1	4 / 0	6
			Total Credit				20

emester II							
Sl. No.	**Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
Theory + Practical							
1	CC3	BCAC201	Discrete Structures	5	1	0	**6**
2	CC4	BCAC202 BCAC292	Computer Architecture	4	0	4	6
3	AECC-2	BCAA201	Environmental Science	2	0	0	2
4	GE-2	BCAG201	A. MOOCS Basket 1	4	0	4	**6**
		BCAG202	B. MOOCS Basket 2	/	/	/	
		BCAG203	C. MOOCS Basket 3	5	1	0	
		BCAG204	D. MOOCS Basket 4				
Practical							
5	SEC-1	BCAS281	Minor Project and Entrepreneurship I	0	0	4	**2**
			Total Credit				22

Semester III							
Sl. No.	**Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
Theory							
1	CC5	BCAC301 BCAC391	Object Oriented Programming	4	0	4	**6**
2	CC6	BCAC302 BCAC392	Operating Systems	4	0	4	**6**
3	CC7	BCAC303 BCAC393	Data Structure and Algorithm using Python	4	0	4	**6**
4	GE-3	**BCA**G301 **BCA**G302 **BCA**G303 **BCA**G304	MOOCS Basket 1 MOOCS Basket 2 MOOCS Basket 3 MOOCS Basket 4	4/ 5	0/ 1	4/ 0	**6**
Practical							
5	SEC-2	BCAS391	Web Design and Development	0	0	4	2
			Total Credit				26

Semester IV							
Sl. No.	**Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
Theory + Practical							
1	CC8	BCAC401 BCAC491	Database Management System	**4**	**0**	**4**	**6**
2	CC9	BCAC402 BCAC492	Software Engineering	**4**	**0**	**4**	**6**
3	CC10	BCAC403 BCAC493	Design and Analysis of Algorithms	4	0	4	6
4	GE-4	BCAG401	MOOCS Basket 1 MOOCS Basket 2 MOOCS Basket 3 MOOCS Basket 4	4/ 5	0/ 1	4/ 0	**6**
Practical							
5	**SEC-3**	**BCAS481**	**Minor Project and Entrepreneurship II**	**0**	**0**	**4**	**2**
			Total Credit				26

Semester V							
Sl. No.	**Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
Theory + Practical							
1	CC11	BCAC501 BCAC591	Internet Technology Internet Technology Lab	4	0	4	6
2	CC12	BCAC502 BCAC592	Computer Networking Computer Networking Lab	4	0	4	6
3	DSE-I	BCAD501	A.Information Security B.Cloud Computing	5/4	1/0	0/4	6
			C. Information and coding theory				
4	DSE-2	BCAD502	A.Numerical and statistical Methods (Lab with R programmig)	4/	0/	4/	6
			B.Combinatorial Optimization C.Soft Computing	5	1	0	
Sessional							
5	SEC-4	BCAS501	Industrial Training and Internship	0	0	0	**2**
			Total Credit				26

Semester VI

Sl. No.	Category	Course Code	Course Name	L	T	P	Credits
Theory							
1	CC13	BCAC601 BCAC691	Advanced Database and PL-SQL Advanced Database and PL-SQL Lab	4	0	4	6
2	CC14	BCAC602	Theory of Computation	5	1	0	6
3	DSE-3	BCAD601	A.Digital Image Processing B.Introduction to AI and Machine Learning C.Introduction to Data Science	4	0	4	6
Sessional							
4	SEC-5	BCAS601	Grand Viva	0	0	2	**1**
5	DSE-4	BCAD681	Major Project and Entrepreneurship	0	0	8	**4**
6	SEC-6	BCAS602	Seminar	0	0	4	**2**
			Total Credit				25

Semester	Credit
I	20
II	22
III	26
IV	26
V	26
VI	25
TOTAL	**145**

GE Basket 1		GE Basket 2		GE Basket 3		GE Basket 4	
Mathematics		Humanities and Social Sciences		General Science		Emerging Technologies, Innovation & Entrepreneurship	
1	Mathematics for Computing	1	Creative Writing	1	Climate Change and Health	1	Digital Marketing
2	Probability & Statistics	2	Business English	2	Environmental Law and Policy	2	Entrepreneurship Theory and Practice
3	Bayesian Statistics	3	Leadership	3	Environmental Informatics	3	Project Management
4	Operations Research	4	Professional Communication	4	Health Informatics	4	E-Commerce System Development
5	Data Analytics	5	E-Learning	5	Intelligence of Biological Systems	5	Effective Problem- Solving and Decision-Making
6	Applied Cryptography	6	Model Thinking	6	Simulation and Modelling Natural Processes	6	Business Analytics
7	Inferential Statistics	7	Digital Transformation and Industry 4.0	7	Bioinformatics	7	Design Thinking for Innovation

CBCS

UG COURSE

B.SC.

ALL PROGRAM

B.Sc. in Psychology

Semester – I

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	BSCPY-101	Theory	Introduction to Psychology	CC-1	4			4
2	BSCPY-102	Theory	Biological Psychology	CC-2	4			4
PRACTICAL								
3	BSCPY - 191	Practical	Practical on Reaction Time, Arousal, and Identification of Changes in Facial Expressions of Emotion	CC-1			4	2
4	BSCPY - 192	Practical	Project Based Practical on Memory Functioning Including Bedside Tests	CC-2			4	2
THEORY								
5	BSCPY-103	Theory	Choose from Basket 1 of Humanities and Human Skills	GEC-1	5	1		6
6	BSCPY-104	Theory	Communicative English	AECC-1	2			2
			Total		**20**			

Semester II

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	BSCPY - 201	Theory	Introduction to Statistical Methods for Psychological Research	CC-3	4			4
2	BSCPY-202	Theory	Psychology of Individual Differences	CC-4	4			4
PRACTICAL								
3	BSCPY - 291	Practical	Practical on statistical methods including usage of Excel	CC-3			4	2
4	BSCPY-292	Practical	Practical on assessing intelligence and Personality	CC-4			4	2
THEORY								
5	BSCPY-203	Theory	Choose from Basket 2 of Creative and Performing Arts	GEC-2	5	1		6
6	BSCPY-204	Theory	Ecology: Ecosystem Dynamics and Conservation	AECC-2	2			2
8	BSCPY - 206	Theory	Basic Computer Programming and Introduction to Python	SEC-1	2			2
			Total		**22**			

Semester III

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	BSCPY-301	Theory	Schools of Thought in Psychology: History and Evolution	CC-5	4			4
2	BSCPY-302	Theory	Research Methods in Psychology	CC-6	4			4
3	BSCPY-303	Theory	Social Psychology	CC-7	4			4
PRACTICAL								
4	BSCPY-391	Practical	Gender as well as Diversity and Inclusion	CC-5			4	2
5	BSCPY-392	Practical	Project based practical on short tool development	CC-6			4	2
6	BSCPY-393	Practical	Project based practical on Group cohesiveness and problem solving	CC-7			4	2
SESSIONAL								
7	BSCPY-381	Sessional	Choice between A.Behaviour Modification B.Corporate Communication	SEC-2	2			2
THEORY								
8	BSCPY-304	Theory	Choose from Basket 3 of General Science	GEC-3	5	1		6
			Total		**26**			

Semester IV

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	BSCPY-401	Theory	Understanding psychological disorders	CC-8	4			4
2	BSCPY-402	Theory	Statistical methods for psychological research II	CC-9	4			4
3	BSCPY-403	Theory	Applied social psychology	CC-10	4			4
PRACTICAL								
4	BSCPY-491	Practical	Practical on assessing psychological symptoms of anxiety and depression	CC-8			4	2
5	BSCPY-492	Practical	Practical on t test and chi square test	CC-9			4	2
6.	BSCPY-493	Practical	Practical based on Likert's Scale and Goode and Hatte's revision of Bogardus's Scale	CC-10			4	2
SESSIONAL								
7	BSCPY-481	Sessional	Choice between A.Emotional intelligence B.Stress management	SEC-3	2			2
THEORY								
8	BSCPY-404	Theory	General elective courseBasket 4 of Entrepreneurship and Innovation	GEC-4	5	1		6
			Total		**26**			

Semester V

Sl No.	Course Code	Type	Course Name	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	BSCPY-501	Theory	Understanding Psychological Disorders II	CC-11	4			4
2	BSCPY-502	Theory	Developmental Psychology	CC-12	4			4
PRACTICAL								
3	BSCPY-591	Practical	Practical on personality	CC-11			4	2
4	BSCPY-592	Practical	Project based Practical on Attachment and Parenting Styles	CC-12			4	2
THEORY								
5	BSCPY-503	Theory	Choice Between A.Positive Psychology B.Cultural Psychology	DSE-1	4			4
6	BSCPY-504	Theory	Choice between A.Health Psychology B.Educational Psychology	DSE-2	5	1		6
SESSIONAL								
7	BSCPY-581	Sessional	Minor Project	DSE Project			6	3
			Total		**25**			

Semester VI

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	BSCPY-601	Theory	Organizational Behaviour	CC-13	4			4
2	BSCPY-602	Theory	Counselling Psychology	CC-14	4			4
PRACTICAL								
3	BSCPY-691	Practical	Project based practical on emotional Intelligence, motivation and burnout of employees	CC-13			4	2
4	BSCPY-692	Practical	Project based practical on attitude towards mental health issues	CC-14			4	2
THEORY								
5	BSCPY-603	Theory	Choice Between A.Human Resource Management B.Engineering Psychology	DSE-3	4			4
6	BSCPY-604	Theory	Choice between C. Community Psychology D. Forensic Psychology	DSE-4	5	1		6
SESSIONAL								
7	BSCPY-681	Sessional	Major Project	DSE Project			6	3
			Total		**25**			

BSc. in Statistics

Curriculum Structure

Semester-I						
Category	**Subject Code**	**Subject Name**	**Total no of contact hours**			**Credits**
			L	T	P	
Core Course 1	BSTAT101	Descriptive Statistics	3	1	0	4
Laboratory 1	BSTAT191	Laboratory for Descriptive Statistics	0	0	4	2
Core Course 2	BSTAT102	Basic Probability	5	1	0	6
Generic Elective 1	BSTAT103	Differential Calculus and Integral Calculus	5	1	0	6
Ability Enhancement Compulsory Course (AECC1) (Communicative English)	BSTAT 104	Speak English Professionally: In Person, Online & On the Phone	2	0	0	2
Total of Semester-I			**15**	**3**	**4**	**20**

Semester-II

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credits
				L	T	P	
1	Core Course 3	BSTAT 201	Application of Probability in Real Life	3	1	0	4
2	Laboratory 1	BSTAT 291	Laboratory for Probability	0	0	4	2
3	Core Course 4	BSTAT 202	Mathematical Analysis	5	1	0	6
4	Generic Elective 2	BSTAT 203	Introduction to Computer Programming Using Python	3	1	0	4
5	Laboratory 2	BSTAT 292	Laboratory for Introduction to Computer Programming Using Python	0	0	4	2
6	Ability Enhancement Compulsory Course (AECC 2) (Environment & Sustainability)	BSTAT 204	Environmental Science	2	0	0	2
Total of Semester-II				**13**	**3**	**8**	**20**

Semester III

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credits
				L	T	P	
1	Core Course 5	BSTAT 301	Sampling Distribution	5	1	0	6
2	Core Course 6	BSTAT 302	Statistical Inference	3	1	0	4
3	Laboratory 1	BSTAT 391	Laboratory for Statistical Inference	0	0	4	2
4	Core Course 7	BSTAT 303	Linear Algebra	5	1	0	6
5	Generic Elective 3	BSTAT 304	Mathematical Methods for Computing	4	0	0	4
6	Laboratory 2	BSTAT 392	Laboratory for Mathematical Methods for Computing	0	0	4	2
7	Skill Enhancement Course 1 (SEC–1)	BSTAT 305A/B	Python for Data Analysis/Statistical Data Analysis using R	2	0	0	2
8	Ability Enhancement Compulsory Course (AECC 3)	BSTAT 381	Term Project I	0	0	2	2
Total of Semester-III				**19**	**3**	**10**	**28**

Semester IV

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credits
				L	T	P	
1	Core Course 8	BSTAT 401	Survey Sampling	3	1	0	4
2	Laboratory 1	BSTAT 491	Laboratory for Survey Sampling	0	0	4	2
3	Core Course 9	BSTAT 402	Statistical Quality Control	3	1	0	4
4	Laboratory 2	BSTAT 492	Laboratory for Statistical Quality Control	0	0	4	2
5							
6	Generic Elective 4	BSTAT 404	Entrepreneurship	5	1	0	6
7	Skill Enhancement Course 2 (SEC-2)	BSTAT 405A/B	Statistical Techniques for Research Methods/Database Management System	2	0	0	2
8	Ability Enhancement Compulsory Course (AECC 4)	BSTAT 481	Term Project II	0	0	4	2
Total of Semester-IV				**18**	**4**	**12**	**28**

Semester V

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours		Credits	
				L	T	P	
1	Core Course 11	BSTAT 501	Stochastic Process and Queuing Theory	3	1	0	4
2	Laboratory 1	BSTAT 591	Laboratory for Stochastic Process and Queuing Theory	0	0	4	2
3	Core Course 12	BSTAT 502	Modern Statistical Techniques	3	1	0	4
4	Laboratory 2	BSTAT 592	Laboratory for Modern Statistical Techniques	0	0	4	2
5	Discipline Specific Elective 1	BSTAT 503A/B	Time Series Analysis/Demography and Vital Statistics	5	0	1	6
6	Discipline Specific Elective 2	BSTAT 504A/B/C	Econometrics/Financial Statistics/Actuarial Statistics	5	1	0	6
7	Ability Enhancement Compulsory Course (AECC 5)	BSTAT 581	Term Project III	0	0	4	2
Total of Semester-V				16	3	13	26

Semester VI

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours		Credits	
				L	T	P	
1	Core Course 13	BSTAT 601	Design of Experiments	3	1	0	4
2	Laboratory 1	BSTAT 691	Laboratory for Design of Experiments	0	0	4	2
3	Core Course 14	BSTAT 602	Multivariate Analysis and Nonparametric Methods	5	1	0	6
4	Discipline Specific Elective 3	BSTAT 603A/B	Survival Analysis and Biostatistics/Operations Research	5	0	1	6
5	Research Ability Enhancement Courses (RAEC)	BSTAT 681	Capstone Project*	0	0	6	6
Total of Semester-VI				13	2	11	24

B. SC. IN MEDIA SCIENCE

Total Credit: 140

Semester I

SL. No	Type of Paper	Paper Name	Paper Code	Contact Period per week			Total Course Hours	Credits
				L	P	T		
	Theory							
1	Core (C1)	Introduction to Media and Mass Communication	BMS 101	5		1	60	6
2	Core (C2)	Introduction to Photography and Design I	BMS 102	4			40	4
	Practical							
1	Core (CP1)	Introduction to Photography and Design I- Practical	BMS 191		2		20	2
	Elective Courses							
	General Eective							
	Theory							
	GE 1	Computer Basics and Multimedia Software	BMSGE 103	4			40	4
	Practical							
	GEP1	Introduction to MS tools, presentations, online tools	BMSGEP 193		2		20	2
	Ability Enhancement Courses (Compulsory)							
	Theory							
1	AECC1	English Grammar and Literature	BMSAECC 104	2			20	2

Semester II

SL. No	Type of Paper	Paper Name	Paper Code	Contact Period per week			Total Course Hours	Credits
				L	P	T		
	Theory							
1	Core (C3)	Introduction to Journalism 1- Print and New Media	BMS 201	4			40	4
2	Core (C4)	Introduction to Photography and Design II	BMS 202	4			40	4
	Practical							
1	Core (CP 3)	Introduction to Journalism 1- Print and New Media- Practical	BMS 291		2		20	2
2	Core (CP 4)	Introduction to Photography and Design II- Practical	BMS292		2		20	2
	Elective Courses							
	General Eective							
	Theory							
	GE 2	Laws and Ethics in Media in Current Perspective	BMSGE 203	5		1	60	6
	Practical							
	Ability Enhancement Courses (Compulsory)							
	Theory							
1	AECC2	Overview of world and Indian History	BMSAECC204	2			20	2

Semester III

SL. No	Type of Paper	Paper Name	Paper Code	Contact Period per week			Total Course Hours	Credits
				L	P	T		
	Theory							
1	Core (C5)	Introduction to film studies- In current perspective	BMS 301	4			40	4
2	Core (C6)	Introduction to consumer behaviour, marketing and advertising	BMS 302	4			40	4
3	Core (C7)	Journalism 2- Electronic Media	BMS 303	4			40	4
	Practical							
1	Core (CP5)	Introduction to film studies- In current perspective-Practical	BMS 391		2		20	2
2	Core (CP6)	Introduction to consumer behaviour, marketing and advertising- Practical	BMS 392		2		20	2
3	Core (CP7)	Journalism 2- Electronic Media- Practical	BMS 393		2		20	2
	Elective Courses							
	General Eective							
	Theory							
1	GE 3	Story telling for audio and video production	BMSGE304	4			40	4
	Practical							

2	GEP3	Story telling for audio and video production- Practical	BMSGEP394		2		20	2
	Ability Enhancement Courses (Compulsory)							
	Theory							
1	SEC 1	Current affairs in political and economic perspective	BMSSEC305				20	2

Semester IV

SL. No	Type of Paper	Paper Name	Paper Code	Contact Period per week			Total Course Hours	Credits
				L	P	T		
	Theory							
1	Core (C8)	Film Studies II	BMS 401	4			40	4
2	Core (C9)	Public Relations, Corporate Communication, and Social Media Management	BMS 402	4			40	4
3	Core (C10)	Digital Media and its Marketing	BMS 403	4			40	4
	Practical							
1	Core (CP8)	Film Studies II- Practical	BMS 491		2		20	2
		Public Relations, Corporate Communication, and Social Media Management- Practical						

2	Core (CP9)		BMS492		2		20	2
3	Core (CP10)	Digital Media and its Marketing	BMS 493		2		20	2
	Elective Courses							
	General Eective							
	Theory							
	GE4	Overview of theatre and folk media	BMAGE404	4			40	4
	Practical							
1	GEP4	Overview of theatre and folk media- Practical	BMSGEP494		2		20	2
	Ability Enhancement Courses (Compulsory)							
	Theory							
1	SEC 2	Personality development and soft skills	BMSSEC 405				20	2

Semester V

SL. No	Type of Paper	Paper Name	Paper Code	Contact Period per week			Total Course Hours	Credits
				L	P	T		
	Theory							
1	Core (C11)	Media Management and Entrepreneurship	BMS 501	4			40	4
2	Core (C12)	Communication Research and Data Analysis	BMS 502	4			40	4

	Practical							
1	Core (CP11)	Media Management and Entrepreneurship-Practical	BMS 591		2		20	2
2	Core (CP12)	Communication Research and Data Analysis-Practical	BMS 592		2		20	2
	Elective Courses							
	General Eective							
	Theory							
1	DSE 1	Specialisation 1 Specialisation 2 Specialisation 3 Specialisation 4 Specialisation 5 Specialisation 6 Specialisation 7 Specialisation 8 Specialisation 9 Specialisation 10	BMSDSE 503A BMSDSE 503B BMSDSE 503C	4			40	4
2	DSE 2	Specialisation 1 Specialisation 2 Specialisation 3 Specialisation 4 Specialisation 5 Specialisation 6 Specialisation 7 Specialisation 8 Specialisation 9	BMSDSE 504A BMSDSE 504B BMSDSE 504C	4			40	4
	Practical							
1	DSEP 1	Specialisation 1 Specialisation 2 Specialisation 3 Specialisation 4 Specialisation 5 Specialisation 6 Specialisation 7 Specialisation 8 Specialisation 9 Specialisation 10	BMSDSEP 593A BMSDSEO 593B BMSDSEP 593C		2		20	2
2	DSEP 2	Specialisation 1 Specialisation 2	BMSDSEP 594A		2		20	2

		Specialisation 3 Specialisation 4 Specialisation 5 Specialisation 6 Specialisation 7 Specialisation 8 Specialisation 9 Specialisation 10	BMSDSEP 594B BMSDSEP 594C					

Semester VI

SL. No	Type of Paper	Paper Name	Paper Code	Contact Period per week			Total Course Hours	Credits
				L	P	T		
	Theory							
1	Core (C13)	Environment and Development Communication	BMS 601	4			40	4
2	Core (C14)	New Media Products and related software programs	BMS 602	4			40	4
	Practical							
1	Core (CP13)	Environment and Development Communication-Practical	BMS 691		2		20	2
2	Core (CP14)	New Media Products and related software programs	BMS 692		2		20	2
	Elective Courses							
	Discipline Specific Elective							
	Theory							

1	DSE 3	Specialisation 1 Specialisation 2 Specialisation 3 Specialisation 4 Specialisation 5 Specialisation 6 Specialisation 7 Specialisation 8 Specialisation 9 Specialisation 10	BMSDSE 603A BMSDSE 603B BMSDSE 603C	4			40	4
2	DSE 4	Dissertation + Project	BMSDSE 684	4 + 2			40 +20	4 + 2
	Practical							
1	DSEP 3	Specialisation 1 Specialisation 2 Specialisation 3 Specialisation 4 Specialisation 5 Specialisation 6 Specialisation 7 Specialisation 8 Specialisation 9 Specialisation 10	BMSDSEP 693A BMSDSEP 693B BMSDSEP 693C		2		20	2
	Ability Enhancement Courses (Compulsory)							
	Theory							
1	AECC1	English Grammar and Literature	BMSAECC 104	2			20	2

B.Sc in Gaming & Mobile Application Development

COURSE STRUCTURE

1ST YEAR

Sl No	Code	Paper	Contact Periods per week			Total Contact Hours	Credits
			L	T	P		
SEMESTER I							
Theory							
1	BGD – 101	Introduction to Game Design and Production	1	2	2	5	
2	BGD – 102	Game Production Basics	-	2	3	5	
3	BGD – 103	2D Game Production Details	-	2	3	5	
4	BGD – 104	2D Game Production Advanced	-	2	3	5	
5	BGD – 105	Logic and Physics & Making UI & UX	-	2	3	5	
6	BGD – 106	Introduction to C# code in game	-	1	4	5	
Total						**30**	
SEMESTER II							
Theory							
1	BGD – 201	Making Game Codes	-	1	4	5	
2	BGD – 202	Making FPS Game	-	1	4	5	
3	BGD – 203	AI in Game	-	2	3	5	
4	BGD – 204	Database in Game	-	1	4	5	
5	BGD – 205	3D Character Development Introduction	-	1	4	5	
6	BGD – 206	Internship & Lab Making Casual 2D Game	-	-	5	5	
Total						**30**	

2ND YEAR

Sl No	Code	Paper	Contact Periods per week			Total Contact Hours	Credits
			L	T	P		
SEMESTER III							
Theory							
1	BGD – 301	3D Character Development & Rigging	2	-	3	5	
2	BGD – 302	3D Animation	1	1	3	5	
3	BGD – 303	Defining Game with Animation	-	2	3	5	
4	BGD – 304	Game Design	1	1	3	5	
5	BGD – 305	Advanced AI, Sound and Physics in Game Design	1	1	3	5	
6	BGD – 306	HTML 5 Game	1	1	3	5	
7	BGD – 307	Internship & Lab Making	-	-	5	5	
Total			**35**				
SEMESTER IV							
Theory							
1	BGD – 401	Introduction to 3D Play Station Game Programming	-	3	1	4	
2	BGD – 402	Networking in Game Development	-	3	1	4	
3	BGD – 403	Introduction to RPG Game	-	2	3	5	
4	BGD – 404	Introduction Helper Systems	-	2	2	4	
5	BGD – 405	Hardware in Game Programming	-	3	1	4	
6	BGD – 406	Project and Team in Game Development	-	3	1	4	
7	BGD – 407	Internship & Lab Making	-	-	5	5	
Total							**30**

3RD YEAR

Sl No	Code	Paper	Contact Periods per week			Total Contact Hours	Credits
			L	T	P		
SEMESTER V							
Theory							
1	BGD – 501	Android Game Development	-	1	4	5	
2	BGD – 502	iOS Game Development	-	2	4	6	
3	BGD – 503	Apple Game Development Framework	-	2	4	6	
4	BGD – 504	SDK	-	3	2	5	
5	BGD – 505	Internship & Lab Making	-	-	5	5	
Total			**27**				
SEMESTER VI							
Theory							
1	BGD – 601	Introduction to VR	-	2	4	6	
2	BGD – 602	Introduction to AR	-	4	1	5	
3	BGD – 603	AR Game Development	-	2	4	6	
4	BGD – 604	XR Game Development	1	1	3	5	
5	BGD – 605	Business and Legal Issues for Video Game Developers	-	5	1	6	
Total			**28**				

B. Sc. In Robotics & Robot process automation

CURRICULUM STRUCTURE

1st Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
Core course	CC1	CC 1.1	RBEE101	Basic Electrical Engineering	4	4	0	0	✓	✓	✓
		CC1.2	RBEE191	Basic Electrical Engineering Lab	2	0	2	0	✓	✓	✓
	CC2	CC2.1	RBMS101	Engineering Mechanics	4	4	0	0	✓	✓	✓
		CC2.2	RBMS191	Engineering Graphics	2	0	2	0	✓	✓	✓
GE		GE1.1	RBM101	Engineering Mathematics I	4	4	0	0	✓	✓	✓
		GE1.2	RBMT101	Engineering Mathematics I Tutorial	2	0	0	2	✓	✓	✓
AECC		AECC 1	RBHS101	Communicative English	2	2	0	0	✓	✓	✓
	Semester Credits				20						

2nd Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	pr	Tu	Offline	Online	Blended
CC	CC3	CC 3.1	RBEC201	Analog & Digital Electronics	4	4	0	0	✓	✓	✓
		CC 3.2	RBEC291	Analog & Digital Electronics lab	2	0	2	0	✓	✓	✓
	CC4	CC 4.1	RBMS20 1	Strength of Materials for Mechanical Engineers	4	4	0	0	✓	✓	✓
		CC 4.2	RBMS29 1	Strength of Materials for Mechanical Engineers lab	2	0	2	0	✓	✓	✓
GE		GE 2.1	RBM201	Engineering Mathematics II	4	4	0	0	✓	✓	✓
		GE 2.2	RBMT20 1	Engineering Mathematics II Tutorial	2	0	0	2	✓	✓	✓
AE CC		AE CC 2	RBPR201	Environmental Science	2	2	0	0	✓	✓	✓
	Semester Credits				20						

3rd Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC5	CC5. 1	RBEC30 1	Electrical Machines	4	4	0	0	✓	✓	✓
		CC5. 2	RBEC39 1	Electrical Machines Lab	2	0	2	0	✓	✓	✓
	CC6	CC6. 1	RBEC30 2	Microprocessors, Embedded Controllers and Real time Operating Systems	4	4	0	0	✓	✓	✓
		CC6. 2	RBEC39 2	Microprocessors, Embedded Controllers and Real time Operating Systems lab	2	0	2	0	✓	✓	✓
	CC7	CC7. 1	RBMS30 1	Kinematics & Dynamics of Machines	4	4	0	0	✓	✓	✓
		CC7. 2	RBMS39 1	Kinematics & Dynamics of Machines lab	2	0	2	0	✓	✓	✓
GE	GE 3.1		RBPH30 1	Digital signal processing (DSP)	4	4	0	0	✓	✓	✓
	GE 3.2		RBPHT3 01	Digital signal processing (DSP) Lab	2	0	0	2	✓	✓	✓
SEC	SEC1 .1		RBCS301	Introduction to python *	2	2	0	0	✓	✓	✓
	Semester Credits				26						

*Course to be completed from MOOCs Platform.

4th Semester

`Subject Type			Course Code	Course Name	Credit Point s	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC 8	CC8. 1	RBEE401	Power Electronics and Drives	4	4	0	0	✓	✓	✓
		CC8. 2	RBEE491	Power Electronics and Drives Lab	2	0	2	0	✓	✓	✓
	CC9	CC9. 1	RBEC401	Sensors and Instrumentation	4	4	0	0	✓	✓	✓
		CC9. 2	RBEC491	Sensors and Instrumentation Lab	2	0	2	0	✓	✓	✓
	CC 10	CC10 .1	RBPR401	Principles of Robotics I	4	4	0	0	✓	✓	✓
		CC10 .2	RBPR491	Principle Robotics Lab I	2	0	2	0	✓	✓	✓
GE	GE 4.1		RBHU401	Values & Ethics*	4	4	0	0	✓	✓	✓
	GE 4.2		RBHUT401	Values & Ethics Tutorial *	2	0	0	2	✓	✓	✓
SE C	SEC1 .1		RBCS401	Machine Learning,*	2	2	0	0	✓	✓	✓
	Semester Credits				26						

*Course to be completed from MOOCs Platform.

5th Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC11	CC11.1	RBEE501	Control System	4	4	0	0	✓	✓	✓
		CC 11.2	RBEE591	Control System Lab	2	0	2	0	✓	✓	✓
	CC12	CC12.1	RBPR501	Introduction to Robotics II	4	4	0	0	✓	✓	✓
		CC12.2	RBPR592	Robotics II Lab	2	0	2	0	✓	✓	✓
DSE		DSE 1.1	RBPR502	Industrial Design And Applied Ergonomics	4	4	0	0	✓	✓	✓
		DSE1.2	RBPR592	Industrial Design And Applied Ergonomics lab	2	0	2	0	✓	✓	✓
DSE		DSE 2.1	RBMS501	Mechanical design	4	4	0	0	✓	✓	✓
		DSE2.2	RBMS591	Mechanical Design lab	2	0	2	0	✓	✓	✓
Semester Credits					24						

*Course to be completed from MOOCs Platform.

6th Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC13	CC13.1	RBPR60 1	3D Printing	4	4	0	0	✓	✓	✓
		CC 13.2	RBPR69 1	3D Printing Lab	2	0	2	0	✓	✓	✓
	CC14	CC14.1	RBCS60 1	Machine Vision	4	4	0	0	✓	✓	✓
		CC14.2	RBCS69 1	Machine Vision Lab	2	0	2	0	✓	✓	✓
DSE		DSE 3.1	RBCS60 2	Internet of things*	4	4	0	0	✓	✓	✓
		DSE3.2	RBCS69 2	Internet of things Lab *	2	0	2	0	✓	✓	✓
DSE		DSE 4.1	RBPR69 2	Project	6	4	0	0	✓	✓	✓
		Semester Credits			24						

	GRAND TOTAL Credits	140								

B.Sc in Robotics & 3D Printing

CURRICULUM STRUCTURE

1st Semester

Subject Type			Course Code	Course Name	Credit Point s	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
Core course	CC1	CC 1.1	RBEE101	Basic Electrical Engineering	4	4	0	0	✓	✓	✓
		CC1.2	RBEE191	Basic Electrical Engineering Lab	2	0	2	0	✓	✓	✓
	CC2	CC2.1	RBMS101	Engineering Mechanics	4	4	0	0	✓	✓	✓
		CC2.2	RBMS191	Engineering Graphics	2	0	2	0	✓	✓	✓
GE		GE1.1	RBM101	Engineering Mathematics I	4	4	0	0	✓	✓	✓
		GE1.2	RBMT101	Engineering Mathematics I Tutorial	2	0	0	2	✓	✓	✓
AECC		AECC 1	RBHS101	Communicative English	2	2	0	0	✓	✓	✓
	Semester Credits				20						

2nd Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	pr	Tu	Offline	Online	Blended
CC	CC3	CC 3.1	RBEC201	Analog & Digital Electronics	4	4	0	0	✓	✓	✓
		CC 3.2	RBEC291	Analog & Digital Electronics lab	2	0	2	0	✓	✓	✓
	CC4	CC 4.1	RBMS201	Strength of Materials for Mechanical Engineers	4	4	0	0	✓	✓	✓
		CC 4.2	RBMS291	Strength of Materials for Mechanical Engineers lab	2	0	2	0	✓	✓	✓
GE		GE2.1 GE2.2	RBM201 RBMT201	Engineering Mathematics II Engineering Mathematics II Tutorial	4 2	4 0	0 0	0 2	✓ ✓	✓ ✓	✓ ✓
AECC		AECC 2	RBPR201	Environmental Science	2	2	0	0	✓	✓	✓
		Semester Credits			20						

3rd Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC5	CC5.1	RBEC301	Electrical Machines	4	4	0	0	✓	✓	✓
		CC5.2	RBEC391	Electrical Machines Lab	2	0	2	0	✓	✓	✓
	CC6	CC6.1	RBEC302	Microprocessors, Embedded Controllers and Real time Operating Systems	4	4	0	0	✓	✓	✓
		CC6.2	RBEC392	Microprocessors, Embedded Controllers and Real time Operating Systems lab	2	0	2	0	✓	✓	✓
	CC7	CC7.1	RBMS301	Kinematics & Dynamics of Machines	4	4	0	0	✓	✓	✓
		CC7.2	RBMS391	Kinematics & Dynamics of Machines lab	2	0	2	0	✓	✓	✓
GE		GE 3.1	RBPH301	Digital signal processing (DSP)	4	4	0	0	✓	✓	✓
		GE 3.2	RBPHT301	Digital signal processing (DSP) Lab	2	0	0	2	✓	✓	✓
SEC		SEC1.1	RBCS301	Introduction to python *	2	2	0	0	✓	✓	✓
	Semester Credits				**26**						

4th Semester

`Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC 8	CC8.1	RBEE401	Power Electronics and Drives	4	4	0	0	✓	✓	✓
		CC8.2	RBEE491	Power Electronics and Drives Lab	2	0	2	0	✓	✓	✓
	CC9	CC9.1	RBEC401	Sensors and Instrumentation	4	4	0	0	✓	✓	✓
		CC9.2	RBEC491	Sensors and Instrumentation Lab	2	0	2	0	✓	✓	✓
	CC 10	CC10.1	RBPR401	Principles of Robotics I	4	4	0	0	✓	✓	✓
		CC10.2	RBPR491	Principle Robotics Lab I	2	0	2	0	✓	✓	✓
GE		GE 4.1	RBHU401	Values & Ethics*	4	4	0	0	✓	✓	✓
		GE 4.2	RBHUT401	Values & Ethics Tutorial *	2	0	0	2	✓	✓	✓
SEC		SEC1.1	RBCS401	Machine Learning,*	2	2	0	0	✓	✓	✓
	Semester Credits				**26**						

***Course to be completed from MOOCs Platform.**

5th Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC11	CC11.1	RBEE501	Control System	4	4	0	0	✓	✓	✓
		CC11.2	RBEE591	Control System Lab	2	0	2	0	✓	✓	✓
	CC12	CC12.1	RBPR501	Introduction to Robotics II	4	4	0	0	✓	✓	✓
		CC12.2	RBPR592	Robotics II Lab	2	0	2	0	✓	✓	✓

DSE		DSE 1.1	RBPR502	Industrial Design And Applied Ergonomics	4	4	0	0	✓	✓	✓
		DSE1.2	RBPR592	Industrial Design And Applied Ergonomics lab	2	0	2	0	✓	✓	✓
DSE		DSE 2.1	RBMS501	Mechanical design	4	4	0	0	✓	✓	✓
		DSE2.2	RBMS591	Mechanical Design lab	2	0	2	0	✓	✓	✓
Semester Credits					**24**						

6th Semester

Subject Type			Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery		
						Th	Pr	Tu	Offline	Online	Blended
CC	CC13	CC13.1	RBPR601	3D Printing	4	4	0	0	✓	✓	✓
		CC 13.2	RBPR691	3D Printing Lab	2	0	2	0	✓	✓	✓
	CC14	CC14.1	RBCS601	Machine Vision	4	4	0	0	✓	✓	✓
		CC14.2	RBCS691	Machine Vision Lab	2	0	2	0	✓	✓	✓
DSE		DSE 3.1	RBCS602	Internet of things*	4	4	0	0	✓	✓	✓
		DSE3.2	RBCS692	Internet of things Lab *	2	0	2	0	✓	✓	✓
DSE		DSE 4.1	RBPR692	Project	6	4	0	0	✓	✓	✓
		Semester Credits			**24**						
		GRAND TOTAL Credits			**140**						

B.Sc. in Forensic Science

Semester – I

Sl. No.	Paper Code	Paper Name	Credit			
			L	T	P	C
Theory						
1	BSFS – 101	Introduction to Forensic Science	3	1	0	4
2	BSFS – 102	Crime, Criminology and Society	3	1	0	4
3	BSFS – 103	Generic Elective	3	1	0	4
Total Credit (Theory)			9	3	0	12
Practical						
1	BSFS – 191	Laboratory – 1 – Forensic Science	0	0	4	2
2	BSFS – 192	Laboratory – 2 – Crime Scene	0	0	4	2
Total Credit (Practical)			0	0	8	4
Compulsory Ability Enhancement Course						
1	BSFS – 181	English Communication	2	0	0	2
Total Credit (Semester – I)			20	6	16	18

Semester – II

Sl. No.	Paper Code	Paper Name	Credit			
			L	T	P	C
Theory						
1	BSFS – 201	Forensic Law	3	1	0	4
2	BSFS – 202	Forensic Psychology	3	1	0	4
3	BSFS – 203	Generic Elective	3	1	0	4
Total Credit (Theory)			9	3	0	12
Practical						
1	BSFS– 291	Laboratory – 3 – Forensic Law (Acts and Proceedings)	0	0	4	2
2	BSFS– 292	Laboratory – 4 – Forensic Psychology	0	0	4	2
Total Credit (Practical)			0	0	8	4
Compulsory Ability Enhancement Course						
1	BSFS – 281	Environmental Science	2	0	0	2
Total Credit (Semester – II)			20	6	16	18

Semester – III

Sl. No.	Paper Code	Paper Name	Credit			
			L	T	P	C
Theory						
1	BSFS – 301	Forensic Dermatoglyphics	**3**	**1**	**0**	**4**
2	BSFS – 302	Technological Methods in Forensic Science	**3**	**1**	**0**	**4**
3	BSFS – 303	Criminalistics	**3**	**1**	**0**	**4**
4	BSFS – 304	Generic Elective	**3**	**1**	**0**	**4**
5	BSFSSEC – 305	Introduction to Biometry	**3**	**1**	**0**	**4**
Total Credit (Theory)			**15**	**5**	**0**	**20**
Practical						
1	BSFS – 391	Laboratory – 5 - Forensic Dermatoglyphics	**0**	**0**	**4**	**3**
2	BSFS – 392	Laboratory – 6 - Technological Methods	**0**	**0**	**4**	**3**
Total Credit (Practical)			**0**	**0**	**8**	**6**
Total Credit (Semester – III)			**15**	**5**	**8**	**26**

Semester – IV

Sl. No.	Paper Code	Paper Name	Credit			
			L	T	P	C
Theory						
1	BSFS – 401	Forensic Toxicology	**3**	**1**	**0**	**4**
2	BSFS – 402	Forensic Chemistry	**3**	**1**	**0**	**4**
3	BSFS – 403	Forensic Biology	**3**	**1**	**0**	**4**
4	BSFS – 404	Generic Elective	**3**	**1**	**0**	**4**
5	BSFSSEC – 405	Handwriting and its identification and recognition	**3**	**1**	**0**	**4**
Total Credit (Theory)			**15**	**5**	**0**	**20**
Practical						
1	BSFS – 491	Laboratory – 7 – Toxicology & Biology	**0**	**0**	**4**	**4**
2	BSFS – 492	Laboratory – 8 – Chemistry & Handwriting	**0**	**0**	**4**	**4**
Total Credit (Practical)			**0**	**0**	**8**	**8**
Total Credit (Semester – IV)			**15**	**5**	**8**	**28**

Semester – V

Sl. No.	Paper Code	Paper Name	Credit			
			L	T	P	C
Theory						
1	BSFS – 501	Questioned Documents	**3**	**1**	**0**	**4**
2	BSFS – 502	Forensic Ballistics	**3**	**1**	**0**	**4**
3	BSFSDSE – 503	Discipline Specific Elective	**3**	**1**	**0**	**4**
4	BSFSDSE – 503	Discipline Specific Elective	**3**	**1**	**0**	**4**
Total Credit (Theory)			**12**	**4**	**0**	**16**
Practical						
1	BSFS – 591	Laboratory – 9 – Questioned Documents & Ballistics	**0**	**0**	**4**	**4**
2	BSFS – 592	Laboratory – 10 – Ballistics	**0**	**0**	**4**	**4**
Total Credit (Practical)			**0**	**0**	**8**	**8**
Total Credit (Semester – V)			**12**	**4**	**8**	**24**

Semester – VI

Sl. No.	Paper Code	Paper Name	Credit			
			L	T	P	C
Theory						
1	BSFS – 601	Forensic Medicine	**3**	**1**	**0**	**4**
2	BSFS – 602	Forensic Anthropology	**3**	**1**	**0**	**4**
3	BSFSDSE – 603	Discipline Specific Elective	**3**	**1**	**0**	**4**
4	BSFSDSE – 603D	Dissertation in Semester – VI	**0**	**0**	**6**	**6**
Total Credit (Theory)			**9**	**3**	**6**	**18**
Practical						
1	BSFS– 691	Laboratory – 11 – Forensic Medicine	**0**	**0**	**4**	**4**
2	BSFS– 692	Laboratory – 12 – Forensic Anthropology	**0**	**0**	**4**	**4**
Total Credit (Practical)			**0**	**0**	**8**	**8**
Total Credit (Semester – VI)			**18**	**6**	**28**	**26**

B.Sc with Mathematics and Computer Applications

Course Structure Semester -I

S. No	Category	Subject	Subject Code	Contact Hours/ Week			Credit
				L	T	P	
1	Core Course: C1	Differential Calculus and Integral Calculus	BMCA101	5	1	0	6
2	Core Course: C2	Principles and Practices of Object Oriented Programming	BMCA102	4	0	0	4
3	Generic Elective: GE1	Physics-I	BMCA103	4	0	0	4
4	Ability Enhancement course: AECC1	English	BMCA104	2	0	0	2
Practical							
5	Core Course	Principles and Practices of Object Oriented Programming Lab	BMCA191	0	0	4	2
6	Generic Elective	Physics-I Lab	BMCA192	0	0	4	2
		Total Credits					20

Semester-II

S.No.	Category	Subject	Subject Code	Contact Hours/ Week			Credit
				L	T	P	
1	Core Course: C3	Differential Equations	BMCA201	5	1	0	6
2	Core Course: C4	Data Structure	BMCA202	4	0	0	4
3	Generic Elective: GE2	Physics-II	BMCA203	4	0	0	4
4	Ability Enhancement course: AECC2	Environmental Science	BMCA204	2	0	0	2
Practical							
5	Core Course	Data Structure Lab	BMCA291	0	0	4	2
6	Generic Elective	Physics-II Lab	BMCA292	0	0	4	2
		Total Credits					20

Semester III

	Category	Subject	Subject Code	Contact Hours / Week			Credit
				L	T	P	
1	Core Course C5	Real and Complex analysis	BMCA301	5	1	0	6
2	Core course C6	Numerical Analysis	BMCA302	4	0	0	4
3	Core Course C7	Design and Analysis of Algorithms	BMCA303	4	0	0	4
4	Generic elective GE3	**(Choose one)** Chemistry-I	BMCA304A	4	0	0	4
		Statistics-I	BMCA304B	5	1	0	6

		Mathematical Economics	BMCA304C	5	1	0	6
		Data Science	BMCA304D	4	0	0	4
		Soft Computing	BMCA304E	5	1	0	6
5	SEC1	**(Choose one)** Analytical Geometry	BMCA305A	2	0	0	2
		Graph Theory	BMCA305B				

Practical							
6	Core Course	Numerical Analysis Practical	BMCA391	0	0	4	2
7	Core Course	Design and Analysis of Algorithms Lab(Python)	BMCA392	0	0	4	2
8	Generic Elective	Chemistry-I Practical	BMCA393A	0	0	4	2
		Data Science Practical	BMCA393B	0	0	4	2
Total Credit							26

Semester-IV

S.No.	Category	Subject	Subject Code	Contact Hours/ Week			Credit
				L	T	P	
1	Core Course C8	Algebra	BMCA401	5	1	0	6
2	Core course C9	Discrete Mathematics	BMCA402	5	1	0	6
3	Core course C10	Optimization Techniques	BMCA403	4	0	0	4
4	Generic Elective GE4	**(Choose one)** Chemistry-II	BMCA404 A	4	0	0	4
		Advanced Statistics	BMCA404 B	5	1	0	6
		Financial Mathematics	BMCA404 C	5	1	0	6
		Machine Learning	BMCA404 D	5	1	0	6
5	Skill Development Course SEC2	**(Choose one)** Vector calculus	BMCA405 A	2	0	0	2
		Automata	BMCA405 B				
		User interface and Web Development	BMCA405 C				
Practical							
6	Core Course	Optimization Techniques Lab	BMCA491	0	0	4	2
7	Generic Elective	Chemistry-II Practical	BMCA492	0	0	4	2
Total Credit							26

Semester V

S.No.	Category	Subject	Subject Code	Contact Hours/ Week			Credit
				L	T	P	
1	Core Course C11	Theory of Probability and Stochastic Process	BMCA501	5	1	0	6
2	Core course C12	Operating System	BMCA502	4	0	0	4
2	Discipline specific elective DSE1	**(Choose one)** Operations Research	BMCA503A	4	0	0	4
		Data Mining	BMCA503B				
4	Discipline specific elective DSE2	**(Choose one)** Statics and Dynamics	BMCA504A	5	1	0	6
		Software Engineering	BMCA504B				
Practical							
5	Core course	Operating System Lab	BMCA591	0	0	4	2
6	Discipline specific elective	Operations Research Lab using R	BMCA592A	0	0	4	2
		Data Mining Lab using R	BMCA592B				
Total Credit							24

Semester VI

S.No.	Category	Subject	Subject Code	Contact Hours/ Week			Credit
				L	T	P	
1	Core Course C13	Mathematical Methods	BMCA601	5	1	0	6
2	Core course C14	Database Management System	BMCA602	4	0	0	4
3	Discipline specific elective DSE3	(Choose one) Number theory and Cryptography	BMCA603A	5	1	0	6
		Computer Network	BMCA603B				
4	Discipline specific elective DSE4	Project	BMCA604	6	0	0	6
Practical							
5	Core Course	Database Management System Lab	BMCA691	0	0	4	2
Total Credits							24

B.Sc. Material Science

BACHELOR OF SCIENCE IN MATERIALS SCIENCE

Curriculum Structure

Semester-I								
Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credits	Mode of Delivery
				L	T	P		
1	Core Course 1	BMS101	Introduction to Materials	3	1	0	4	Offline
2	Laboratory I	BMS191	Macroscopic and Microscopic Examination of Materials Lab	0	0	4	2	
3	Core Course 2	BMS102	Classical Physics for Materials Science	5	1	0	6	Offline
4	Generic Elective 1	BMS103	GE 1 (Choose from Basket 1 of General Science)	3	1	0	4	Offline
5	Laboratory II	BMS192		0	0	4	2	
6	Ability Enhancement Compulsory Course (AECC1)	BMS 104	Communicative English	2	0	0	2	Offline/ Online
Total of Semester-I				13	3	8	20	

Semester-II								
Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credits	Mode of Delivery
				L	T	P		
1	Core Course 3	BMS 201	Materials Chemistry	3	1	0	4	Offline
2	Laboratory I	BMS 291	Materials Synthesis Lab	0	0	4	2	
3	Core Course 4	BMS 202	Quantum Physics for Materials Science	5	1	0	6	Offline
4	Generic Elective 2	BMS 203	GE 2 (Choose from Basket 2 of Mathematics)	3	1	0	4	Offline
5	Laboratory II	BMS 292		0	0	4	2	
6	Ability Enhancement Compulsory Course (AECC II)	BMS 204	Environment & Sustainability	2	0	0	2	Offline/ Online
Total of Semester-II				13	3	8	20	

Semester-III						
Sl.	Category	Subject	Subject Name	Total no of contact hours	Credits	Mode of

No.		Code		L	T	P		Delivery
1	Core Course 5	BMS 301	Thermodynamics of Materials	5	1	0	6	Offline
2	Core Course 6	BMS 302	Kinetics of Materials and Transport Phenomena	3	1	0	4	Offline
3	Laboratory I	BMS 391	Introduction to Finite Element Analysis	0	0	4	2	
4	Core Course 7	BMS 303	Structure of Materials	5	1	0	6	Offline
5	Generic Elective 3	BMS 304	GE 3 (Choose from Basket 3 of Emerging Technologies)	4	0	0	4	Offline / Blended
6	Laboratory II	BMS 392		0	0	4	2	
7	Skill Enhancement Course I (SEC– I)	BMS 305	SEC 1 (Choose from the corresponding table of SEC)	2	0	0	2	Offline / Online
8	Audit Course	BMS 306	Research Methodology	0	0	0	0	Offline
Total of Semester-III				21	3	8	26	

Semester-IV

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credits	Mode of Delivery
				L	T	P		
1	Core Course 8	BMS 401	Phase Equilibria and Phase Transformation	3	1	0	4	Offline
2	Laboratory I	BMS 491	Intermediate Programing with Python Lab	0	0	4	2	
3	Core Course 9	BMS 402	Materials Behavior: Mechanical, Electrical & Magnetic	3	1	0	4	Offline
4	Laboratory II	BMS 492	Materials Behavior Lab-I	0	0	4	2	
5	Core Course 10	BMS 403	Processing of Bulk Materials	5	1	0	6	Offline
6	Generic Elective 4	BMS 404	GE 4 (Choose from Basket 4 of Entrepreneurship, Innovation & Social Sciences)	5	1	0	6	Blended /Online
7	Skill Enhancement Course II (SEC-III)	BMS 406	SEC 2 (Choose from the corresponding table of SEC except the course chosen in SEC 1)	2	0	0	2	Offline / Online
Total of Semester-IV				18	4	8	26	

Semester-V

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credit s	Mode of Delivery
				L	T	P		

1	Core Course 11	BMS 501	Thin films and Nano Materials	3	1	0	4	Offline
2	Laboratory I	BMS 591	Nano-Materials Lab	0	0	4	2	
3	Core Course 12	BMS 502	Materials Behavior: Electronic and Optical	3	1	0	4	Offline
4	Laboratory II	BMS 592	Materials Behaviour Lab-II	0	0	4	2	
5	Discipline Specific Elective 1	BMS 503	DSE – 1 (Choose from the MOOCs Basket)	3	0	0	3	Blended
6	Discipline Specific Elective 2	BMS 504	DSE – 2 (Choose either of A/B/C/D/E/F from the corresponding table)	5	1	0	6	Offline
7	Sessional	BMS 581	Project Work	0	0	6	3	Offline
Total of Semester-V				14	3	14	24	

Semester-VI

Sl. No.	Category	Subject Code	Subject Name	Total no of contact hours			Credits	Mode of Delivery
				L	T	P		
1	Core Course 13	BMS 601	Materials Characterization	3	1	0	4	Offline
2	Laboratory I	BMS 692	Materials Characterization Lab	0	0	4	2	
3	Core Course 14	BMS 602	Design and Selection of Materials	5	1	0	6	Offline
4	Discipline Specific Elective 3	BMS 603	DSE – 3 (Choose from the MOOCs Basket except the course chosen in DSE 1)	3	0	0	3	Blended
5	Discipline Specific Elective 4	BMS 604	DSE – 4 (Choose either of A/B/C/D/E/F except the course chosen in DSE 2 from the corresponding table)	5	1	0	6	Offline
6	Sessional	BMS 681	Project Work	0	0	6	3	Offline
Total of Semester-VI				16	3	10	24	

A student has to earn minimum of 140 credits in 3 years to get the B. Sc(H) degree List of electives: SEC courses for SEMESTER –III (BMS 305) (Mode of Delivery: Online)

Sl. No.	Course Name	Course Provider	Course Duration	Credits	Name of University/Institute
A	AI For Everyone	coursera	4 weeks	1	deeplearning.ai
B	Introduction to Artificial Intelligence (AI)	coursera	4 weeks	1	IBM
C	IoT (Internet of Things) Wireless & Cloud Computing Emerging Technologies	coursera	6 weeks	2	Yonsei University
D	Basics of Block Chain Technology (BCT)	edx	6 weeks	2	University of California, Berkley
E	Interactive Computer Graphics	coursera	7 weeks	2	University of Tokyo

List of electives: SEC courses for SEMESTER –IV (BMS 406) (Mode of Delivery: Online)

Sl. No.	Course Name	Course Provider	Course Duration	Credits	Name of University/Institute
A	AI For Everyone	coursera	4 weeks	1	deeplearning.ai
B	Introduction to Artificial Intelligence (AI)	coursera	4 weeks	1	IBM
C	IoT (Internet of Things) Wireless & Cloud Computing Emerging Technologies	coursera	6 weeks	2	Yonsei University
D	Basics of Block Chain Technology (BCT)	edx	6 weeks	2	University of California, Berkley
E	Interactive Computer Graphics	coursera	7 weeks	2	University of Tokyo

List of electives: DSE 2 courses for SEMESTER –V (BMS 504) (Mode of Delivery: Offline)

Sl. No.	Course Name
A	Bio Materials
B	Energy Materials
C	Metallic Materials
D	Polymeric Materials
E	Ceramic Materials
F	Composite Materials

List of electives: DSE 4 courses for SEMESTER –VI (BMS 604) (Mode of Delivery: Offline)

Sl. No.	Course Name
A	Bio Materials
B	Energy Materials
C	Metallic Materials
D	Polymeric Materials
E	Ceramic Materials
F	Composite Materials

MOOC'S BASKET (for DSE 1 & DSE 3) (Mode of Delivery: Blended/Online)

Sl. No.	Course Name	Course Provider	Course Duration	Credits	Name of University/Institute
1	Nanotechnology: A Maker's Course (8 wk.) & Materials in Oral Health (4 wk.)	coursera	12 weeks	3	Duke University Univ. of Hong Kong

2	Advanced Materials and Processes	NPTEL	12 weeks	3	IIT Kharagpur
3	Materials Data Sciences and Informatics (5 wk.) & Transmission electron microscopy for materials science (8 wk.)	coursera	13 weeks	4	Georgia Tech Univ. & École Polytechnique Fédérale de Lausanne
4	Introduction to solar cells (5 wk.) & Organic Solar Cells – Theory & Practice (6 wk.)	coursera	11 weeks	3	Technical Univ. of Denmark
5	Nanotechnology and Nano sensors, Part1 (5 wk.) & Nanotechnology & Nano sensors, Part 2 (5 wk.)	Coursera	10 weeks	3	Technion – Israel Institute of Technology
6	Introduction to Thermodynamics: Transferring Energy from Here to There	coursera	8 weeks	2	Univ. of Michigan
7	Medical Biomaterials	NPTEL	8 weeks	2	IIT Madras
8	Waste to Energy Conversion	NPTEL	8 weeks	2	IIT Roorkee
9	Fundamental concepts of semiconductors	NPTEL	6 weeks	2	IIT Delhi
10	Basics of Finite Element Analysis-I	NPTEL	8 weeks	2	IIT Kanpur
11	Physics of Materials	NPTEL	8 weeks	2	IIT Madras
12	Optoelectronics Materials and Devices	NPTEL	8 weeks	2	IIT Kanpur
13	Nanotechnology in Agriculture	NPTEL	8 weeks	2	IIT Kanpur
14	Nature and Properties of Materials	NPTEL	8 weeks	2	IIT Kanpur
15	Materials Science: 10 Things Every Engineer Should Know	Coursera	5 weeks	2	University of California, Davis
16	Phase equilibrium thermodynamics	NPTEL	8 weeks	2	IIT Kharagpur
17	Diffusion in Multicomponent Solids	NPTEL	12 weeks	3	IIT Kanpur
18	Introduction to Composites	NPTEL	12 weeks	3	IIT Kanpur
19.	Computational Materials Science	nanoHUB	6 weeks	2	University of Illinois
20.	Introduction to Physical Chemistry	Coursera	10 weeks	3	The Univ. of Manchester
21.	Mechanics of Materials I: Fundamentals of Stress & Strain and Axial Loading & Mechanics of Materials II: Thin-Walled Pressure Vessels and Torsion	coursera	8 weeks	2	Georgia Tech Univ.
22.	Fundamentals of electronic device fabrication	NPTEL	4 weeks	1	IIT Madras

Generic Elective Basket for SEMESTER I, II, III, IV (Mode of Delivery: Offline/Online/Blended)

GE Basket 1	GE Basket 2	GE Basket 3	GE Basket 4
General Science	Mathematics	Emerging Technologies	Entrepreneurship, Innovation & Social Sciences

1	Statistical Methods for Materials Science (Theory) & Introduction to Programming using C and MATLAB (Lab)	1	Mathematics (Theory) & Data Analysis, Visualization and Interpretation using MATLAB (Lab)	1	Introduction to Programming using Python (Theory) & Introduction to Python Programming Lab (Lab)	1	Innovation & Entrepreneurship - From Design Thinking to Funding Coursera. EIT Digital 6wk 2 cr
2	How Things Work: An Introduction to Physics Coursera, Univ. of Virginia, 8 wks, 2 cr	2	Mathematics for Computing	2	Introduction to Data, Signal, and Image Analysis with MATLAB Coursera, Vanderbilt Univ. 5wk 2 cr	2	Introduction to Public Speaking Coursera, University of Washington 5wk 2 cr
3	Advanced Chemistry Coursera, Univ. of Kentucky, 5 wk, 2 cr	3	Simulation and Modelling Natural Processes	3	Introduction to Programming with MATLAB Vanderbilt Univ. 9 wk, 3 cr	3	Becoming a changemaker: Introduction to Social Innovation; Coursera, Univ. of Cape Town, 6wk 2 cr
4	Environmental Law and Policy	4	Operations Research	4	Digital Marketing	4	Write Professional Emails in English Coursera, Georgia Institute of Technology (5 wk. 2 credit)
5	Intelligence of Biological Systems	5	Data Analytics	5	Introduction to AR/VR	5	Design Thinking for Innovation

Virtual Lab Mapping

Sl. No.	Lab Code	Virtual Lab Link
1.	BMS 191: Macroscopic and Microscopic Examination of Materials	https://phet.colorado.edu/
2.	BMS 291: Materials Synthesis Lab	https://www.vlab.co.in/broad-area-chemical-sciences
3.	BMS 492: Materials Behavior Lab-I	http://mrmsmtbs-iitk.vlabs.ac.in/home%20page.html
4.	BMS 591: Nano-Materials Lab	http://mrmsmtbs-iitk.vlabs.ac.in/home%20page.html
5.	BMS 592: Materials Behavior Lab-II	http://sm-nitk.vlabs.ac.in/ http://bsa-iiith.vlabs.ac.in/
6.	BMS 692: Materials Characterization Lab	https://www.vlab.co.in/broad-area-chemical-sciences https://www.vlab.co.in/broad-area-chemical-sciences

B.Sc Biotechnology

Semester-I

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6) (MOOCs/Class Room)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**
Biochemistry	BSUBTC-	English	BSUBTA-			Basket 1	BSUBTG-		
and	101	Communication	101			Basket 2	101		
Metabolism		Skill				Basket 3			
(Theory)		Development				Basket 4			
Biochemistry	BSUBTC-								
and	191								
Metabolism									
(Lab)									
Cell Biology	BSUBTC-								
(Theory)	102								
Cell Biology (	BSUBTC-								
Lab)	192								
Credit- 6+6=12		Credit- 2				Credit- 6			

Total Credit- 12+2+6=20

Semester-II

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6)(MOOCs/Class Room)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**
General microbiology (Theory)	BSUBTC-201	Introduction to Environmental Science *	BSUBTA-201			Basket 1 Basket 2 Basket 3 Basket 4	BSUBTG-2		
General microbiology (Lab)	BSUBTC-291	Introduction to fundamental computer	BSUBTG-202						
Plant and Mammalian Physiology (Theory)	BSUBTC-202								
Plant and Mammalian Physiology (Lab)	BSUBTC-292								
Credit- 6+6=12		Credit- 2				Credit- 6			

Total Credit- 12+2+6=20

*= Introduction to Environmental Science (BSUBTA-201)

Semester-III

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6)(MOOCs/Class Room)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**
Genetics (Theory)	BSUBTC-301			Enzymology	BSUBTS- 301				
Genetics (Lab)	BSUBTC-391			Industrial Biotechnology	BSUBTS-302				
Chemistry (Theory)	BSUBTC-302			Plant and animal chromosome preparation and karyotyping.	BSUBTS- 303	Basket 1 Basket 2 Basket 3 Basket 4	BSUBTG-301		
Chemistry (Lab)	BSUBTC-392								
Molecular Biology (Theory)	BSUBTC-303								
Molecular Biology (Lab)	BSUBTC-393								
Credit- 6+6+6=18				Credit- 2		Credit- 6			
				Total Credit- 18+2+6=26					

Semester-IV

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6)(MOOCs/Class Room)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**
Immunology (Theory)	BSUBTC -401			Molecular Diagnostics	BSUBTS-401				
Immunology (Lab)	BSUBTC -491			Plant-Microbe Interaction	BSUBTS-402	Basket 1 Basket 2 Basket 3 Basket 4	BSUBTG-401		
Chemistry2 (Theory)	BSUBTC -402			Research Methodology	BSUBTS- 403				
Chemistry 2 (Lab)	BSUBTC -492			Basic Forensic Science	BSUBTS- 404				
Bioanalytical tools (Theory)	BSUBTC -403								
Bioanalytical tools (Lab)	BSUBTC -493								
Credit- 6+6+6=18				Credit- 2		Credit- 6			

Total Credit- 18+2+6=26

Semester-V

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6) (MOOCs/Class Room)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**
Bioprocess Technology (Theory)	BSUBTC- 501							Animal Biotechnology	BSUBTD-501A
Bioprocess Technology (Lab)	BSUBTC- 591							Model organism and human genome project	BSUBTD-502A
Recombinant DNA Technology (Theory)	BSUBTC- 502							Medical biotechnology	BSUBTD-503A
Recombinant DNA Technology (Lab)	BSUBTC- 592							Plant Biotechnology	BSUBTD-501B
								Plant secondary metabolites and Biotransformation	BSUBTD-502B
Credit- 6+6=12								Credit- 6+6=12	

Total Credit- 12+12=24

Semester-VI

CORE COURSE (Credit=4+2)		ABILITY ENHANCEMENT COMPULSORY (Credit =2)Any one		SKILL ENHANCEMENT COURSE (Credit =2)Any one		GENERIC ELECTIVE SUBJECT (Credit =6)Any one (MOOCs/Class Room)		DISCIPLINE SPECIFIC ELECTIVE (Credit =6) Any one from A group and B group	
Paper name	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**	**Paper name**	**Paper code**
Genomics, Proteomics and Bioinformatics(Theory)	BSUBTC- 601							Genetic Modification In agriculture and Medicine	BSUBTD-601A
Genomics, Proteomics and Bioinformatics(Lab)	BSUBTC- 691							Environmental Biotechnology	BSUBTD-602A
IPR, Biosafety and ethical issues(Theory)	BSUBTC- 602							Project/ Dissertation	BSUBTD-681B
IPR, Biosafety and ethical issues(Lab)	BSUBTC- 692								
Credit- 6+6=12								Credit- 6+6=12	

Total Credit- 12+12=24

B.Sc. in Bioinformatics:

CURRICULUM STRUCTURE:

Semester I							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-1	BSBINC 101 BSBINC 191	Cell Biology Cell Biology Lab	4	0	4	6
2	CC-2	BSBINC 102 BSBINC 192	Introduction to Fundamental Computer Fundamental Computer Lab	4	0	4	6
3	AECC-1	BSBINA 101	English Communication Skill Development	2	0	0	2
4	GE-1	BSBING 101	Any One from the List of Generic Elective / Interdisciplinary Courses	4 / 5	0 / 1	4 / 0	6
Total Credits							20

Semester II							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-3	BSBINC 201 BSBINC 291	General Microbiology General Microbiology Lab	4	0	4	6
2	CC-4	BSBINC 202 BSBINC 292	Chemistry Chemistry Lab	4	0	4	6
3	CC-5	BSBINC 203 BSBINC 293	C Programming Language C Programming Language Lab	4	0	4	6
4	AECC-2	BSBINA 201	Introduction to Environmental Science	2	0	0	2
5	GE-2	BSBING 201	Any One from the List of Generic Elective / Interdisciplinary Courses	4 / 5	0 / 1	4 / 0	6
Total Credits							26

Semester III							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-6	BSBINC 301 BSBINC 391	Biochemistry and Metabolism Biochemistry and Metabolism Lab	4	0	4	6
2	CC-7	BSBINC 302 BSBINC 392	Basic Physics Basic Physics Lab	4	0	4	6
3	CC-8	BSBINC 303 BSBINC 393	Data Structure Data Structure Lab	4	0	4	6
4	SEC-1	BSBINS 301 BSBINS 302 BSBINS 303	Enzymology Industrial Fermentation Molecular Biology	2	0	0	2
5	GE-3	BSBING 301	Any One from the List of Generic Elective / Interdisciplinary Courses	4 / 5	0 / 1	4 / 0	6
Total Credits							26

Semester IV							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-9	BSBINC 401 BSBINC 491	Basic of Bioinformatics and Methods Basic of Bioinformatics and Methods Lab	4	0	4	6
2	CC-10	BSBINC 402 BSBINC 492	Bioanalytical Tools Bioanalytical Tools Lab	4	0	4	6
4	SEC-2	BSBINS 401 BSBINS 402 BSBINS 403	Molecular Diagnostics Basic Forensic Science Research Methodology	2	0	0	2
5	GE-4	BSBING 401	Any One from the List of Generic Elective / Interdisciplinary Courses	4 / 5	0 / 1	4 / 0	6
						Total Credits	20

Semester V							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-11	BSBINC 501 BSBINC 591	Structural Bioinformatics Structural Bioinformatics Lab	4	0	4	6
2	CC-12	BSBINC 502 BSBINC 592	Programming in Python Programming in Python Lab	4	0	4	6
4	DSE-1	BSBIND 501	Elective-I A. Biostatistics B. Plant Biotechnology C. Medical Biotechnology	4 / 5	0 / 1	4 / 0	6
5	DSE-2	BSBIND 502	Elective-II A. Linux & Shell Scripts B. Genomes to Drug and Vaccine	4 / 5	0 / 1	4 / 0	6
Sessional							
6	SEC-3	BSBINS 581	Seminar on Emerging Area of Bioinformatics	2	0	0	2
						Total Credits	26

Semester VI							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-13	BSBINC 601 BSBINC 691	Immunology Immunology Lab	4	0	4	6
2	CC-14	BSBINC 602 BSBINC 692	Data Analysis with R Data Analysis with R Lab	4	0	4	6
4	DSE-3	BSBIND 601	Elective-I A. IPR, Biosafety and Ethical Issues B. Environmental Biotechnology	4 / 5	0 / 1	4 / 0	6
5	DSE-4	BSBIND 682	Elective-II Sessional Project/ Dissertation	4 / 5	0 / 1	4 / 0	6
Sessional							
6	SEC-4	BSBINS 681	Comprehensive viva	0	0	0	2
						Total Credits	26

SEMESTER	CREDITS
I	20
II	26
III	26
IV	20
V	26
VI	26
TOTAL	144

B.Sc. in Information Technology (Blockchain Technology)

Semester I						
Sl. No.	Course Code	Course Name	L	T	P	Credits
Theory						
1	BITBC101	Programming for Problem Solving	3	0	0	3
2	BITBC102	English Communication	3	0	0	3
3	BITBC103	Electrical & Electronics Engineering	3	0	0	3
4	BITBC104	Mathematics for Information Technology	3	1	0	4
5	BITBC105	Introduction to Networking Protocols	3	1	0	4
Practical						
1	BITBC191	Programming for Problem Solving Lab	0	0	4	2
2	BITBC192	English Communication Lab	0	0	4	2
3	BITBC193	Electrical & Electronics Engineering Lab	0	0	4	2
		Total Credit				23

Semester II						
Sl. No.	Course Code	Course Name	L	T	P	Credits
Theory						
1	BITBC201	Data Structure and Algorithm with Python	3	0	0	3
3	BITBC202	Computer Networks	3	0	0	3
3	BITBC203	Data Acquisition & Processing	3	1	0	4
4	BITBC204	Discrete Mathematics	3	1	0	4
5	BITBC205	Environmental Science	1	0	0	1
Practical						
1	BITBC291	Data Structure and Algorithm with Python Lab	0	0	4	2
2	BITBC292	Computer Networks Lab	0	0	4	2
Sessional						
1	BITBC281	Project 1	0	0	4	2
		Total Credit				21

Semester III						
Sl. No.	Course Code	Course Name	L	T	P	Credits
Theory						
1	BITBC301	Data Privacy & Security	3	0	0	3
2	BITBC302	Design and Analysis of Algorithms	3	0	0	3
3	BITBC303	DBMS and SQL injection Attack	3	0	0	3
4	BITBC304	Access control & OS Security	3	1	0	4
5	BITBC305	Value & Ethics in Data Science	3	1	0	4
Practical						
1	BITBC391	Data Privacy & Security Lab	0	0	4	2
2	BITBC392	Design and Analysis of Algorithms Lab	0	0	4	2
3	BITBC393	DBMS and SQL injection Attack Lab	0	0	4	2
		Total Credit				23

Semester IV						
Sl. No.	Course Code	Course Name	L	T	P	Credits
Theory						
1	BITBC401	Secure Software Design & Enterprise Computing	3	0	0	3
2	BITBC402	Ethical hacking in Linux Environment	3	0	0	3
3	BITBC403	Intrusion Detection and Prevention	3	1	0	4
4	BITBC404	Cyber Security Vulnerabilities & Cyber Security Safeguards	3	1	0	4
5	BITBC405	Introduction to Operating System	3	1	0	4
Practical						
1	BITBC491	Secure Software Design & Enterprise Computing Lab	0	0	4	2
2	BITBC492	Ethical hacking in Linux Environment Lab	0	0	4	2
Sessional						
1	BITBC481	Project II	0	0	2	1
		Total Credit				23

Semester V						
Sl. No.	Course Code	Course Name	L	T	P	Credits
Theory						
1	BITBC501	Blockchain and Cryptocurrency	3	0	0	3
2	BITBC502	Elective I	3	0	0	3
		Human Computer Interaction Web Application Security Visual Cryptography Threats in Mobile Application				
3	BITBC503	Cyber Law and Cyber Crime Investigation	3	1	0	4
4	BITBC504	Information and Coding Theory	3	1	0	4
Practical						
1	BITBC591	Bitcoin Wallet and Mining Software Lab	0	0	4	2
Sessional						
1	BITBC581	Major Project I	0	0	4	2
2	BITBC582	Industrial Training and Internship	0	0	2	1
		Total Credit				19

Semester VI						
Sl. No.	Course Code	Course Name	L	T	P	Credits
Theory						
1	BITBC601	Incident Analysis and Threat Hunting	3	1	0	4
2	BITBC602	Malware Detection	3	1	0	4
3	BITBC603	Elective II	3	0	0	3
		Blockchain in Financial Services: Strategic Action Plan Blockchain and Business: Applications and Implications Security Assessment and Risk Analysis				
Sessional						
1	BITBC681	Grand Viva	0	0	8	4
2	BITBC682	Major Project II	0	0	8	4
		Total Credit				19

Semester	Credit
I	19
II	21
III	19
IV	19
V	21
VI	19
TOTAL	128

B.Sc. in Information Technology (Big Data Analytics)

Semester I							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-1	BITBDAC101 BITBDAC191	Programming Fundamentals	4	0	4	6
2	CC-2	BITBDAC102	Discrete Structures	5	1	0	6
3	AECC-1	BITBDAA101	Soft skill	2	0	0	2
4	GE-1	BITBDAG101	1. MOOCS Basket 1	4	0	4	6
		BITBDAG102	2. MOOCS Basket 2	/	/	/	
		BITBDAG103	3. MOOCS Basket 3	5	1	0	
		BITBDAG104	4. MOOCS Basket 4				
			Total Credit				20

Semester II							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-3	BITBDAC201 BITBDAC291	Data Structure and Algorithm with Python	4	0	4	6
2	CC-4	BITBDAC202 BITBDAC292	Operating System	4	0	4	6
3	AECC-2	BITBDAA201	Environmental Science	2	0	0	2

4	GE-2	BITBDAG201 BITBDAG202 BITBDAG203 BITBDAG204	MOOCS Basket 1 MOOCS Basket 2 MOOCS Basket 3 MOOCS Basket 4	4 / 5	0 / 1	4 / 0	6
Sessional							
5	SEC-1	BITBDAS281	Project and Entrepreneurship	0	0	4	2
			Total Credit				22

Semester III

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-5	BITBDAC301 BITBDAC391	Database Management System	4	0	4	6
2	CC-6	BITBDAC302 BITBDAC392	Machine Learning	4	0	4	6
3	CC-7	BITBDAC303	Introduction to Big Data	5	1	0	6
4	GE-3	BITBDAG301 BITBDAG302 BITBDAG303 BITBDAG304	MOOCS Basket 1 MOOCS Basket 2 MOOCS Basket 3 MOOCS Basket 4	4 / 5	0 / 1	4 / 0	6
5	SEC-2	BITBDAS381	Object-Oriented Programming	1	0	4	3
			Total Credit				27

Semester IV

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-8	BITBDAC401 BITBDAC491	Computer Networks	4	0	4	6
2	CC-9	BITBDAC402 BITBDAC492	Software Engineering	4	0	4	6

3	CC-10	BITBDAC403 BITBDAC493	Foundation in Big Data Analysis and Hadoop	4	0	4	6
4	GE-4	BITBDAG401	MOOCS Basket 1 MOOCS Basket 2 MOOCS Basket 3 MOOCS Basket 4	4 / 5	0 / 1	4 / 0	6
Sessional							
6	SEC-3	BITBDAS481	Minor Project and Entrepreneurship I	0	0	4	4
			Total Credit				28

Semester V							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-11	BITBDAC501 BITBDAC591	Internet of Things	4	0	4	6
2	CC-12	BITBDAC502 BITBDAC592	Advanced Big Data Analytics	4	1	4	6
3	DSE-1	BITBDAD501	Elective-I	5	1	0	6
			A. Pattern Recognition				
			B. Web Analytics				
			C. Data Mining and Data Warehousing				
			D. Data Visualisation				
4	DSE-2	BITBDAD502	Elective-II	5	1	0	6

			A. XML and Web Services				
			B. Multimedia Systems				
			C. Knowledge Discovery Techniques				
			D. Wireless Networking				
Sessional							
5	SEC-4	BITBDAS581	Industrial Training and Internship	0	0	0	2
			Total Credit				26

Semester VI

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory							
1	CC-13	BITBDAC601 BITBDAC691	Cloud Computing	4	0	4	6
2	CC-14	BITBDAC602 BITBDAC692	Data Analytics	4	0	4	6
3	DSE-4	BITBDAD601	Elective-III [MOOCS]				
			A. Deep Learning	4/5	0/1	4/0	6
			B. Soft Computing				
			C. Social Media Mining				

			D. Neural Networks				
Sessional							
4	SEC-5	BITBDAS681	Grand Viva	0	0	2	1
5	SEC-6	BITBDAS682	Seminar	0	2	0	2
6	DSE-5	BITBDAD683	Major Project & Entrepreneurship II	0	0	8	4
			Total Credit				25

B.SC. IN INFORMATION TECHNOLOGY (DATA SCIENCE)

Semester I							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-1	BITDSC101 BITDSC191	Programming Fundamentals	4	0	4	6
2	CC-2	BITDSC102	Discrete Structures	5	1	0	6
3	AECC-1	BITDSA101	Soft skill	2	0	0	2
4	GE-1	BITDSG101	1. MOOCS Basket 1	4	0	4	6
		BITDSG102	2. MOOCS Basket 2	/	/	/	
		BITDSG103 BITDSG104	MOOCS Basket 3 MOOCS Basket 4	5	1	0	
			Total Credit				20

Semester II							
Sl. No.		Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-3	BITDSC201 BITDSC291	Data Structure and Algorithm with Python	4	0	4	6
2	CC-4	BITDSC202 BITDSC292	Operating System	4	0	4	6
3	AECC-2	BITDSA201	Environmental Science	2	0	0	2
4	GE-2	BITDSG201 BITDSG202 BITDSG203 BITDSG204	MOOCS Basket 1 MOOCS Basket 2 MOOCS Basket 3 MOOCS Basket 4	4 / 5	0 / 1	4 / 0	6
Sessional							
5	SEC-1	BITDSS281	Project and Entrepreneurship	0	0	4	2
			Total Credit				22

Semester III							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-5	BITDSC301 BITDSC391	Database Management System	4	0	4	6
2	CC-6	BITDSC302	Foundation of Data Science	5	1	0	6
3	CC-7	BITDSC303	Data Mining & Data Warehousing	5	1	0	6
4	GE-3	BITDSG301	1. MOOCS Basket 1	4	0	4	6
		BITDSG302	2. MOOCS Basket 2	/	/	/	
		BITDSG303 BITDSG304	MOOCS Basket 3 MOOCS Basket 4	5	1	0	
5	SEC-2	BITCSS381	Object Oriented Programming	1	0	4	3
			Total Credit				27

Semester IV							
Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-8	BITDSC401 BITDSC491	Computer Networks	4	0	4	6
2	CC-9	BITDSC402 BITDSC492	Software Engineering	4	0	4	6
3	CC-10	BITDSC403	Machine Learning for Data Science	5	1	0	6
4	GE-4	BITDSG401	1. MOOCS Basket 1	4	0	4	6
			2. MOOCS Basket 2	/	/	/	
			MOOCS Basket 3 MOOCS Basket 4	5	1	0	
Sessional							
6	SEC-3	BITDSS481	Minor Project and Entrepreneurship I	0	0	4	4
			Total Credit				28

Semester V

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-11	BITDSC501 BITDSC591	Internet of Things	4	0	4	6
2	CC-12	BITDSC502 BITDSC592	Artificial Intelligence	4	1	4	6
3	DSE-1	BITDSD501 BITDSD591	Elective-I	4	0	4	6
			A. Deep Learning				
			B. Descriptive Analytics				
			C. Real Time Analytics				
			D. Natural Language Processing				
4	DSE-2	BITDSD502	Elective-II	5	1	0	6
			A. Translational Bioinformatics				
			B. Information and Coding Theory				
			C. Predictive & Prognostic Analytics				
			D. Optimisation Techniques in Data Analysis				
Sessional							
5	SEC-4	BITDSS581	Industrial Training and Internship	0	0	0	2
			Total Credit				26

Semester VI

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory							
1	CC-13	BITDSC601 BITDSC691	Cloud Computing	4	0	4	6
2	CC-14	BITDSC602 BITDSC692	Computer Vision & Image Processing	4	0	4	6
3	DSE-4	BITDSD601	Elective-III [MOOCS]				
			A. Machine Learning for Financial Modelling and Forecasting	5	1	0	6
			B. Machine Learning for Industrial Application				
			C. Big Data Analytics(Hadoop)				
Sessional							
4	SEC-5	BITCSS681	Grand Viva	0	0	2	1

5	SEC-6	BITCSS682	Seminar	0	2	0	2
6	DSE-5	BITCSD683	Major Project & Entrepreneurship II	0	0	8	4
			Total Credit				25

B.SC (FOOD SCIENCE & TECHNOLOGY) HONS. CURRICULUM STRUCTURE

1st Semester

Subject Type		Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery			Proposed MOOCs
					Th	Pr	Tu	Offline	Online	Blended	
CC	CC1	BSUFT-101 & BSUFT-191	Food Microbiology	6	4	2	0				
	CC2	BSUFT-102 & BSUFT-192	Food Chemistry	6	4	2	0				
GE	GE1	BSUFT-103A/B/C	Mathematics &Statistics (GE 1A/B/C)	6	5	0	1				
AECC	AECC1	BSUFT-104	English communication skill	**2**	**2**	**0**	**0**				
Semester Credits				**20**							

2nd Semester

Subject Type	Course Code	Course Name	Credit Points	Credit Distribution			Mode of Delivery			Proposed MOOCs
				Th	Pr	Tu	Offline	Online	Blended	

CC	CC3	BSUFT-201 & BSUFT-291	Nutritional Biochemistry	6	4	2	0				
	CC4	BSUFT-202 & BSUFT-292	Chemistry	6	4	2	0				
GE	GE 2	BSUFT-203A/B/C & BSUFT-293A/B/C	Computer Fundamentals & Programming (GE 2A/B/C)	6	4	2	0				
AECC	AECC2	BSUFT-204	EnvironmentalScience	2	2	0	0				
Semester Credits				**20**							

3rd Semester

Subject Type		**Course Code**	**Course Name**	**Credit Points**	**Credit Distribution**			**Mode of Delivery**			**Proposed MOOCs**
					Th	Pr	Tu	Offline	Online	Blended	
CC	CC5	BSUFT-301	Principles of Food Science & Technology	6	5	0	1				
	CC6	BSUFT-302 & BSUFT-391	Principles of Food Preservation & FoodProduct Development	6	4	2	0				
	CC7	BSUFT-303 & BSUFT-392	Food Processing Technology I (Fruits, Vegetables & Beverages)	6	4	2	0				
GE	GE 3	BSUFT-304A/B	Waste Management & Renewable Energy (GE 3A/B)	6	5	0	1				

SEC	SEC1	BSUFT-305	Food Plant Layoutand Design	2	2	0	0				
Semester Credits				**26**							

4th Semester

Subject Type		**Course Code**	**Course Name**	**Credit Points**	**Credit Distribution**			**Mode of Delivery**			**Proposed Moocs**
					Th	Pr	Tu	Offline	Online	Blended	
		BSUFT-	Food Processing II		4	2	0				
	CC8	401 & BSUFT-	(Technology of Milk & Dairy	6							
		491	Foods)								
CC	CC9	BSUFT-402	Process calculations& Thermodynamics	6	5	0	1				
	CC10	BSUFT-403 & BSUFT-492	Food Processing Technology III (Cereals, Pulses & Oil seeds)	6	4	2	0				

GE	GE 4	BSUFT-404A/B	Food Science & Nutrition (GE 4A/B)	6	5	0	1				
SEC	SEC 2	BSUFT-405	Plant Training	2	0	2	0				
Semester Credits				**26**							

5th Semester

Subject Type		**Course Code**	**Course Name**	**Credit Points**	**Credit Distribution**			**Mode of Delivery**			**Proposed MOOCs**
					Th	Pr	Tu	Offline	Online	Blended	
CC	CC 11	BSUFT-501 & BSUFT-591	Food Processing Technology IV (Technology of	6	4	2	0				
	CC 12	BSUFT-502 & BSUFT-592	InstrumentalAnalysisof Food	6	4	2	0				
	DSE 1	BSUFT-503 A/B	Concept of Food Engineering & Plant Hygiene (DSE 1A/B)	6	5	0	1				
DSE	DSE 2	BSUFT-504 A/B & BSUFT-593A/B	Bakery & Confectionery Technology (DSE 2A/B)	6	4	2	0				
Semester Credits				**24**							

6th Semester

Subject Type		**Course Code**	**Course Name**	**Credit Points**	**Credit Distribution**			**Mode of Delivery**			**Proposed MOOCs**
					Th	Pr	Tu	Offline	Online	Blended	
CC	CC 13	BSUFT-601	Food Packaging Technology	6	5	0	1				
	CC 14	BSUFT-602	Food Safety Standards, Adulteration& Food Laws	6	5	1	0				
		BSUFT-603 A/B &	Fermentation Technology (DSE3A/B)		4	2	0				

		BSUFT									
	DSE 3	691 A/B		6							
DSE											
	DSE 4	BSUFT -604	Project(DSE 4)	6	4	2	0				
Semester Credits				**24**							

B. SC. IN ANIMATION & FILM MAKING:

Curriculum Structure

1st Semester

Code No.	Subject Name	Marks	L	T	P	To	C
BAFM 101	Foundation Of Animation	100	2	0	2	4	3
BAFM 102	Introduction to 3D	100	2	0	2	4	3
BAFM 181	Texturing and Digital Art	100	0	2	4	6	3
BAFM 182	Lighting & Rendering In Maya	100	0	2	4	6	3
BAFM 191	Concept Development	200	0	2	6	8	4
BAFM 192	Art of motion and Storyboard	200	0	2	6	8	4
	TOTAL	**800**	4	8	24	36	20

2nd Semester

Code No.	Subject Name	Marks	L	T	P	To	C
BAFM 201	Basic Animation	100	2	0	2	4	3
BAFM 202	Introduction character Animation	100	2	0	2	4	3
BAFM 281	Basic Body Machines	100	0	2	4	6	3
BAFM 282	Advance Body Machines	100	0	2	4	6	3
BAFM 291	Character Performance in Animation	200	0	2	6	8	4

BAFM 292	Acting For Animation	200	0	2	6	8	4
	TOTAL	**800**	4	8	24	36	20

3rd Semester

Code No.	Subject Name	Marks	L	T	P	To	C
BAFM 301	Practical Assignment Part 1 - Low poly BG Modelling - Part 1	100	2	0	2	4	3
BAFM 302	Practical Assignment Part 1 - Low poly BG Modelling - Part 2	100	2	0	2	4	3
BAFM 381	Practical Assignment Part 1 - 3D Game Assets Model - Part 1	100	0	2	4	6	3
BAFM 382	Practical Assignment Part 1 - 3D Game Assets Model - Part 2	100	0	2	4	6	3
BAFM 391	Practical Assignment Part 1 - Animate Two characters fight scene - Part 1	200	0	2	6	8	4
BAFM 392	Practical Assignment Part 1 - Animate Two characters fight scene - Part 2	200	0	2	6	8	4
	TOTAL	**800**	**4**	**8**	**24**	**36**	**20**

4th Semester

Code No.	Subject Name	Marks	L	T	P	To	C
BAFM 401	Practical Assignment Part 2 - Animate Two character Acting in different camera angle - Part 1	100	2	0	2	4	3

BAFM 402	Practical Assignment Part 2 - Animate Two character Acting in different camera angle - Part 2	100	2	0	2	4	3
BAFM 481	Practical Assignment Part 2 - Basic Editing in premier and after effects	100	0	2	4	6	3
BAFM 482	Practical Assignment Part 2 - Create a 3D layout from given Animatics	100	0	2	4	6	3
BAFM 491	Practical Assignment Part 2 - Animate character Stand to run	200	0	2	6	8	4
BAFM 492	Practical Assignment Part 2 - Animate character Staircase Ascending & Descending	200	0	2	6	8	4
	TOTAL	**800**	**4**	**8**	**24**	**36**	**20**

5th Semester

Code No.	Subject Name	Marks	L	T	P	To	C
BAFM 501	Practical Assignment Part 3 - Create a story and narrate the story with wall storyboard	100	2	2	2	6	4
BAFM 581	Practical Assignment Part 3 - Animate a dance movement from References	200	0	2	6	8	4
BAFM 591	Practical Assignment Part 3 - Animate single character martial art stick movement - Part 1	200	0	2	8	10	6
BAFM 592	Practical Assignment Part 3 - Animate single character martial art stick movement - Part 2	300	0	4	8	12	6

	TOTAL	**800**	**2**	**10**	**24**	**36**	**20**

6th Semester

Code No.	Subject Name	Marks	L	T	P	To	C
BAFM 601	Design research	100	2	2	2	6	4
BAFM 681	Research project	100	0	2	6	8	4
BAFM 691	Demo-real & Portfolio	200	0	2	6	8	4
BAFM 692	Final Project	400	0	6	10	16	8
	TOTAL	**800**	**2**	**12**	**24**	**38**	**20**

B.SC IN IT (BIG DATA ANALYTICS)

Semester I

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-1	BITBDAC101 BITBDAC191	Programming Fundamentals	4	0	4	**6**
2	CC-2	BITBDAC102	Discrete Structures	5	1	0	**6**
3	AECC-1	BITBDAA101	Soft skill	2	0	0	**2**
4	GE-1	BITBDAG101	1. MOOCS Basket 1	4	0	4	**6**
		BITBDAG102	2. MOOCS Basket 2	/	/	/	
		BITBDAG103	3. MOOCS	5	1	0	

			Basket 3				
		BITBDAG104	4. MOOCS Basket 4				
			Total Credit				**20**

Semester II

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-3	BITBDAC201 BITBDAC291	Data Structure and Algorithm with Python	4	0	4	**6**
2	CC-4	BITBDAC202 BITBDAC292	Operating System	4	0	4	**6**
3	AECC-2	BITBDAA201	Environmental Science	2	0	0	**2**
4	GE-2	BITBDAG201 BITBDAG202 BITBDAG203 BITBDAG204	1. MOOCS Basket 1 2. MOOCS Basket 2 3. MOOCS Basket 3 4. MOOCS Basket 4	4/5	0/1	4/0	**6**
Sessional							
5	SEC-1	BITBDAS281	Project and Entrepreneurship	0	0	4	**2**
				Total Credit			**22**

Semester III

Sl. No.	CBCS Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	CC-5	BITBDAC301 BITBDAC391	Database Management System	4	0	4	**6**
2	CC-6	BITBDAC302 BITBDAC392	Machine Learning	4	0	4	**6**
3	CC-7	BITBDAC303	Introduction to Big Data	5	1	0	**6**

4	GE-3	BITBDAG301 BITBDAG302 BITBDAG303 BITBDAG304	1. MOOCS Basket 1 2. MOOCS Basket 2 3. MOOCS Basket 3 4. MOOCS Basket 4	4 / 5	0 / 1	4 / 0	6
5	SEC-2	BITBDAS381	Object-Oriented Programming	1	0	4	3
			Total Credit				**27**

Sl. No.	**CBCS Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
Semester IV							
Theory + Practical							
1	CC-8	BITBDAC401 BITBDAC491	Computer Networks	4	0	4	**6**
2	CC-9	BITBDAC402 BITBDAC492	Software Engineering	4	0	4	**6**
3	CC-10	BITBDAC403 BITBDAC493	Foundation in Big Data Analysis and Hadoop	4	0	4	**6**
4	GE-4	BITBDAG401	1. MOOCS Basket 1 2. MOOCS Basket 2 3. MOOCS Basket 3 4. MOOCS Basket 4	4 / 5	0 / 1	4 / 0	**6**
Sessional							
6	SEC-3	BITBDAS481	Minor Project and Entrepreneurship I	0	0	4	**4**
			Total Credit				**28**

2

Sl. No.	**CBCS Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**
Semester V							
Theory + Practical							
1	CC-11	BITBDAC501 BITBDAC591	Internet of Things	4	0	4	**6**
2	CC-12	BITBDAC502 BITBDAC592	Advanced Big Data Analytics	4	1	4	**6**

3	DSE-1	BITBDAD501	Elective-I	5	1	0	**6**
			A. Pattern Recognition				
			B. Web Analytics				
			C. Data Mining and Data Warehousing				
			D. Data Visualisation				
4	DSE-2	BITBDAD502	Elective-II	5	1	0	**6**
			A. XML and Web Services				
			B. Multimedia Systems				
			C. Knowledge Discovery Techniques				
			D. Wireless Networking				
Sessional							
5	SEC-4	BITBDAS581	Industrial Training and Internship	0	0	0	**2**
			Total Credit				**26**

Semester VI

Sl.	**CBCS Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credits**	**No.**
Theory								
1	CC-13	BITBDAC601 BITBDAC691	Cloud Computing	4	0	4		**6**
2	CC-14	BITBDAC602 BITBDAC692	Data Analytics	4	0	4		**6**
3	DSE-4	BITBDAD601	Elective-III [MOOCS]					

			A. Deep Learning	4 / 5	0 / 1	4 / 0	**6**
			B. Soft Computing				
			C. Social Media Mining				
			D. Neural Networks				
Sessional							
4	SEC-5	BITBDAS681	Grand Viva	0	0	2	**1**
5	SEC-6	BITBDAS682	Seminar	0	2	0	**2**
6	DSE-5	BITBDAD683	Major Project & Entrepreneurship II	0	0	8	**4**
			Total Credit				25

ECS

COURSE

STRUCTURE

1.M.SC. APPLIED PSYCHOLOGY:

SEMESTER WISE SYLLABUS

SEMESTER I

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	MSCAPY-101	Theory	Applied Cognitive Psychology	CC	4			4
2	MSCAPY-102	Theory	Personality Theories and Applications	CC	4			4
3	MSCAPY-103	Theory	Statistical Methods for Applied Psychology	CC	4			4
4	MSCAPY-104	Theory	Research Methods in Applied Psychology	CC	4			4
PRACTICAL								
6	MSCAPY-191	Practical A	Practical on Personality	CC			4	4
		Practical B	Practical on Statistical Packages (SPSS)				4	
			Total		20			

SEMESTER II

Sl No.	Course Code	TYPE	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	MSCAPY-201	Theory	Psychology and society	CC	4			4
2	MSCAPY-202	Theory	Psychology of development	CC	4			4
3	MSCAPY-203	Theory	Biological Foundations of Behavior	CC	4			4
4	MSCAPY-204	Theory	Psychology for Happiness and Positivity	CC	4			4
SESSIONAL								
5	MSCAPY-281	Sessional	Applied Social Psychology Project Media and Psyche or Ethnographic analysis	SEC			4	2
6	MSCAPY-282	Sessional	Project on wellbeing	SEC			4	2
PRACTICAL								
7	MSCAPY-291	Practical I	Practical on social psychology	CC			4	2
8	MSCAPY-292	Practical II	Practical on Relaxation procedures	CC			4	2
	Total				24			

SEMESTER III (SPECIALIZATION: CLINICAL PSYCHOLOGY)

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	MSCAPY-301	Theory	Adult Psychopathology	DSE	4			4
2	MSCAPY-302	Theory	Child Psychopathology	DSE	4			4
3	MSCAPY-303	Theory	Stress Management	CC	4			4
4	MSCAPY-304	Theory	Psychology of Technology: Being Human in the Age of Artificial Intelligence	GEC	4			4
SESSIONAL								
5	MSCAPY-381	Sessional	Diagnostic Psychometry	CC			4	2
6	MSCAPY-382	Sessional	Minor Project	DSE			8	4
7	MSCAPY-383	Sessional	Critical thinking, Writing, and Presentation Skills	SEC	2			2
			Total		24			

SEMESTER IV (SPECIALIZATION: CLINICAL PSYCHOLOGY)

Sl No.	Course Code	Type	Course Title	Course Type	Hours/Credit			
					L	T	P	C
THEORY								
1	MSCAPY-401	Theory	Counseling and Psychotherapy	DSE	4			4
2	MSCAPY-402	Theory	Applied Health Psychology	DSE	4			4
3	MSCAPY-403	Theory	Community Psychology	CC	4			4
SESSIONAL								
4	MSCAPY-481	Sessional	Major Project	DSE	4		8	8
5	MSCAPY-482	Sessional	Internship in hospital / clinical set up	DSE	0		0	4
		Total			24			

2.M.SC. APPLIED MATHEMATICS:

Semester 1:

Course Code (CoE Office)	Course Code	Course Name	Course Type	Marks	Hours Per Week			Credit
					L	T	P	
Theory								
MS-AM101	MS-AM401	Real and Complex Analysis	CC	100	3	1	0	4
MS-AM102	MS-AM403	Applied Linear Algebra	CC	100	3	1	0	4
MS-AM103	MS-AM405	Classical Mechanics	CC	100	3	1	0	4
MS-AM104	MS-AM407	Graph Theory and Graph Algorithms	CC	100	3	1	0	4
MS-AM105	MS-AM409	Computer Programming with Python	SEC	100	2	0	0	2
Practical								
MS-AM191 (Lab)	MS-AM491 (Lab)	Applied Linear Algebra and Graph Algorithms Lab (Using Python and MATLAB)	SEC	100	0	0	4	2
MS-AM192 (Lab)	MS-AM493 (Lab)	Python Programming Lab	SEC	100	0	0	4	2
Sessional								
MS-AM193	MS-AM495	Term Project - I	SEC	100	0	0	4	2
Total				800				24

Semester 2:

Course Code (CoE Office)	Course Code	Course Name	Course Type	Marks	Hours Per Week			Credit
					L	T	P	
Theory								
MS-AM201	MS-AM402	Differential equations with Boundary Value Problems	CC	100	3	1	0	4
MS-AM202	MS-AM404	Advanced Numerical Analysis and CFD	CC	100	3	1	0	4
MS-AM203	MS-AM406	Continuum Mechanics and Introduction to Fluid Dynamics	CC	100	3	1	0	4
MS-AM204	MS-AM408	Abstract Algebra and Applications	CC	100	3	1	0	4

MS-AM205	MS-AM410	Research Methodology and IPR	VAC	100	2	0	0	2
MS-AM206	MS-AM412	Elective-I	DSE	100	3	1	0	4

Practical								
MS-AM291 (Lab)	MS-AM492 (Lab)	Advanced Numerical Analysis Lab	SEC	100	0	0	4	2
MS-AM292 (Lab)	MS-AM494 (Lab)	Computational Fluid Dynamics Lab	SEC	100	0	0	4	2
Sessional								
MS-AM293	MS-AM496	Term Project - II	SEC	100	0	0	4	2
Total				800				28

Semester 3:

Course Code (CoE Office)	Course Code	Course Title	Course Type	Marks	Hours Per Week			Credit
					L	T	P	
Theory								
MS-AM301	MS-AM501	Topology and Functional Analysis	CC	100	3	1	0	4
MS-AM302	MS-AM503	Data Science-1: Machine Learning	CC	100	3	1	0	4
MS-AM303	MS-AM505	Integral Transforms and Integral Equations	CC	100	3	1	0	4
MS-AM304	MS-AM507	Computational Biology	CC	100	3	1	0	4
MS-AM305	MS-AM509	Elective-II	IDE	100	3	1	0	4
Practical								
MS-AM391 (Lab)	MS-AM593 (Lab)	Machine Learning Lab	SEC	100	0	0	4	2
MS-AM392 (Lab)	MS-AM595 (Lab)	Differential Equation and Integral Transform Lab	SEC	100	0	0	4	2
Sessional								
MS-AM393	MS-AM595	Term Project-III	SEC	100	0	0	4	4
Total				800				28

Semester 4:

Course Code (CoE Office)	Course Code	Course Title	Course Type	Marks	Hours Per Week			Credit
					L	T	P	
Theory								
MS-AM401	MS-AM502	Probabilistic and Statistical Methods	CC	100	3	1	0	4
MS-AM402	MS-AM504	Operations Research: Optimization Techniques and Soft Computing	CC	100	3	1	0	4
Practical								
MS-AM491 (Lab)	MS-AM592 (Lab)	Optimization Techniques and Soft Computing Lab	SEC	100	0	0	4	2
Sessional								
MS-AM492	MS-AM594	Capstone Project (Addressing a real-life problem)	SEC	200	0	0	16	8
Total				500				18

3.M.SC. APPLIED STATISTICS AND ANALYTICS

Duration: 2 Years; Level: Post graduation; Type: Degree

Semester 1:

				Hours Per Week			Credit
Paper Code	Course Name	Course Type	Marks	L	T	P	
Theory							
MSASA101	Applied Linear Algebra	CC	100	3	1	0	4
MSASA102	Elements of Real Analysis and Probability	CC	100	3	1	0	4
MSASA103	Statistical Inference and Introductory Analytics	CC	100	3	1	0	4
MSASA104	Analytics Using Python Programming Language	CC	100	3	1	0	4
MSASA105	Research Methodology and IPR	VAC	100	2	1	0	2
Practical							
MSASA191 (Lab)	Programming Language Laboratory	SEC	100	0	0	4	2
MSASA192 (Lab)	Laboratory for Statistics and Linear Algebra	SEC	100	0	0	4	2
Sessional							
MSASA181	Term Project and Presentation I	SEC	100	2	1	0	2
	Total		800				24

Semester 2:

Code	Course Title	Hours Per Week					Credit
		Course Type	Marks	L	T	P	
Theory							
MSASA 201	Regression For Predictive Model Building	CC	100	3	1	0	4
MSASA 202	Optimization Techniques and Soft Computing	CC	100	3	1	0	4
MSASA 203	Stochastic Processes and its Application	CC	100	3	1	0	4

MSASA 204	Time Series Analysis and Forecasting Methods	CC	100	3	1	0	4
MSASA 205 (Audit Course)	Evolution of Statistical Thinking	VAC	-----	2	--	--	0
MSASA 206	Elective-I	DSE	100	3	1	0	4
Practical							
MSASA 291 (Lab)	Regression and Time Series Laboratory	SEC	100	0	0	4	2
MSASA 292 (Lab)	Optimization Techniques and Stochastic Process Laboratory	SEC	100	0	0	4	2
Sessional							
MSASA 281	Term Project and Presentation II	SEC	100	2	1	0	2
	Total		800				26

Semester 3:

		Hours Per Week					Credit
Code	Course Title	Course Type	Marks	L	T	P	
Theory							
MSASA 301	Applied Multivariate Analysis and Data Mining	CC	100	3	1	0	4
MSASA 302	Machine Learning Algorithms	CC	100	3	1	0	4
MSASA 303	Advanced Business Analytics and Big Data	CC	100	3	1	0	4
MSASA304	Advanced Analytics using Software and Programming Language (SPSS, Hadoop, SAS)	CC	100	3	1	0	4
MSASA 305	Elective-II	IDE	100	3	1	0	4
MSASA 306 (Audit Course)	Emerging Topics in Statistics and Analytics	VAC	-----	2	--	--	0
Practical							
MSASA 391 (Lab)	Analytics Laboratory	SEC	100	0	0	4	2
MSASA 392 (Lab)	Machine Learning Laboratory	SEC	100	0	0	4	2
Sessional							
MSASA 381	Term Project and Presentation III	SEC	100	2	1	0	2
	Total		800				26

Semester 4:

		Hours Per Week					Credit
Code	Course Title	Course Type	Marks	L	T	P	

Theory							
MSASA 401	Biostatistics	CC	100	3	1	0	4
MSASA 402	Elective -III	DSE	100	3	1	0	4
Practical							
MSASA 491 (Lab)	Advanced Analytics Laboratory	SEC	100	0	0	4	2
Sessional							
MSASA 481	Capstone Project	SEC	200	0	0	8	8
	Total		500				18

4.M. SC. MEDIA SCIENCE

Curriculum Structure First semester

Semester 1:

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 101	Mass Media and Communication	4
Theoretical	MMC 102	Understanding Media in Historical Perspective	4
Theoretical	MMC 103	Introduction to Journalism	4
Theoretical	MMC 104	Indian Constitution, Media Laws and Ethics	4
Theoretical	MMC 105	Introduction to Advertising and Public Relations	4
Theoretical	MMC 106	Introduction to Visual Language:Photography& Videography	4
Practical	MMC 191	Still Photography & Videography lab	2
Practical	MMC 192	Life Style Management Skills: Advanced Soft Skills, Theatre Workshop	2
Practical	MMC 193	Basic Media Software (Lab)	2
		Total Semeter Credit	30

Second semester

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 201	Development & Environmental Communications	4
Theoretical	MMC 202	Folk, Traditional & Popular Media of India	4
Theoretical	MMC 203	Film Theory and Practice	4
Theoretical	MMC 204	Applications of Information Technology in Media	4
Theoretical	MMC 205	New Media & Cyber Technology	4
Practical	MMC 291	Writing, Editing Practicals	2
Practical	MMC 292	Advanced Multimedia Software Lab	2
Practical	MMC 293	Digital Filmmaking Lab	2
Practical	MMC 294	Summer Internship	2
		Semeter Credit	28

Third semester

Specialization A: Print and Cyber Media

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 301A	Management Principles and Media Business	4
Theoretical	MMC 302A	Communication Research	4
Theoretical	MMC 303A	Advanced Print Journalism & Photo Journalism	4
Theoretical	MMC 304A	Cyber Journalism	4
Practical	MMC 391A	Print Practical	2
Practical	MMC 392A	Print or Cyber Media Research	2
Practical	MMC 393A	Web Journalism Practicals	2
		Total Semester Credit	22

Specialization B: Electronic & Entertainment Media (Radio & Television)

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 301B	Management Principles and Media Business	4
Theoretical	MMC 302B	Communication Research	4
Theoretical	MMC 303B	Radio: Theory & Practice	4
Theoretical	MMC 304B	Television Journalism	4
Practical	MMC 391B	A Short Television Program	2
Practical	MMC 392B	Television or Radio Research	2
Practical	MMC 393B	Production of a Radio Drama/ Documentary	2
			22

Specialization C: Multimedia & Visual Communication : Graphics & Animation

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 301C	Management Principles and Media Business	4
Theoretical	MMC 302C	Research on Visualization & Design Strategies	4
Theoretical	MMC 303C	Graphic Design Principles, Typography & Layout	4
Theoretical	MMC 304C	Principles, Styles and History of Animation	4
Practical	MMC 391C	Design Software Lab	2
Practical	MMC 392C	Animation Software Lab	2
Practical	MMC 393C	Video / Composting Lab	2

Specialization D: Marketing Communication: Advertising, PR & Event

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 301D	Management Principles and Media Business	4
Theoretical	MMC 302D	Research on Copy writing &Visualization Strategies	4
Theoretical	MMC 303D	Marketing Fundamentals &Corporate Communications	4
Theoretical	MMC 304D	Consumer Behaviour& Brand Management	4
Practical	MMC 391D	Publicity for an Event	2
Practical	MMC 392D	Ad Campaign	2
Practical	MMC 393D	Corporate film making	2

5.M.SC IN FOOD SCIENCE & TECHNOLOGY:

Semester –I:

M.Sc. (Food Science & Technology) Syllabus, 2019-20 Department of Food Science & Technology, MAKAUT, WB

Code	Course Title	Contact Hrs./Wk	Credit
A	Theory	L-T-P	

MSUFT-101	Food Microbiology	3-0-0	3
MSUFT-102	Nutritional Biochemistry	3-0-0	3
MSUFT-103	Principles of Food Processing Technology	3-0-0	3
MSUFT-104	Fermentation Technology	3-0-0	3
MSUFT-105	Mathematical Techniques for Food Science	3-0-0	3
MSUFT-106	Analytical Techniques and research methodology	3-0-0	3
MSUFT-107	English communication skill(non-credit compulsory course	0-0-0	0
B	Practical		
MSUFT-191	Microbiology	0-0-6	3
MSUFT-192	Biochemistry and Analytical Techniques Lab	0-0-6	3
Semester Total			24

Semester –II:

Code	Course Title	Contact Hrs./Wk.	Credit
A	Theory	L-T-P	
MSUFT-201	Food Chemistry	3-0-0	3
MSUFT-202	Technology of fruits and vegetables	3-0-0	3
MSUFT-203	Technology of cereals, pulses and oilseeds	3-0-0	3
MSUFT-204	Technology of milk and milk products	3-0-0	3
MSUFT-205	Waste Management of Food Industries	3-0-0	3
MSUFT-206	Statistical Techniques for Food Science	3-0-0	3
B	Practical		
MSUFT-291	Pickles and Fermented Food Lab	0-0-6	3
MSUFT-292	Food Process Technology Lab	3-0-0	3
Semester Total			24

Semester – III:

Code	Course Title	Contact Hrs./Wk	Credit
A	Theory	L-T-P	
MSUFT-301	Technology of meat, poultry and fish	3-0-0	3
MSUFT-302	Food Packaging Technology	3-0-0	3
MSUFT-303	Food safety and quality control	3-0-0	3
MSUFT-304	Process control and Instrumentation	3-0-0	3
MSUFT-305	Choice Based course (From Elective Basket-I)*	2-0-0	2
MSUFT-306	Choice Based course (From Elective Basket-II)**	2-0-0	2
B	Practical		
MSUFT-391	Milk and Milk product processing Lab	0-0-6	3
MSUFT-392	Meat and Fish Processing Lab	0-0-6	3
C			
MSUFT-381	Seminar		2
Semester Total			24

*Elective Subjects Basket-I:

Code	Subject
MSUFT-305A	Food Biotechnology
MSUFT-305B	Speciality Food and Beverages
MSUFT-305C	Enzyme Technology

**Elective Subjects Basket-II:

Code	Subject
MSUFT-306A	Entrepreneurship and Business Management
MSUFT-306B	Supply Chain and Retail Management
MSUFT-306C	IPR, Biosafety & Bioethics

Semester –IV:

Code	Course Title	Contact Hrs./Wk	Credit
	Theory	L-T-P	
MSUFT-481	Project Work		20
MSUFT-482	Industry / Lab visit		1
MSUFT-483	Journal club and seminar presentation		1
MSUFT-491	Grand Viva		2
Total			24
Total Course Credit			96

Fourth semester

Specialization A: Print and Cyber Media

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 401A	Comparative Media Studies	4
Practical	MMC 491A	Live Project	4
Practical	MMC 492A	Dissertation & Viva	4
Practical	MMC 493A	Website & content creation	4
Practical	MMC 494A	Internship	4

Specialization B: Electronic & entertainment media (Radio & Television)

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 401B	Comparative Media Studies	4
Practical	MMC 491B	Live Project	4
Practical	MMC 492B	Dissertation & Viva	4
Practical	MMC 493B	Production of a television news bulletin	4
Practical	MMC 494B	Internship	4

Specialization C: Multimedia & Visual Communication: Graphics & Animation

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 401C	Advanced animation techniques	4
Practical	MMC 491C	Live Project	4
Practical	MMC 492C	Dissertation & Viva	4
Practical	MMC 493C	Production of a TVC with animation	4
Practical	MMC 494C	Internship	4

Specialization D: Marketing Communication: Advertising, PR & Event

Paper type	Paper Code	Paper Name	Credit
Theoretical	MMC 401D	Principles of Event Management	4
Practical	MMC 491D	Live Event Project	4
Practical	MMC 492D	Dissertation & Viva	4
Practical	MMC 493D	Planning and Executing an Exhibition	4
Practical	MMC 494D	Internship	4

6.M.SC IN FORENSIC SCIENCE:

First Semester

			L	T	P	C
MSFS-101	Introduction to Forensic Science and Criminal Justice System	100	3	1	0	4
MSFS-102	Analytical Instruments and Techniques	100	3	1	0	4
MSFS-103	Evidence and It's Pattern	100	3	1	0	4
MSFS-104	Crime Scene Management and Quality Assurance	100	3	1	0	4
MSFS-105	Essentials of Statistics and Mathematics in Forensic Science	100	3	1	0	4
Practical Course						
MSFS-191	Pattern Evidence at Crime Scene and Photography	100	0	0	4	2
MSFS-192	Field Tests	100	0	0	4	2
MSFS-193	Tools and Techniques	100	0	0	4	2
Total		800	15	5	12	26

Second Semester

Paper Code	Paper Name	Marks	Credit			
			L	T	P	C
MSFS-201	Forensic Chemistry and Toxicology	100	3	1	0	4
MSFS-202	Forensic Biology and Forensic Medicine	100	3	1	0	4
MSFS-203	Forensic Questioned Documents	100	3	1	0	4
MSFS-204	Forensic Ballistics and Forensic Physics	100	3	1	0	4
MSFS-205	Cyber Crime	100	3	1	0	4
Practical Course						
MSFS-291	Forensic Toxicology, Chemistry, Biology and Forensic Medicine	100	0	0	4	2
MSFS-292	Ballistics and Photography	100	0	0	4	2
MSFS-293	Documents Examination	100	0	0	4	2
Total		800	15	5	12	26

Third Semester

Paper Code	Paper Name	Marks	Credit			
			L	T	P	C
MSFS-301A [Specialization in Forensic Ballistics]	Firearms, Ammunitions & Instrumentation Techniques	100	3	1	0	4
MSFS-301B [Forensic Documents Examination]	Questioned Documents and Handwriting Analysis	100	3	1	0	4
MSFS-301C [Computer Forensic and Cyber Crime]	Advanced Digital Forensics	100	3	1	0	4
MSFS-302A [Specialization in Forensic Ballistics]	Identification of Firearms, Range of Firing and Chemical Tests	100	3	1	0	4
MSFS-302B [Forensic Documents Examination]	Mechanical Impressions	100	3	1	0	4

MSFS-302C [Computer Forensic and Cyber Crime]	Networks Security & Forensics	100	3	1	0	4
MSFS-303A [Specialization in Forensic Ballistics]	Wound Ballistics, Reconstruction & Report Writing	100	3	1	0	4
MSFS-303B [Forensic Documents Examination]	Bank Frauds and Forensic Accounting	100	3	1	0	4
MSFS-303C [Computer Forensic and Cyber Crime]	Mobile & Wireless Device Forensics	100	3	1	0	4
MSFS-304A [Specialization in Forensic Ballistics]	Internal, External Ballistics & Gun-shot Residue	100	3	1	0	4
MSFS-304B [Forensic Documents Examination]	Digital & Security Documents	100	3	1	0	4
MSFS-304C [Computer Forensic and Cyber Crime]	Cyber Laws & Intellectual Property Rights	100	3	1	0	4

MSFS-305	Elective	100	3	1	0	4
Practical Course						
MSFS-391A [Specialization in Forensic Ballistics]	Applications of Instrumentation Techniques in Forensic Ballistics	100	0	0	4	2

MSFS-391B [Forensic Documents Examination]	Handwriting and Mechanical Impressions	100	0	0	4	2
MSFS-391C [Computer Forensic and Cyber Crime]	Advanced Digital Forensics	100	0	0	4	2
MSFS-392A [Specialization in Forensic Ballistics]	Documentation of Crime Scene involving Firearm, handling or Evidentiary Clues	100	0	0	4	2
MSFS-392B [Forensic Documents Examination]	Examination of Electronically printed documents and counterfeits	100	0	0	4	2
MSFS-392C [Computer Forensic and Cyber Crime]	Networks Security & Forensics	100	0	0	4	2

MSFS-393A [Specialization in Forensic Ballistics]	Forensic Ballistics- Identification of firearms, Range of firing, Chemical Tests	100	0	0	4	2
MSFS-393B [Forensic Documents Examination]	Analysis of Digital Documents and Bank Instruments	100	0	0	4	2
MSFS-393C [Computer Forensic and Cyber Crime]	Mobile & Wireless Device Forensics	100	0	0	4	2
Total		800	15	5	12	26

Fourth Semester

Paper Code	Paper Contents	Credit			
		L	T	P	C
MSFS401	Research Methodology and Communication Skills	3	2	0	5
MSFS491	Dissertation	0	0	20	20
MSFS492	Internship	0	0	5	5
Total Credit		3	2	25	30

Elective Papers- MSFS-305

Paper Code	Paper Name	Credit			
		L	T	P	C
MSFS-305A	Reconstruction of Crime Scene involving Firearms	3	1	0	4
MSFS-305B	Allied Problems in Forensic Document Examinations	3	1	0	4
MSFS-305C	Post Blast Investigation Techniques	3	1	0	4
MSFS-305D	Forensic Evidence in Crime against Human Body	3	1	0	4
MSFS-305E	Photography and Forensic Image Analysis	3	1	0	4
MSFS-305F	Cyber Crime and IT ACT	3	1	0	4
MSFS-305G	Criminal Justice System	3	1	0	4

MSFS-305H		Policing and Law Enforcement	3	1	0	4

7.M.SC IN APPLIED CHEMISTRY:

SEMESTER – I

Sl. No.	Paper code	Course name	Course type	Marks	Hours/credit			
					L	T	P	C
1.	MSAC101	Organic Chemistry I	CC (Theory)	100	3	0	0	3
2.	MSAC102	Advanced Inorganic Chemistry	CC (Theory)	100	3	0	0	3
3.	MSAC103	Advanced Physical Chemistry	CC (Theory)	100	3	0	0	3
4.	MSAC104	Analytical Techniques	CC (Theory)	100	3	0	0	3
5.	MSAC105	Numerical Methods in Computational Chemistry	CC (Theory)	100	3	0	0	3
6.	MSAC191	Lab Techniques for Quantitative and Qualitative Analysis	CC (Practical)	100	0	0	6	3
7.	MSAC192	Computer Programming –I	CC (Practi	100	0	0	6	3

			cal)					
8.	MSAC193	Computer aided Stereo-chemical Analysis of Complex Chemical Reaction	CC (Practical)	100	0	0	4	2
9.	MSAC194	Project-I	SEC (Sessional)	100	0	0	4	2
10.	MSAC181	Audit Course	SEC (Sessional)	-	-	-	-	-
	Total			900	25			

SEMESTER - II

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC201	Quantum Chemistry	CC (Theory)	100	3	0	0	3
2.	MSAC202	Statistical Mechanics	CC (Theory)	100	3	0	0	3
3.	MSAC203	Organic Chemistry II	CC (Theory)	100	3	0	0	3
4.	MSAC204	Nano science and technology	IDC (Theory)	100	3	0	0	3

5.	MSAC205	Applications of Artificial Intelligence and Machine Learning in Chemistry	SEC (Theory)	100	2	0	0	2
6.	MSAC206	Natural Products and Medicinal Chemistry	DSE (Theory)	100	3	0	0	3
7.	MSAC291	Computational Methods in Chemistry	CC (Practical)	100	0	0	6	3
8.	MSAC292	Advanced Chemistry Laboratory	CC (Practical)	100	0	0	6	3
9.	MSAC293	Project-II	SEC (Sessional)	100	0	0	6	3
	Total			900	26			

SEMESTER - III

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC301	Bioorganic, Supramolecular and Green Chemistry	CC (Theory)	100	3	0	0	3
2.	MSAC302	Biochemistry & Bioinorganic Chemistry	DSE (Theory)	100	3	0	0	3
3.	MSAC303	Research Methodology	CF (Theory)	100	3	0	0	3
4.	MSAC304(A- D)	Elective I	EF (Theory)	100	3	0	0	3
5.	MSAC305(A- D)	Elective II	EF (Theory)	100	3	0	0	3
6.	MSAC391	Computer Programming–II	CC (Practical)	100	0	0	4	2
7.	MSAC392	Preparation of Complex Materials and their Characterization by	CC (Practical)	100	0	0	6	3

		Physiochemical Techniques						
8.	MSAC393	Spectroscopic Analysis Lab	CC (Practical)	100	0	0	6	3
9.	MSAC394	Project-III	SEC (Sessional)	100	0	0	6	3
	Total			900	26			

SEMESTER - IV

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC401(A- D)	Elective III	EF (Theory)	100	3	0	0	3
2.	MSAC491	Industrial Exposure	VAC (Sessional)	100	0	0	4	2
3.	MSAC492	Project-IV (Dissertation & Viva voce)	CC (Sessional)	100	12			
	Total			300	17			

CC: Core Course, VAC: Value Added Course, SEC: Skill Enhancement Course, IDC: Interdisciplinary Course, DSE: Discipline Specific Elective, EF: Elective Foundation, CF: Compulsory Foundation

Elective Basket:

Elective I basket	Elective II basket	Elective III basket
A. Photochemistry and spectroscopy	A. Colloids, surface chemistry, catalysis and solid state	A. Pharmaceutical Chemistry
B. Cheminformatics	B.Industrial Chemistry	B.Food Chemistry
C. Water and Wastewater Treatment	C.Sensor Development	C.Industrial Catalysis
D. Semiconductor devices	D.Solid Waste Management and Air Pollution	D.Industrial& Environmental Pollution Management and Industrial Process Safety

Program summary:

Semesters	Contact Hours/week	Marks	Program credit
I	35	900	25
II	35	900	26
III	37	900	26

IV	31	300	17
Total		3000	94

8. M.SC IN MATERIAL SCIENCE:

Semester-I									
Sl. No.	Subject Category	Subject Code	Subject Name	Marks	Total no of contact hours			Credits	
					L	T	P		
1	Core Course 1	MMS101	Fundamentals of Materials Science	100	3	1	0	4	
2	Core Course 2	MMS102	Physics and Chemistry of Solids	100	3	1	0	4	
3	Core Course 3	MMS103	Mechanics and Thermodynamics	100	3	1	0	4	

4	Generic Elective (GE1)	MMS 104	Mathematical, Statistical & Numerical Methods for Materials Science-I	100	3	1	0	4	
5	Skill Enhancement Course (SEC1)	MMS 105	English for Scientific and Technical Writing	100	2	0	0	2	
6	Laboratory-I	MMS 191	Computer Programming with Python & C for Materials Science	100	0	0	4	2	
7	Laboratory-II	MMS 192	Fundamental of Materials Science Lab	100	0	0	4	2	
8	Sessional	MMS 181	Term Project & Seminar	100	0	0	4	2	
			Total Marks	800					
			Total Credit of Semester-I		14	4	12	24	
Semester-II									
Sl. No.	Category	Subject Code	Subject Name	Marks	Total no of contact hours			Credits	
					L	T	P		
1	Core Course 4	MMS	Mechanical Behavior of Materials	100	3	1	0	4	

		201							
2	Core Course 5	MMS202	Structure and Imperfections in Solids	100	3	1	0	4	
3	Core Course 6	MMS203	Synthesis and Characterization of Materials	100	3	1	0	4	
4	Generic Elective (GE2)	MMS204	Mathematical, Statistical & Numerical Methods for Materials Science-II	100	3	1	0	4	
5	Compulsory Foundation (CF)	MMS205	Research Methodology & IPR	100	2	0	0	2	
6	Laboratory I	MMS291	Materials Synthesis and Characterizations Lab	100	0	0	4	2	
7	Laboratory -II	MMS292	Computational Materials Science Lab	100	0	0	4	2	
8	Sessional	MMS281	Term Project & Entrepreneurship	100	0	0	4	2	
			Total Marks	800					
			Total of Semester-II		1	5	1	2	

		7		2	4	

Semester-III									
Sl. No.	Category	Subject Code	Subject Name	Marks	Total no of contact hours			Credits	
					L	T	P		
1	Core Course 7	MMS 301	Optical, Electronic & Magnetic Properties of Materials	100	3	1	0	4	
2	Core Course 8	MMS 302	Nanomaterials: Principles and Applications	100	3	1	0	4	
3	Discipline Specific Elective (DSE1)	MMS 303	Elective-1	100	3	1	0	4	
4	Skill Enhancement Course (SEC)	MMS 304	Applications of Artificial Intelligence and Machine Learning	100	2	0	0	2	
5	Laboratory I	MMS 391	Optical, Electronic & Magnetic Properties of Materials Lab	100	0	0	4	2	
6	Sessional-I	MMS 381	Business Economics and Entrepreneurship	100	0	0	4	2	
7	Sessional-II	MMS 382	Major Project-I	100	0	0	12	6	
			Total Marks	700					

Total of Semester-III					11	3	20	24	
Semester-IV									
Sl. No.	Category	Subject Code	Subject Name	Marks	Total no of contact hours			Credits	
					L	T	P		
1	Discipline Specific Elective (DSE2)	MMS 401	Elective-2	100	3	1	0	4	
2	Generic Elective (GE3)	MMS 402	Elective-3	100	3	1	0	4	
3	Sessional	MMS 481	Major Project-II	100	0	0	24	12	
			Total Marks	300					
Total of Semester-IV					6	2	24	20	

9.M.SC IN BIOTECHNOLOGY:

S. No.	Paper Code	Course Title	Contact Hrs/ wk L-T-P	Credits
SEMESTER ONE				
1	MSUBT-101	Biochemistry	3-0-0	3
2	MSUBT-102	Laboratory Techniques and Safety	3-0-0	3
3	MSUBT-103	Cell and Molecular Biology	3-0-0	3
4	MSUBT-104	Biostatistics	3-0-0	3
5	MSUBT-105	General Microbiology	3-0-0	3
6	MSUBT-191	Laboratory I: Biochemistry and Analytical Techniques	0-0-6	3
7	MSUBT-192	Laboratory II: Microbiology	0-0-6	3
8	MSUBT-193	Laboratory III: Lab for Data Analysis using Statistical Software	0-0-4	2
9	MSUBT-181	Seminar / Journal Presentation		1
		TOTAL		24
SEMESTER TWO				
1	MSUBT-201	Genetics and Molecular Diagnostics	3-0-0	3
2	MSUBT-202	Bioprocess Engineering and Technology	3-0-0	3
3	MSUBT-203	Immunology	3-0-0	3
4	MSUBT-204	Genetic Engineering	3-0-0	3

5	MSUBT-205	Applied Bioinformatics	3-0-0	3
6	MSUBT-206	Choice Based Courses (From MOOCs Basket)		2
7	MSUBT-291	Laboratory IV: Molecular Biology & Genetic Engineering	0-0-6	3
8	MSUBT-292	Laboratory V: Immunology	0-0-6	3
9	MSUBT-281	Seminar / Journal Presentation		1
		TOTAL		24
SEMESTER THREE				
1	MSUBT-301	Industrial Biotechnology	3-0-0	3
2	MSUBT-302	Plant & Animal Cell Culture Technology	3-0-0	3
3	MSUBT-303	Genomics and Proteomics	3-0-0	3
4	MSUBT-304	Intellectual Property Rights, Biosafety and Bioethics	3-0-0	3
5	MSUBT-305	Choice Based Courses (From Elective Basket)	2-0-0	2
6	MSUBT-306	Choice Based Courses (From MOOCs Basket)		2
7	MSUBT-391	Laboratory VI: Bioprocess Engineering and Technology	0-0-6	3
8	MSUBT-392	Laboratory VII: Applied Bioinformatics	0-0-6	3
9	MSUBT-381	Project Proposal Presentation		2
		TOTAL		24
SEMESTER FOUR				
1	MSUBT-481	Dissertation		22
2	MSUBT-	Industry/ Lab visit		1

	482			
3	MSUBT-483	Seminar / Journal Presentation		1
		TOTAL		24
		TOTAL CREDITS		96

10.M. SC IN MICROBIOLOGY:

Semester I

Code	Course Title	Contact Hrs./Wk	Credit
A	Theory	L-T-P	
MSUMC-101	Biochemistry	3-0-0	3
MSUMC-102	Laboratory Technique & safety	3-0-0	3
MSUMC-103	Cell & Molecular Biology	3-0-0	3
MSUMC-104	Biostatistics	3-0-0	3
MSUMC-105	General Microbiology	3-0-0	3
B	Practical		
MSUMC-191	Biochemistry & Analytical Techniques	0-0-6	3
MSUMC-192	Microbiology	0-0-6	3
MSUMC-193	Data analysis by software	0-0-4	2
C			

MSUMC-	Seminar		1

181			
Semester Total			24
Semester II			

Code	Course Title	Contact Hrs./wk	Credit
A	Theory	L-T-P	
MSUMC- 201	Agricultural & Soil Microbiology	3-0-0	3
MSUMC- 202	Industrial Microbiology & Fermentation Technology	3-0-0	3
MSUMC- 203	Immunology	3-0-0	3
MSUMC-	Genetic Engineering	3-0-0	3

204			
MSUMC- 205	Applied Bioinformatics	3-0-0	3
MSUMC- 206	Choice based courses (from MOOCS basket)		2
B	Practical		
MSUMC- 291	Genetic engineering	0-0-6	3

MSUMC- 292	Immunology	0-0-6	3
C			
MSUMC- 281	Seminar		1
Semester Total			24

Semester III

Code	Course Title	Contact Hrs./wk	Credit
A	Theory	L-T-P	
MSUMC- 301	Virology	3-0-0	3
MSUMC- 302	Environmental Microbiology	3-0-0	3
MSUMC- 303	Medical Microbiology	3-0-0	3
MSUMC- 304	IPR, Biosafety & Bioethics	3-0-0	3
MSUMC- 305	Choice Based course (From Elective Basket) *	2-0-0	2
MSUMC- 306	Choice Based course (from MOOCS basket)		2
B	Practical		
MSUMC- 391	Applied Bioinformatics lab	0-0-6	3

MSUMC- 392	Fermentation technology lab	0-0-6	3
C			
MSUMC- 381	Project Proposal Presentation		2

24

Semester Total

*** Elective subjects Basket**

Code	Subject
MSMC-305A	Principles of Ecology
MSMC- 305B	Research methodology and Writing
MSMC-305C	Molecular diagnostics
MSMC-305D	Enzyme technology
MSMC-305E	Plant Molecular Biology

Semester – IV

Code	Course Title	Contact Hrs./wk	Credi t
		L-T-P	

MSUMC- 481	Project Work		22
MSUMC- 482	Industry/ lab visit		1
MSUMC- 483	Journal Club Presentatio n		1
Semester Total			24
Total Course Credit			96

11.M.SC IN GENETICS:

Semester I

Code	Course Title	Contact Hrs./Wk	Credit
A	Theory	L-T-P	
MSUGN-101	Biochemistry	3-0-0	3
MSUGN-102	Laboratory Technique & Safety	3-0-0	3
MSUGN-103	Cell & Molecular Biology	3-0-0	3
MSUGN-104	Bio statistics	3-0-0	3
MSUGN-105	Basic Genetics	3-0-0	3
B	Practical		
MSUGN-191	Biochemistry& Analytical Techniques	0-0-6	3
MSUGN-192	Lab on Cytogenetics	0-0-6	3
MSUGN-193	Data analysis using software	0-0-4	2
C			
MSUGN-181	Seminar		1
Semester Total			24

Semester II

Code	Course Title	Contact Hrs./wk	Credit
A	Theory	L-T-P	
MSUGN-201	Evolutionary Biology and Population Genetics	3-0-0	3
MSUGN-202	Clinical Genetics	3-0-0	3
MSUGN-203	Immunology	3-0-0	3
MSUGN-204	Genetic Engineering	3-0-0	3
MSUGN-205	Applied Bio informatics	3-0-0	3
MSUGN-206	Choice based courses (from MOOCS basket)		2
B	Practical		
MSUGN-291	Genetic Engineering Lab	0-0-6	3
MSUGN-292	Immunology Lab	0-0-6	3
C			
MSUGN-281	Seminar		1
Semester Total			24

Semester III

Code	Course Title	Contact Hrs./wk	Credit
A	Theory	L-T-P	
MSUGN-301	Human Genetics and Genetic Counselling	3-0-0	3
MSUGN-302	Developmental Biology	3-0-0	3
MSUGN-303	Genomics & Proteomics	3-0-0	3
MSUGN-304	IPR, Bio safety & Bioethics	3-0-0	3
MSUGN-305	Choice Based course (From Elective Basket) *	2-0-0	2
MSUGN-306	Choice Based course (from MOOCS basket)		2
B	Practical		
MSUGN-391	Lab on Applied Bioinformaticslab	0-0-6	3
MSUGN-392	Lab on Molecular Genetics and Developmental Genetics	0-0-6	3
C			
MSUGN-381	Project Proposal Presentation		2
Semester Total			24

* Elective subjects Basket

Code	Subject
MSMC-305A	Principles of Ecology
MSMC- 305B	Research methodology and Writing
MSMC-305C	Molecular diagnostics

MSMC-305D	Enzyme technology
MSMC-305E	Plant Molecular Biology

Semester – IV

Code	Course Title	Contact Hrs./wk	Credit
		L-T-P	
MSUGN-481	Project Work		22
MSUGN-482	Industry/ lab visit		1
MSUGN-483	Journal Club Presentation		1
Semester Total			24
Total Course Credit			96

12.M.SC IN BIOINFORMATICS:

For 1st Semester: Total 21 Credits

Code	Course Title	Contact Hrs./wk	Credits	Total
A	Theory	L-T-P		
MSBIN 101	Molecular Biology	3-0-0	3	21
MSBIN 102	Computational Biochemistry	3-0-0	3	
MSBIN 103	Mathematics and Statistics	3-0-0	3	
MSBIN 104	Application of Bio tools and Bio database	3-0-0	3	
MSBIN 105	Data Structure and Application	3-0-0	3	
B	Practical			
MSBIN 192	Computational Biochemistry Lab	0-0-4	2	
MSBIN 194	Bioinformatics Lab	0-0-4	2	
MSBIN 195	Data Structure and Application Lab	0-0-4	2	

For 2nd Semester: Total 21 Credits

Code	Course Title	Contact Hrs./wk	Credits	Total
A	Theory	L-T-P		
MSBIN 201	Structural Bioinformatics	3-0-0	3	21
MSBIN 202	Genomics and Proteomics	3-0-0	3	
MSBIN 203	Molecular Modeling and Molecular Dynamics	3-0-0	3	
MSBIN 204	Computer language (Python)	3-0-0	3	
B	Practical			
MSBIN 291	Structural Bioinformatics Lab	0-0-6	3	
MSBIN 292	Genomics and Proteomics Lab	0-0-6	3	
MSBIN 294	Computer language (Python) Lab	0-0-6	3	

For 3rd Semester: Total 21 Credits

Code	Course Title	Contact Hrs./wk	Credits	Total
A	Theory	L-T-P		
MSBIN 301	Computational Drug Design	3-0-0	3	21
MSBIN 302	System Biology	3-0-0	3	
MSBIN 303	Research Methodology and IPR	3-0-0	3	
	Elective (Any one):	3-0-0	3	
MSBIN 304(A)	Omics Technology			
MSBIN 304(B)	Next Generation Sequence Technology			
MSBIN 304(C)	Embryology and Human Genetics			
B	Practical			
MSBIN 391	Computational Drug Design Lab	0-0-6	3	
MSBIN 394	Elective Lab	0-0-6	3	
MSBIN 395	Computer language (R) Lab	0-0-6	3	

For 4th Semester : Total 21 Credits

Code	Course Title	Credits	Total
C	Sessional		
MSBIN 481	Project Work	15	21
MSBIN 482	Grand Viva	3	
MSBIN 483	Communication Skill	3	

13.M.SC IN IT(DATA SCIENCE)::

M.Sc,Sem-I.

Code	Course Title	Hours per week			Credits
		L	T	P	
MITDS-101	Program Core I-Advanced Statistics	3	0	0	3
MITDS-102	Program Core II-Advanced Data Structures and Algorithms	3	0	0	3
MITDS–103	Program Core III-Introduction to Data Science	3	0	0	3
MITDS-104	Program Core IV- Data Visualization	3	0	0	3
MITDS-105	Research Methodology and IPR	2	0	0	2
MITDS-106A/106B/106C/106D	Elective I (Cloud Computing / Pattern Recognition / Internet of Things/ Computer Vision)	3	0	0	3
MITDS-192	Laboratory 1 (Advanced Data Structures and Algorithms)	0	0	4	2

MITDS-194	Laboratory 2 (Data Visualization)	0	0	4	2
MITDS-196A/196B/196C/196D/196E	Laboratory 3 (Based on Elective I)	0	0	4	2
Total Credits: 23					

M.Sc, Sem- II

Code	Course Title	Hours per week			Credits
		L	T	P	
MITDS-201	Program Core V Big Data Analytics	3	0	0	3
MITDS-202	Program Core VI – Machine Learning	3	0	0	3
MITDS–203	Program CoreVII – Data Preparation and Analysis	3	0	0	3
MITDS-204A/204B/204C/204D	Program Elective II- Optimization Techniques / Social Media Analytics / Advanced Data Mining/	3	0	0	3

	Time Series Analysis and				
	Forecasting Techniques				
MITDS-205A/B/C/D	Audit Course-2	2	0	0	0
MITDS-291	Laboratory 1 (Big Data Analytics)	0	0	4	2
MITDS-292	Laboratory 2 (Machine Learning)	0	0	4	2
MITDS-293	Laboratory 2 (Data Preparation and Analysis)	0	0	4	2
MITDS-293	Term Paper with Seminar	0	0	4	2
Total Credits: 20					

*Students be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.

M.Sc, IIISem*

Code	Course Title	Hours per week			Credits
		L	T	P	
MITDS–301	Program Core IX – Deep Learning	3	0	0	03
MITCNS-302	Open Elective Business Analytics Project Management & Entrepreneurship Industrial Safety Operations Research Cost Management of Engineering Projects Composite Materials Waste to Energy	3	0	0	03
MITDS-391	Laboratory (Deep Learning)	0	0	4	2
MITCNS-393	Dissertation-I /Industrial Project	0	0	20	10
TotalCredit18					

*Students going for Industrial Project/Thesis will complete these courses through

MOOCs. M.Sc, Sem-IV

	Course Title	Hours per week			Credits
		L	T	P	
MITCNS-491	Dissertation II	0	2	24	14
	Seminar	0	2	0	2
Total Credits: 16					

14.M.SC IN IT(CYBER SECURITY):

SEMESTER I					
Code	Course Title	Hours per week			Credits
		L	T	P	
MITCS101	Program Core I Discrete Mathematics of Computer Science	3	0	0	3
MITCS102	Program Core II Advanced Data Structures and Algorithms	3	0	0	3
MITCS103	Program Core III Cryptology	3	0	0	3
MITCS104	Program Core IV Advanced Web Technology	3	0	0	3
MITCS 105	Research Methodology and IPR	2	0	0	2
MITCS106 A/B/C/D/E/F	Elective I Advanced Operating Systems Advanced DBMS Machine Learning Computer Graphics and Image Processing Sensor Networks and Internet of Things Cloud Computing	3	0	0	3
MITCS192	Laboratory 1 Advanced Data Structures and Algorithms	0	0	4	2
MITCS1	Laboratory 2	0	0	4	2

94	Advanced Web Technology Lab				
MITCS196 A/B/C/D/E/F	Laboratory 3 Based on Elective I	0	0	4	2
Total Credits: 23					

SEMESTER II					
Code	Course Title	Hours per week			Credits
		L	T	P	
MITCS201	Program Core V Ethical Hacking	3	0	0	3
MITCS202	Program Core VI Network Security	3	0	0	3
MITCS203	Program Core VII Digital Forensics	3	0	0	3
MITCS204 A/B/C/D/E	Program Elective II Security Assessment and Risk Analysis Malware Detection ML for Security Image Processing and Security Cloud Computing security	3	0	0	3
MITCS205 A/B/C/D	Audit Course 2	2	0	0	0
MITCS292	Laboratory 1 Network Security Lab	0	0	4	2
MITCS293	Laboratory 2 Digital Forensics Lab	0	0	4	2
MITCS281	Term Paper with Seminar	0	0	4	2
Total Credits: 18					

SEMESTER III					
Code	Course Title	Hours per week			Credits
		L	T	P	
MITCS301	Program Core IX Cyber Law and Cyber Crime Investigation	3	0	0	03
MITCS302	Open Elective Business Analytics Project Management & Entrepreneurship Industrial Safety Operations Research Cost Management of Engineering Projects Security Policy & Audit Waste to Energy	3	0	0	03
MITCS393	Dissertation-I /Industrial Project	0	0	20	10
Total Credits: 16					

Semester-IV

Code	Course Title	Hours per week			Credits
		L	T	P	
MITCS491	Dissertation II	0	0	32	16
Total Credits: 16					

15.M.SC IN IT(ARTIFICIAL INTELLIGENCE):

Sem-I.

Code	Course Title	Hours per week			Credits
		L	T	P	
MITAI-101	Program Core I-Mathematics for Computer Science	3	0	0	3
MITAI - 102	Program Core II-Advanced Data Structures and Algorithms	3	0	0	3
MITAI – 103	Program Core III-Pattern Recognition	3	0	0	3
MITAI - 104	Program Core IV-Artificial Intelligence	3	0	0	3
MITAI - 105	Research Methodology and IPR	2	0	0	2

MITAI - 106A/106 B/10 6C	Elective I (Cloud Computing / Machine Learning / / Big Data Analytics)	3	0	0	3
MITAI - 192	Laboratory 1 (Advanced Data Structures and Algorithms)	0	0	4	2
MITAI - 194	Laboratory 2 (Pattern Recognition)	0	0	4	2
MITAI- 196A/196 B/1 96C	Laboratory 3 (Based on Elective I)	0	0	4	2
Total Credits: 23					

M.Sc, Sem- II

Code	Course Title	Hours per week			Credits
		L	T	P	
MITAI -201	Program Core V Artificial Neural Network	3	0	0	3
MITAI -202	Program Core VI – Image Processing	3	0	0	3
MITAI – 203	Program Core VII – Natural Language Processing	3	0	0	3
MITAI - 204A/204B /20 4C	Program Elective II- Soft Computing / Advanced Data Mining/Information Retrieval	3	0	0	3
MITAI - 205A/B/C	Audit Course-2	2	0	0	0
MITAI-291	Laboratory 1 (Artificial Neural Network)	0	0	4	2
MITAI -292	Laboratory 2(Image Processing)	0	0	4	2
MITAI – 293	Laboratory 3(Natural Language Processing)				
MITAI -293	Term Paper with Seminar	0	0	4	2
Total Credits: 18					

*Students be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.

M.Sc, III Sem*

Code	Course Title	Hours per week			Credits
		L	T	P	
MITAI – 301A/B/ C/D	Program Elective III – Computer Vision & Robotics/Deep Learning/Distributed System/IOT/	3	0	0	03
MITAI - 302	Open Elective Business Analytics Project Management & Entrepreneurship Industrial Safety Operations Research Cost Management of Engineering Projects Composite Materials Waste to Energy	3	0	0	03
MITAI - 393	Dissertation-I /Industrial Project	0	0	20	10
Total Credits: 16					

*Students going for Industrial Project/Thesis will complete these courses through MOOCs. M.Sc, Sem-IV

	Course Title	Hours per week			Credits
		L	T	P	
MIT AI - 491	Dissertation II	0	0	32	16
Total Credits: 16					

16.M.SC. (MOLECULAR BIOLOGY)

MASTER OF SCIENCE IN MOLECULAR BIOLOGY

Syllabus 2019

(Two-Year Course)

M.Sc Molecular Biology (2-Year, 4-Semester Course) (2019)

S. No.	Paper Code	Course Title	Contact Hrs/ wk L-T-P	Credits
SEMESTER ONE				
1	MSUMB-101	Biochemistry	3-0-0	3
2	MSUMB-102	Laboratory Techniques and Safety	3-0-0	3
3	MSUMB-103	Cell and Molecular Biology	3-0-0	3
4	MSUMB-104	Biostatistics	3-0-0	3
5	MSUMB-105	Regulation of Gene Expression	3-0-0	3
6	MSUMB-191	Laboratory I: Biochemistry and Analytical Techniques Lab	0-0-6	3
7	MSUMB-192	Laboratory II: Molecular Biology Lab	0-0-6	3
8	MSUMB-193	Laboratory III: Lab for Data Analysis using Statistical Software	0-0-4	2
9	MSUMB-181	Seminar / Journal Presentation		1
		TOTAL		**24**
SEMESTER TWO				
1	MSUMB-201	Neurobiology & Developmental Biology	3-0-0	3
2	MSUMB-202	Genomics & Proteomics	3-0-0	3
3	MSUMB-203	Immunology	3-0-0	3
4	MSUMB-204	Genetic Engineering	3-0-0	3
5	MSUMB-205	Applied Bioinformatics	3-0-0	3

6	MSUMB-206	Choice Based Courses (From MOOCs Basket)		2
7	MSUMB-291	Laboratory IV: Genetic Engineering Lab	0-0-6	3
8	MSUMB-292	Laboratory V: Immunology Lab	0-0-6	3
9	MSUMB-281	Seminar / Journal Presentation		1
		TOTAL		**24**
SEMESTER THREE				
1	MSUMB-301	Plant Biotechnology	3-0-0	3
2	MSUMB-302	Immunotechnology	3-0-0	3
3	MSUMB-303	Signal Transduction & Oncology	3-0-0	3
4	MSUMB-304	Intellectual Property Rights, Biosafety and Bioethics	3-0-0	3
5	MSUMB-305	Choice Based Courses (Electives)	2-0-0	2
6	MSUMB-306	Choice Based Courses (From MOOCs Basket)		2
7	MSUMB-391	Laboratory VI: Applied Bioinformatics Lab	0-0-6	3
8	MSUMB-392	Laboratory VII: Signal Transduction Lab	0-0-6	3
9	MSUMB-381	Project Proposal Presentation		2
		TOTAL		**24**
SEMESTER FOUR				
1	MSUMB-481	Dissertation		22
2	MSUMB-482	Industry/ Lab visit		1
3	MSUMB-483	Seminar / Journal Presentation		1
		TOTAL		**24**
		TOTAL CREDITS		**96**

ELECTIVES

Code	Subject
MSUMB-305A	Principles of Ecology
MSUMB-305B	Research Methodology and Writing
MSUMB-305C	Nanobiotechnology
MSUMB-305D	Enzyme Technology
MSUMB-305E	Plant Molecular Biology
MSUMB-305F	Medical Devices
MSUMB-305G	Environmental Biotechnology

Semester I

Semester – I

Code	Course Title	Contact Hrs./Wk	Credit
A	**Theory**	**L-T-P**	
MSUMB-101	Biochemistry	3-0-0	3
MSUMB-102	Laboratory Techniques	3-0-0	3
MSUMB-103	Cell and Molecular Biology	3-0-0	3
MSUMB-104	Biostatistics	3-0-0	3
MSUMB-105	Regulation of Gene Expression	3-0-0	3
B	**Practical**		

MSUMB-191	Biochemistry & Analytical Techniques Lab	0-0-6	3
MSUMB-192	Molecular Biology Lab	0-0-6	3
MSUMB-193	Lab for Data analysis using statistical software	0-0-6	2
C			
MSUMB-181	Seminar/ Journal Presentation		1
Semester Total			**24**

Maulana Abul Kalam Azad University of Technology, West Bengal(formerly West Bengal University of Technology)

ECS COURSE STRUCTURE BTECH ALL PROGRAMS

1. B.TECH IN COMPUTER SCIENCE & ENGINEERING

S4-Year B. Tech in Computer Science & Engineering for in-house Course - Syllabus

Semester-wise structure of curriculum

[L= Lecture, T = Tutorials, P = Practical & C = Credits]

Semester I (First year) Curriculum Computer Science Engineering

First Year First Semester

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Basic Science course	BS-CH101	Chemistry-I	3	1	0	4
2	Basic Science course	BS-M101	Mathematics –I (Calculus & Linear Algebra)	3	1	0	4
3	Engineering Science Courses	ES-EE101	Basic Electrical& Electronics Engineering	4	0	0	4

4	Engineering Science Courses	ES-ME 101	Engineering Graphics & Design	1	0	0	1
5	Basic Science course	BS-CH191	Chemistry-I Lab	0	0	4	2
6	Engineering Science Courses	ES-EE191	Basic Electrical& Electronics Engineering Lab	0	0	2	1
7	Engineering Science Courses	ES-ME191	Engineering Graphics & Design	0	0	4	2
Total Credits							18

Semester II (First year) Curriculum Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Basic Science courses	BS-PH201	Physics-I	3	1	0	4
2	Basic Science courses	BS-M201	Mathematics-II (Probability and Statistics)	3	1	0	4
3	Engineering Science Courses	ES-CS201	Programming for Problem Solving	3	0	0	3
4.	Engineering Science Courses	ES-ME201	Workshop/Manufacturing Practices	1	0	0	1
5	Humanities and Social Sciences including Management courses	HSMC 201	English	2	0	0	2
6	Basic Science courses	BS-PH291	Physics- I Lab	0	0	4	2
7	Engineering Science Courses	ES-CS291	Programming for Problem Solving Lab	0	0	4	2
8	Engineering Science Courses	ES-ME291	Workshop/Manufacturing Practices	0	0	4	2

9	Humanities and Social Sciences including Management courses	HSMC 291	Language Lab	0	0	2	1
Total of Credits							21

Semester III (Second year) Curriculum Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Core Courses	PCC-CS301	Principles of Programming Language	3	0	0	3
2	Professional Core Courses	PCC-CS302	Data structure & Algorithms	3	0	0	3
3	Engineering Science Courses	ES-CS301	Digital Electronics	3	0	0	3
4	Professional Core Courses	PCC-CS303	IT Workshop (Python/ R/ Sci Lab/ MATLAB)	1	0	0	1
5	Basic Science courses	BS-M301	Mathematics-III (Differential Calculus)	2	0	0	2
6	Humanities & Social Sciences including Managemen	HSMC 301	Humanities-I	3	0	0	3

	t Courses						
7	Professional Core Course	PCC-CS391	Principles of Programming Language Lab	0	0	4	2
8	Professional Core Courses	PCC-CS392	Data structure & Algorithms Lab	0	0	4	2
9	Engineering Science Courses	ES-CS391	Digital Electronics Lab	0	0	4	2
10	Professional Core Courses	PCC-CS393	IT Workshop (Python/R/ Sci Lab/ MATLAB) Lab	0	0	4	2
Total Credits							23

Semester IV (Second year) Curriculum Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Core Course	PCC-CS401	Discrete Mathematics	3	1	0	4

2	Professional Core Courses	PCC-CS402	Computer Organization & Architecture	3	0	0	3
3	Professional Core Courses	PCC-CS403	Operating Systems	3	0	0	3
4	Professional Core Courses	PCC-CS404	Design & Analysis of Algorithms	3	0	0	3
5	Humanities & Social Sciences including Management Courses	HSMC-401	Management-I (Organizational Behaviour/ Finance &Accounting)	3	0	0	3
6	Mandatory Courses	MC-401	Environmental Sciences	1	0	0	0
7	Professional Core Courses	PCC-CS492	Computer Organization & Architecture Lab	0	0	4	2
8	Professional Core Courses	PCC-CS493	Operating Systems Lab	0	0	4	2
9	Professional Core Courses	PCC-CS494	Design & Analysis of Algorithms Lab	0	0	4	2
Total Credits							22

Semester V (Third year) Curriculum Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours	Credits

				L	T	P	
1	Professional Core Course	PCC-CS501	Software Engineering	3	0	0	3
2	Professional Core Course	PCC-CS502	Database Management Systems	3	0	0	3
3	Professional Core Courses	PCC-CS503	Formal Language &Automata Theory	3	0	0	3
4	Professional Core Courses	PCC-CS504	Object Oriented Programming	2	0	0	2
5	Humanities & Social Sciences including Management Courses	HSMC-501	Humanities-II	3	0	0	3
6	Professional Elective Courses	PEC-CS501 A/B/C/D/E	Graph Theory Signals & Systems Artificial Intelligence Image Processing Soft Computing	3	0	0	3
10	Mandatory Course	MC-501	Constitution of India	1	0	0	0
11	Professional Core Course	PCC-CS592	Database Management Systems Lab	0	0	4	2
12	Professional Core Courses	PCC-CS594	Object Oriented Programming Lab	0	0	4	2

Total Credits	21

Semester VI (Third year) Curriculum Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Core Course	PCC-CS601	Compiler Design	3	0	0	3
2	Professional Core Course	PCC-CS602	Computer Networks	3	0	0	3
3	Professional Elective Courses	PEC-CS601 A/B/C/D/E	Advanced Algorithms Distributed Database Real Time Systems Information Retrieval Advanced Computer Architecture	3	0	0	3
4	Professional Elective Courses	PEC-CS602 A/B/C/D/E	Computer Graphics Optimization Techniques Information Theory & Coding Parallel & Distributed Algorithm Internet of Things	3	0	0	3
5	Open Elective Courses	OEC-CS601	Soft Skills and Interpersonal Communication	3	0	0	3
6	Project	PROJ-CS691	Project-I	0	0	6	3
7	Professional Core Course	PCC- CS691	Compiler Design Lab	0	0	4	2
8	Professional Core Course	PCC-CS692	Computer Networks Lab	0	0	4	2
Total Credits							22

Semester VII (Fourth year) Curriculum Computer Science Engineering

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Elective Courses	PEC-CS701 A/B/C/D/E /F	Adhoc and Sensor Networks Machine Learning Neural Networks & Deep Learning Advanced Operating System Computational Geometry Web & Internet	3	0	0	3
2	Professional Elective Courses	PEC-CS702 A/B/C/D/E /F	Speech & Natural Language Processing Human Computer Interaction VLSI Design Data Analytics Theory of Computation System Software & Administration	3	0	0	3
3	Open Elective Courses	OEC-CS701 A/B	Human Resource Development and Organizational Behaviour Indian Music System	3	0	0	3
4	Basic Science course	BS-B701	Biology	2	1	0	3
5	Project	PROJ-CS791	Project-II	0	0	12	6
Total Credits							18

Semester VIII (Fourth year) Curriculum Computer Science Engineering [Summer Industry Internship]

Sl. No	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
1	Professional Elective Courses	PEC-CS801 A/B/C/D/E /F	Cyber Security Quantum Computing Cryptography & Network Security Cloud Computing Embedded Systems Data Mining	3	0	0	3
2	Open Elective Courses	OEC-CS801	Cyber Law and Ethics	3	0	0	3
4	Open Elective Courses	OEC-CS802	Economic Policies in India	3	0	0	3
5	Project	PROJ-CS891	Project-III	0	0	12	6
Total Credits							15
Total Credit: Sem I+SemII+SemIII+SemIV+SemV+SemVI+Sem VII+Sem VIII							160

2. B.TECH IN INFORMATION TECHNOLOGY

CURRICULUM STRUCTURE

Semester I (First Year)							
Mandatory Induction Program: Duration-3 weeks							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Basic Science course	BS-PH101/ BS-CH101	Physics-I (Gr-A)/ Chemistry-I(Gr-B)	3	1	0	4
2	Basic Science course	BS-M101/ BS-M102	Mathematics –IA*/ Mathematics –IB *	3	1	0	4
3	Engineering Science Course	ES-EE101	Basic Electrical Engineering	3	1	0	4
Practical							
1	Basic Science course	BS-PH191/ BS-CH191	Physics-I Laboratory (Gr- A)/ Chemistry-I Laboratory (Gr-B)	0	0	3	1.5
2	Engineering Science Course	ES-EE191	Basic Electrical Engineering Laboratory	0	0	2	1
3	Engineering Science Course	ES-ME191/ ES-ME192	Engineering Graphics & Design(Gr-B)/ Workshop/Manufacturing Practices(Gr-A)	1	0	4	3
Total Credits: 17.5							

* Mathematics –IA (BS-M101) - CSE & IT * Mathematics –IB (BS-M102) - All stream except CSE & IT	
Group A	Group B
Physics-I (BS-PH101); Workshop/Manufacturing Practices (ES-ME192)	Chemistry-I (BS-CH101); Engineering Graphics & Design (ES-ME191)

Semester II (First Year)							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Basic Science course	BS-PH201/ BS-CH201	Physics-I (Gr-B)/ Chemistry-I (Gr-A)	3	1	0	4
2	Basic Science course	BS-M201/ BS-M202	Mathematics –IIA# / Mathematics –IIB#	3	1	0	4
3	Engineering Science Course	ES-CS201	Programming for Problem Solving	3	0	0	3
4	Humanities and Social Sciences including Management courses	HM-HU201	English	2	0	0	2
Practical							
1	Basic Science course	BS-PH291/ BS-CH291	Physics-I Laboratory (Gr- B)/ Chemistry-I Laboratory (Gr-A)	0	0	3	1.5
2	Engineering Science Course	ES-CS291	Programming for Problem Solving	0	0	4	2
3	Engineering Science Course	ES-ME291/ ES-ME292	Engineering Graphics & Design(Gr-A)/ Workshop/Manufacturing Practices(Gr-B)	1	0	4	3
4	Humanities and Social Sciences including Management courses	HM-HU291	Language Laboratory	0	0	2	1
Total Credits: 20.5							

# Mathematics –II (BS-M201) - CSE & IT # Mathematics –II (BS-M202) - All stream except CSE & IT	
Group A	Group B
Chemistry-I (BS-CH201); Engineering Graphics & Design (ES-ME291)	Physics-I (BS-PH201); Workshop/Manufacturing Practices (ES-ME292)

Semester III (Second Year)							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Engineering Science Course	ESC-301	Digital Electronics	3	0	0	3
2	Professional Core Courses	PCC-IT301	Data Structure & Algorithms	3	0	0	3
3	Engineering Science Course	ESC 302	Signals & System	3	0	0	3
4	Basic Science course	BSC-301	Mathematics-III	2	0	0	2
5	Basic Science course	BSC-302	Biology	3	0	0	3
Practical							
1	Engineering Science Course	ESC-391	Digital Electronics Lab	0	0	4	2
2	Professional Core Courses	PCC-IT391	Data Structure & Algorithms Lab	0	0	4	2
3	Professional Core Courses	PCC-IT392	IT Workshop (Sci-Lab/ R)	0	0	4	2
Total Credits: 20							

Semester IV (Second Year)							
Sl. No	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Professional Core Courses	PCC-IT401	Discrete Mathematics	3	1	0	4
2	Professional Core Course	PCC-IT402	Computer Organization & Architecture	3	0	0	3
3	Professional Core Courses	PCC-IT403	Formal Language & Automata Theory	3	0	0	3
4	Professional Core Courses	PCC-IT404	Communication Engineering	3	0	0	3

5	Humanities & Social Sciences including Management courses	HSMC-401	Economics For Engineers	3	0	0	3
6	Mandatory Courses	MC-401	Environmental Sciences	1	-	-	0
Practical							
1	Professional Core Course	PCC-IT492	Computer Organization & Architecture Lab	0	0	4	2
2	Professional Core Courses	PCC-IT494	Communication Engineering Lab	0	0	4	2
Total Credits: 20							

Semester V (Third Year)							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Professional Core Courses	PCC-IT501	Design Analysis & Algorithm	3	0	0	3
2	Professional Core Courses	PCC-IT502	DBMS	3	0	0	3
3	Professional Core Courses	PCC-IT503	Operating Systems	3	0	0	3
4	Professional Core Courses	PCC-IT504	Object Oriented Programming with Python	2	0	0	2

5	Humanities & Social Sciences including Management Courses	HSMC-501	Introduction to Industrial Management (Humanities III)	3	0	0	3
6	Professional Elective Courses	PEC-IT501	(Elective-I) Human Computer Interaction/ AdvancedComputer Architecture / Computer Graphics	3	0	0	3
7	Mandatory Courses	MC-IT501	Constitution of India/ Essence of Indian Knowledge Tradition	2	0	0	0
Practical							
1	Professional Core Courses	PCC-IT591	Design Analysis & Algorithm Lab	0	0	4	2
2	Professional Core Courses	PCC-IT592	DBMS Lab	0	0	4	2
3	Professional Core Courses	PCC-IT593	Operating Systems Lab	0	0	4	2
	Professio		Object				

Semester VI (Third Year)							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Professional Core Courses	PCC-IT601	Software Engineering	3	0	0	3
2	Professional Core Courses	PCC-IT602	Computer Networks	3	0	0	3
3	Professional Elective Courses	PEC-IT601	(Elective-II) Compiler Design/ DistributedSystems/ Image Processing	3	0	0	3
4	nal Core Courses	PCC-IT594	Oriented Programming with Python Lab	0	0	4	2
Total Credits: 25							

4	Professional Elective Courses	PEC-IT602	(Elective-III) Artificial Intelligence/ Internet of Things/ Machine Learning	3	0	0	3

5	Open Elective Courses	OEC-IT601	(Open Elective-I) Big Data Analytics/ Cyber Law & Ethics/ Mobile Computing/ Bioinformatics/ Robotics	3	0	0	3
Practical							
1	Professional Core Courses	PCC-IT691	Software Engineering Lab	0	0	4	2
2	Professional Core Courses	PCC-IT692	Computer Networks Lab	0	0	4	2
3	Professional Elective Courses	PEC-IT691	(Elective-II) Compiler Design/ DistributedSystems/ Image Processing	0	0	4	2
4	Project	PROJ-IT691	Project-I	0	0	6	3
Total Credits: 24							

Semester VII (Fourth Year)

Sl. No.	Type of Course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Professional Core Courses	PCC-IT701	Internet & Web Technology	3	0	0	3
2	Professional Elective Courses	PEC-IT701	(Elective-IV) Multimedia Technology/ Neural Networks and Deep Learning/ Soft Computing/ Adhoc – Sensor Network/ InformationTheory and Coding/ Cyber Security/ Cloud Computing	3	0	0	3
3	Open Elective Courses	OEC-IT701	(Open Elective-II) Operations Research/ Introduction to Philosophical Thoughts/ Soft Skill & Interpersonal Communication/ Numerical Methods/ Project Management	3	0	0	3

4	Humanities & Social Sciences including Management courses	HSMC-701	Management 1 (OrganizationalBehavior)	3	0	0	3

ractical							
1	Professional Core Courses	PCC-IT791	Internet & Web Technology Lab	0	0	4	2
2	Project	PROJ-IT791	Project-II	0	0	12	6
3	Project	PROJ-IT792	Industrial Training	Duration: 12-Weeks			3
Total Credits: 22							

Semester VIII (Fourth Year)							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				Lecture	Tutorial	Practical	
Theory							
1	Professional Core Courses	PCC-IT801	Information Security	3	0	0	3
2	Open Elective Courses	OEC-IT801	(Open Elective-III) Digital Signal Processing/ Natural Language Processing	3	0	0	3
3	Open Elective Courses	OEC-IT802	(Open Elective-IV) E-Commerce and ERP/ Economic Policies in India/ Remote	3	0	0	3

			Sensing & GIS				
Practical							
1	Project	PROJ-IT891	Project-III	0	0	12	6
2	Project	PROJ-IT892	Grand Viva	-	-	-	2
Total Credits: 17							

MBA PROGRAM

1. MBA PROGRAMME (In-house)

CURRICULUM

Semester –I

MB – 101	Managerial Economics (Micro)
MB – 102	Organizational Behaviour
MB – 103	Business Communication
MB – 104	Legal and Business Environment (Micro and Macro)
MB – 105	Indian Ethos and Business Ethics
MB – 106	Quantitative Techniques

Semester – II

MB – 201	Indian Economy and Policy
MB – 202	Financial Reporting, Statements and Analysis
MB – 203	Marketing Management
MB – 204	Operations Management
MB – 205	Management Information System
MB – 206	Human Resource Management

Semester – III Core Papers:

MB – 301	Entrepreneurship and Project Management
MB – 302	Corporate Strategy

Elective Papers: Two from any one Functional Area (Major) and two from a different Functional Area (Minor)

FM/ MM/HR/OM/BA/ MIS/ HCM– 301
FM/ MM/HR/OM/BA/ MIS/ HCM – 302
FM/ MM/HR/OM/BA/ MIS/ HCM – 303
FM/ MM/HR/OM/BA/ MIS/ HCM – 304
MB – 303 Internship Project and Viva Voce

Semester – IV

Elective Papers (Four from Major Functional Area and Two from Minor Functional area) **

FM/ MM/HR/OM/BA/ MIS/ HCM – 401
FM/ MM/HR/OM/BA/ MIS/ HCM – 402
FM/ MM/HR/OM/BA/ MIS/ HCM – 403
FM/ MM/HR/OM/BA/ MIS/ HCM – 404
FM/ MM/HR/OM/BA/ MIS/ HCM – 405
FM/ MM/HR/OM/BA/ MIS/ HCM – 406

**The Major and Minor Functional areas will be same as chosen in the 3rd Semester.

Elective Papers for Third Semester

Functional Specialization (3rd Semester)

MARKETING		OPERATIONS	
MM 301	B2B MARKETING	OM 301	SUPPLY CHAIN & LOGISTICS MANAGEMENT
MM 302	DIGITAL & SOCIAL MEDIA MARKETING	OM 302	OPERATIONS STRATEGY
MM 303	IMC/ PROMOTION STRATEGY	OM 303	QUALITY TOOLKIT FOR MANAGERS
MM 304	MARKETING RESEARCH	OM 304	PRICING & REVENUE MANAGEMENT

FINANCE		HUMAN RESOURCE	
FM 301	TAXATION	HR 301	TEAM DYNAMICS AT WORK
FM 302	PROJECT APPRAISAL & FINANCE	HR 302	HR METRICS AND ANALYTICS
FM 303	BEHAVIORAL FINANCE	HR 303	CROSS CULTURAL MANAGEMENT
FM 304	CORPORATE FINANCE	HR 304	ORGANIZATIONAL DESIGN
MIS		BUSINESS ANALYTICS	
MIS 301	RELATIONAL DATABASE MANAGEMENT SYSTEM	BA 301	MODELING TECHNIQUES
MIS 302	E-COMMERCE & DIGITAL MARKETS	BA 302	APPLICATION OF ANALYTICS IN BUSINESS
MIS 303	MANAGING SOFTWARE PROJECTS	BA303	BUSINESS FORECASTING
MIS 304	SYSTEM ANALYSIS AND DESIGN	BA 304	DATA SCIENCE USING R
HEALTHCARE MANAGEMENT			
HCM 301	CONCEPT OF HEALTH AND DISEASE		
HCM 302	HOSPITAL SUPPORT SERVICES		
HCM 303	QUALITY ASSURANCE IN HEALTHCARE		
HCM 304	PLANNING AND ORGANISING OF HOSPITALS		

Elective Papers for Fourth Semester

Functional Specialization (4th Semester)

MARKETING		OPERATIONS	
MM 401	CONSUMER BEHAVIOUR	OM 401	SALES & OPERATIONS PLANNING
MM 402	RETAIL MANAGEMENT	OM 402	BEHAVIORAL OPERATIONS MANAGEMENT
MM 403	SALES & DISTRIBUTION MANAGEMENT	OM 403	OPERATIONS RESEARCH APPLICATIONS
MM 404	SERVICE MARKETING	OM 404	SUPPLY CHAIN ANALYTICS
MM 405	PRODUCT & BRAND MANAGEMENT	OM 405	MANAGEMENT OF MANUFACTURING SYSTEM
MM 406	INTERNATIONAL MARKETING	OM 406	SOURCING MANAGEMENT
FINANCE		HUMAN RESOURCE	
FM 401	INVESTMENT ANALYSIS & PORTFOLIO MANAGEMENT	HR 401	MANPOWER PLANNING RECRUITMENT & SELECTION

FM 402	MANAGING BANKS & FINANCIAL INSTITUTIONS	HR 402	EMPLOYEE RELATIONS&LABOUR LAWS
FM 403	MERGERS, ACQUISITION & CORPORATE RESTRUCTURING	HR 403	COMPENSATION & BENEFITS MANAGEMENT
FM 404	FINANCIAL DERIVATIVES	HR 404	PERFORMANCE MANAGEMENT SYSTEMS
FM 405	INTERNATIONAL FINANCE	HR 405	STRATEGIC HRM
FM 406	FINANCIAL MARKETS & SERVICES	HR 406	INTERNATIONAL HRM
MIS		BUSINESS ANALYTICS	
MIS 401	DATA WAREHOUSING	BA 401	DATA VISUALIZATION FOR MANAGERS
MIS 402	MANAGING DIGITAL PLATFORMS	BA 402	BIG DATA TECHNOLOGY

MIS 403	STRATEGIC MANAGEMENT FOR IT	BA 403	STATISTICS FOR BUSINESS ANALYTICS
MIS 404	BUSINESS DECISIONS USING ADVANCED EXCEL	BA 404	DATA MINING
MIS 405	MANAGEMENT OF INFORMATION TECHNOLOGY	BA 405	DATA ANALYTICS USING PYTHON
MIS 406	MANAGING DIGITAL INNOVATION & TRANSFORMATION	BA 406	OPTIMIZATION TECHNIQUES
HEALTHCARE MANAGEMENT			
HCM 401	EFFECTIVE COMMUNICATION IN HEALTH SECTOR		
HCM 402	MARKETING IN HOSPITALS & HEALTHCARE ORGANIZATIONS		
HCM 403	HR INTERVENTIONS IN HEALTHCARE SECTOR		
HCM 404	FINANCIAL MANAGEMENT IN HEALTHCARE SECTOR		
HCM 405	CONCEPT OF COMMUNITY HEALTH & EPIDEMIOLOGY		
HCM 406	LEGAL ASPECT OF HEALTHCARE ADMINISTRATION		

1.MCA

Department of Information Technology

Masters of Computer Application (MCA)

Semester I							
Sl. No.	Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	Core	MCAC101 MCAC191	Programming for problem solving	4	0	4	6
2	Core	MCAC102 MCAC192	Computer Networks	4	0	4	6
3	Core	MCAC103	Discrete Structures	5	1	0	6
3	Skill-1	MCAS101	Soft Skills	2	0	0	2
4	Elective-1 (MOOC)	MCAD101	Introduction to Data Science Cryptography and Cyber Security Introduction to Artificial Intelligence Cloud Computing	4/5	0/1	4/0	6
			Total Credit				26

Semester II

Sl. No.	Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	Core-1	MCAC201 MCAC291	Object Oriented Programming	4	0	4	6
2	Core-2	MCAC202 MCAC292	Operating Systems	4	0	4	6
3	Core-3	MCAC203 MCAC293	Database Management System	4	0	4	6
4	Elective-2 (MOOC)	MCAD201	Computer Graphics Digital Image processing Mobile application development Introduction to IoT	4/5	0/1	4/0	6
Practical							
5	Skill-2	MCAS294	Web Design and Development	0	0	4	2
			Total Credit				26

Semester III							
Sl. No.	Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	Core-4	MCAC301	Analysis of algorithm	4	0	4	6
2	Core-5	MCAC302	Management Information System	5	1	0	6
3	Core-6	MCAC303 MCAC393	Software Engineering	4	0	4	6
4	Elective-3 (MOOC)	MCAD301	Machine Learning Basics Pattern Recognition Natural Language processing Digital Marketing Compiler Design	4/5	0/1	4/0	6
Practical							
5	Skill-3	MCAS391	Project and Entrepreneurship-I	0	0	4	2
			Total Credit				26

Semester IV							
Sl. No.	Category	Course Code	Course Name	L	T	P	Credits
Theory + Practical							
1	Core-7	MCAC401	Research Methodology and IPR	4	0	4	6

Practical							
2	Skill-4	MCAS481	Grand Viva	0	0	2	2
3	Skill-5	MCAS482	Project and Entrepreneurship-II	0	0	8	4
4	Skill-6	MCAS483	Seminar	0	0	4	2
			Total Credit				14

M.Tech

1.M.TECH BIOINFORMATICS

Course structure

For 1st Semesters: Total 21 Credits:

Code	Course Title	Contact Hrs./wk	Credits	Total
A	Theory	L-T-P		
MBIN 101	Cell and Molecular Biology	3-0-0	3	21
MBIN 102	Applied Biochemistry	3-0-0	3	
MBIN 103	Mathematics and Statistics	3-0-0	3	
MBIN 104	Bio tools and Bio database	3-0-0	3	
MBIN 105	Data Structure and Algorithm	3-0-0	3	
B	Practical			
MBIN 192	Applied Biochemistry Lab	0-0-4	2	
MBIN 194	Applied Bioinformatics Lab	0-0-4	2	
MBIN 195	Data Structure and Algorithm Lab	0-0-4	2	

For 2nd Semester: Total 21 Credits

Code	Course Title	Contact Hrs./wk	Credits	Total
A	Theory	L-T-P		
MBIN 201	Protein Engineering	3-0-0	3	21
MBIN 202	Genomics and Proteomics	3-0-0	3	
MBIN 203	Bio Molecular Dynamics	3-0-0	3	
MBIN 204	Python in Bioinformatics	3-0-0	3	
B	Practical			
MBIN 291	Protein Engineering Lab	0-0-6	3	
MBIN 292	Genomics and Proteomics Lab	0-0-6	3	
MBIN 294	Computational Programming Lab-I	0-0-6	3	

For 3rd Semester : Total 21 Credits

Code	Course Title	Contact Hrs./wk	Credits	Total
A	Theory	L-T-P		
MBIN 301	Drug Design	3-0-0	3	21
MBIN 302	Systems Biology	3-0-0	3	
MBIN 303	Research Methodology and IPR	3-0-0	3	
	Elective (Any one): Omics Technology	3-0-0	3	
MBIN 304(A)				
MBIN 304(B)	NGS Technology			
B	Practical			
MBIN 391	Drug Design Lab	0-0-6	3	
MBIN 395	Computational Programming Lab-II	0-0-6	3	
C	Sessional			
MBIN 381	Dissertation and Presentation		3	

For 4th Semester : Total 21 Credits

Code	Course Title	Credits	Total
C	Sessional		
MBIN 481	Major Project Work	18	21
MBIN 482	Grand Viva	3	

2.MTECH IN BIOTECHNOLOGY

Curriculum Structure

Code	Title	Credits
	SEMESTER ONE	
MUBT-101	Biochemistry	3
MUBT-102	Cell and Molecular Biology	3
MUBT-103	Introduction to Engineering Principles	3
MUBT-104	Microbiology	2
MUBT-105	Plant and Animal Cell Technology	2
MUBT-106	Basics of Mathematics and Statistics	2
MUBT-107	Basics of Chemistry and Physics	2
MUBT-191	Laboratory I: Biochemistry and Analytical Techniques Lab	4
MUBT-192	Laboratory II: Microbiology Lab	4
	TOTAL	25
	SEMESTER TWO	
MUBT-201	Genetic Engineering	3
MUBT-202	Immunology	3
MUBT-203	Bioprocess Engineering and Technology	3
MUBT-	Downstream Processing in Biotechnology	3

204		
MUBT-205	Bioreactor Operations	3
MUBT-206	Computational Biology	3
MUBT-291	Laboratory III: Molecular Biology and Genetic Engineering Lab	4
MUBT-292	Laboratory IV: Immunology Lab	3
	TOTAL	25
	SEMESTER THREE	
MUBT-301	Bioprocess Equipment Design and Economics	3
MUBT-302	Bioentrepreneurship	3
MUBT-303	Instrumentation and Control	2
MUBT-304	Intellectual Property Rights, Biosafety and Bioethics	2
MUBT-305	Research Methodology and Scientific Communication Skills	2
MUBT-306	Elective I	2
MUBT-391	Laboratory V: Downstream Processing in Biotechnology Lab	2
MUBT-381	Project Proposal Preparation and Presentation	2
MUBT-382	Dissertation	6
	TOTAL	24
	SEMESTER FOUR	
MUBT-401	Elective II	2
MUBT-481	Dissertation	20

TOTAL	22
TOTAL CREDITS	96

Program Electives (Theory)

CODE	SEMESTER III (ELECTIVE I)
MUBT 306A	Bioreaction Engineering
MUBT 306B	Computational Programming
MUBT 306C	Environmental Biotechnology
MUBT 306D	Enzyme Engineering & Technology
MUBT 306E	Medical Devices
CODE	SEMESTER IV (ELECTIVE II)
MUBT 401A	Metabolic and Systems Biology
MUBT 401B	Molecular Diagnostics
MUBT 401C	Nanobiotechnology
MUBT 401D	Production of Biotherapeutics
MUBT 401E	OMICS Technologies

3.M.TECH IN COMPUTER SCIENCE AND ENGINEERING

Curriculum Structure							
Semester-I							
Sl. No.	Category	Course Code	Course Name	Total Number of contact hours			Credits
				L	T	P	
Theory							
1	Program Core I	PGCS-101	Mathematical foundations of Computer Science	3	0	0	3
2	Program Core II	PGCS-102	Advanced Data Structures	3	0	0	3
3	Program Elective-I	PGCS-103	Program Elective-I	3	0	0	3
4	Program Elective-II	PGCS-104	Program Elective-II	3	0	0	3
5		PGCS-105	Research Methodology and IPR	2	0	0	2
6	Audit Course 1		Audit Course 1	2	0	0	0
	Total Theory			16	0	0	14
Practical							
7	Laboratory I	PGCS-191	Advanced Data Structures	0	0	2	2
8	Laboratory II	PGCS-192	Laboratory II [from Elective – I]	0	0	2	2
	Total Practical			0	0	4	4

	Total of Semester-I			16	0	4	18
Semester-II							
Theory							
1	Program Core III	PGCS-201	Advances in Algorithms	3	0	0	3
2	Program Core IV	PGCS-202	Soft Computing	3	0	0	3
3	Program Elective-III	PGCS-203	Program Elective-III	3	0	0	3
4	Program Elective-IV	PGCS-204	Program Elective-IV	3	0	0	3
5	Audit Course 2		Audit Course 2	2	0	0	0
	Total Theory			14	0		12
Practical							
6	Laboratory III	PGCS-292	Laboratory III (Advances in Algorithm)	0	0	2	2
7	Laboratory IV	PGCS-293	Laboratory IV (from Elective-III)	0	0	2	2
	Total Practical			0	0	4	4
Sessional							
8	Mini Project	PGCS-294	Mini Project with Seminar	0	0	3	2
	Total Sessional			0	0	3	2
	Total of Semester-II			12	0	7	18
Semester-III							
Theory*							
1	Program Elective-V	PGCS-301	Program Elective-V	3	0	0	3
2	Open Elective	PGCS-302	Open Elective	3	0	0	3
	Total Theory			6	0	0	6
Sessional							

3	Major Project	PGCS-391	Dissertation –I	0	0	20	10
				0	0	20	10
	Total of Semester-III						16
Semester-IV							
Sessional							
1	Major Project	PGCS-491	Dissertation -II	0	0	32	16
	Total of Semester-IV						16
Total Credits for the programme							68

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List of Electives

Program Elective – I(PGCS-103)

Machine Learning

Operating System Design

Object Oriented Design

Program Elective – II (PGCS-104)

Advance Wireless and Mobile Networks

Embedded System

Quantum Computing

Pattern Recognition

Program Elective – III

Advances in DBMS

Artificial Intelligence

Object Oriented Software Engineering

Secure Software Design and Enterprise Computing

Computer vision

Program Elective – IV

Human Computer Interaction

Theory of Computation

Cloud Computing

Network Security

VLSI Design

Program Elective - V

Natural Language Processing

Bioinformatics

IOT and Its Security

Digital Forensics

Advances in Compiler Construction

Open Elective

Business Analytics

Operations Research

Cost Management of Engineering Projects

Industrial Safety

Composite Materials

Waste to Wealth

Industry Overview (Enterprise & Solution Architecture)

Audit course 1 & 2

English for Research Paper Writing

Pedagogy Studies

Constitution of India

Disaster Management

Value Education

Stress Management by Yoga

Personality Development through Life Enlightenment Skills.

Sanskrit for Technical Knowledge

Department of Microelectronics & VLSI Technology

4. MTECH IN EMBEDDED SYSTEMS & VLSI DESIGN

Semester-wise Course Schedule:

Semester I

Sr. No.	Course Type/ Code	Course Name	Teaching			Credits
			L	T	p	
1	PGVES - 101	Digital VLSI Design	3	0	0	3
2	PGVES - 102	Microcontrollers and Programmable Digital Signal Processors	3	0	0	3
3	PGVES-103: PE I	Elective I Digital Signal and Image Processing Programming Languages for Embedded Systems VLSI signal processing	3	0	0	3
4	PGVES-104: PE II	Elective II Parallel Architecture & Processing System Design with Embedded Linux CAD of Digital System	3	0	0	3

5	PGVES-105	Research Methodology and IPR	2	0	0	2
6.	PGVES-106 PA I	Audit course	2	0	0	0
7.	PGVES-191	Digital VLSI Design Lab	0	0	4	2
8.	PGVES-192	Micro-controller and Programmable Digital Signal Processor Lab.	0	0	4	2
		Total	14	0	8	18

Semester II

Sr. No.	Course Code	Course Name	Teaching Scheme			Credits
			L	T	p	
1	PGVES - 201	Analog VLSI Design	3	0	0	3
2	PGVES - 202	VLSI Design Verification and Testing	3	0	0	3
3	PGVES-203: PE III	Elective III (A) Memory Technologies (B) SOC Design (C) Low power VLSI Design	3	0	0	3
4	PGVES-204: PE IV	Elective IV (A) Communication Buses and Interfaces (B) Introduction to AI , Machine Learning and Applications (C) Physical Design	3	0	0	3

		Automation				
5	PGVES - 291	Analog VLSI Design Lab	0	0	4	2
6	PGVES - 292	VLSI Design Verification and Testing Lab	0	0	4	2
7	PGVES - 281	Mini Project	0	0	4	2
8	PGVES-205	Audit course 2	2	0	0	0
		Total	14	0	12	18

Semester-III

Sr. No.	Course Code	Course Name	Teaching Scheme			Credits
1.	PGVES-301: PE V	Elective -V Communication Network Selected Topics in Mathematics Nano Materials and Nanotechnology	3	0	0	3
2.	PGVES - 302: OE VI	Business Analytics Industrial Safety	3	0	0	3
		C. Operations Research				
		D.Cost Management of Engineering Projects				
		E. Composite Materials				
		F. Waste to Energy				
3	PGVES - 381	M.Tech. Project Phase-I (Dissertation Phase-I)	0	0	20	10
		Total	6	0	20	16

Semester-IV

Sr. No.	Course Code	Course Name	Teaching Scheme			Credits
			L	T	p	
I.	PGVES - 481	M.Tech. Project Phase-II (Dissertation Phase-II)	--	--	32	16
Total			-	-	-	16

Department of Geoinformatics

5. M.TECH GEOINFORMATICS

Course Structure

Semester- I

Code	Course Title	Hours per week			Credits
		L	T	P	
PGGI-101	Principles of Remote Sensing and Photogrammetry	3	0	0	3
PGGI-102	Principles of Geographic Information Systems (GIS)	3	0	0	3
PGGI-103	Basics of GNSS, Cartography & Digital Mapping.	3	0	0	3
PGGI-104.	Mathematical Methods and Scientific Computing for Geospatial Data Analysis	3	0	0	3
PGGI-105	Recent Trends in Geo-informatics:Machine Learning and Big Data.	3	0	0	3
PGG-106	Audit Course	2	0	0	0
PGGI -191	Remote Sensing and Photogrammetry Lab.	0	0	4	2
PGGI-192	GIS Lab	0	0	4	2
PGGI-193	GNSS and Cartography Lab	0	0	4	2
PGGI-194	Web Technology Lab	0	0	4	2
PGGI-195.	Programming in Python	0	0	4	2
Total Credits: 25					

Semester- II

Code	Course Title	Hours per week			Credits
		L	T	P	
PGGI-201	Spatial Data Modeling	3	0	0	3
PGGI-202	Satellite Image Processing	3	0	0	3
PGGI-203A/B	Program Elective I – Applications of Geoinformatics/ Advanced Remote Sensing Techniques	3	0	0	3
PGGI-204 A/B/C/D/E/F	Program Elective II– Geoinformatics in Disaster Management / Geoinformatics in Water Resources Management/ Geoinformatics in Agriculture/ Geoinformatics in Urban planning/ Geoinformatics in Geotechnical Engineering/ Geoinformatics in Environmental Management	3	0	0	3
PGGI-205	Audit Course	2	0	0	0
PGGI-206	Research Methodology and IPR	2	0	0	2
PGGI-291	Database Analysis Lab	0	0	4	2
PGGI-292	Satellite Image Processing Lab	0	0	4	2
PGGI-293A/B	Laboratory 4 (Based on Elective I)	0	0	4	2
PGGI-294 A/B/C/D/E/F	Laboratory 4 (Based on Elective II)	0	0	4	2
PGGI-295	Project Work on Applications of Geoinformatics	4	0	0	2
Total Credits: 24					

Semester- III

Code	Course Title	Hours per week			Credits
		L	T	P	
PGGI-301A/B	Program Elective III: Recent Trends in Geoinformatics Big Data, Data Mining/ Geospatial Cloud Computing	3	0	0	3
PGGI-302 A/B/C	2.Open Elective Business Analytics/Operations Research	3	0	0	3

PGGI-391A/B/C	Recent Trends in Geoinformatics (Big Data, Data Mining Lab/ Geospatial Cloud Computing Lab	0	0	4	02
PGGI-392	Dissertation-I /Industrial Project	0	0	20	10
Total Credits: 18					

Semester-IV

	Course Title	Hours per week			Credits
		L	T	P	
PGGI-491	Dissertation II	0	0	32	16
Total Credits: 16					

6.M.TECH IN INDUSTRIAL ENGINEERING AND MANAGEMENT

Semester-I							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
Theory							
1	Program Core I	PC-IEM101	Work System Design	3	0	0	3
2	Program Core II	PC-IEM102	Production Planning and Control	3	0	0	3
3	Program Elective-I	PE-IEM103 A/B/C/D	Program Elective-I	3	0	0	3
4	Program Elective-II	PE-IEM104 A/B/C/D	Program Elective-II	3	0	0	3
5	Mandatory Learning Course	MC-IEM101	Research Methodology and IPR	2	0	0	2
6	Audit Course	AC-IEM101A/B/C/D/E/F/G/H/I	Audit Course 1	2	0	0	0
	Total Theory			16	0	0	14
Practical							
1	Laboratory I	PC-IEM191	Work System Design Laboratory	0	0	4	2
2	Laboratory II	PC-IEM192	Simulation Laboratory	0	0	4	2
	Total Practical			0	0	8	4

	Total of Semester-I			16	0	8	18
Semester-II							
Theory							
1	Program Core III	PC-IEM201	Operations Research-I	3	0	0	3
2	Program Core IV	PC-IEM202	Quality Design and Control	3	0	0	3
3	Program Elective-III	PE-IEM203 A/B/C/D	Program Elective-III	3	0	0	3
4	Program Elective-IV	PE-IEM204 A/B/C/D	Program Elective-IV	3	0	0	3
5	Audit Course	AC-IEM201A/B/C/D/E/F/G/H/I	Audit Course 2	2	0	0	0
	Total Theory			14	0	0	12
Practical							
1	Laboratory III	PC-IEM291	Quality Design and Control Laboratory	0	0	4	2
2	Laboratory IV	PC-IEM292	Design Thinking Laboratory	0	0	4	2
	Total Practical			0	0	8	4
Sessional							
1	Mini Project	PW-IEM281	Mini Project with Seminar	2	0	0	2
	Total of Semester-II			16	0	8	18
Semester-III							
Theory*							
1	Program Elective-V	PE-IEM301 A/B/C/D	Program Elective-V	3	0	0	3
2	Open Elective	OE-IEM301A/B/C/D/E	Open Elective	3	0	0	3

	Total Theory			6	0	0	6
Sessional							
1	Major Project	PW-IEM381	Dissertation-I (Progress)	0	0	2 0	10
	Total of Semester-III			6	0	2 0	16
Semester-IV							
Sessional							
1	Major Project	PW-IEM481	Dissertation-II (Completion)	0	0	3 2	16
	Total of Semester-IV			0	0	3 2	16
Total Credits for the programme							68

*Students going to Industry full time for doing their Project & Thesis work (Dissertation) may opt for completion of these courses through Massive Open Online Courses (MOOCs).

List of Program Electives

Program Elective - I

Discrete-Event System Simulation (PE-IEM103A)

Management and Productivity (PE-IEM103B)

Automation in Production Systems and Management (PE-IEM103C)

Management Information System (PE-IEM103D)

Program Elective - II

Product Design and Development (PE-IEM104A)

Engineering Economy and Costing (PE-IEM104B)

Facility Planning and Design (PE-IEM104C)

Application of Optimal Control Theory in Management Science (PE-IEM104D)

Program Elective - III

Project Engineering and Management (PE-IEM203A)

Reliability Analysis and Prediction (PE-IEM203B)

Enterprise Resource Planning (PE-IEM203C)

Production Design and Process Planning (PE-IEM203D)

Program Elective - IV

Management of Inventory Systems (PE-IEM204A)

Logistics and Supply Chain Management (PE-IEM204B)

Six Sigma Fundamentals and Applications (PE-IEM204C)

Human Factors Engineering (PE-IEM204D)

Program Elective - V

Systems Analysis Techniques (PE-IEM301A)

Operations Research-II (PE-IEM301B)

Design of Experiments (PE-IEM301C)

Multi-Criteria Decision Making Techniques (PE-IEM301D)

List of Open Electives

Business Analytics (OE-IEM301A)

Industrial Safety Engineering (OE-IEM301B)

Cost Management of Engineering Projects (OE-IEM301C)

Composite Materials (OE-IEM301D)

Waste to Energy (OE-IEM301E)

Audit course 1 & 2

Statistics & Probability with R (AC-IEM101A / AC-IEM201A)

English for Research Paper Writing (AC-IEM101B / AC-IEM201B)

Pedagogy Studies (AC-IEM101C/ AC-IEM201C)

Constitution of India (AC-IEM101D/ AC-IEM201D)

Disaster Management (AC-IEM101E/ AC-IEM201E)

Value Education (AC-IEM101F/ AC-IEM201F)

Stress Management by Yoga (AC-IEM101G /AC-IEM201G)

Personality Development through Life Enlightenment Skills (AC-IEM101H/ AC-IEM201H)

Sanskrit for Technical Knowledge (AC-IEM101I/ AC-IEM201I)

7.MTECH IN ARTIFICIAL INTELLIGENCE

Code	Course Title	Hours per week			Credits
		L	T	P	
PGIT(AI)101	Program Core I-Mathematical foundations of Computer Science	3	0	0	3
PGIT(AI)102	Program Core II-Advances in Artificial Intelligence	3	0	0	3
PGIT(AI)103A/B/C	Program Elective I-Cloud Computing / Pattern Recognition / Data Preparation and Analysis	3	0	0	3
PGIT(AI)104A/B/C/D	Program Elective II-Logic Knowledge Representation & Reasoning / Expert Systems / Machine Learning /Data Visualization	3	0	0	3

PGIT(AI)105	Research Methodology and IPR	2	0	0	2
PGIT(AI)106A /B/C/D	Audit Course	2	0	0	0
PGIT(AI)192	Laboratory 1(Artificial Intelligence Lab)	0	0	4	2
PGIT(AI)193	Laboratory 2(Elective-1)	0	0	4	2
PGIT(AI)194	Laboratory 2(Elective-II)	0	0	4	2
Total Credits: 20					

M.Tech Sem- II

Code	Course Title	Hours per week			Credits
		L	T	P	
PGIT(AI)201	Program Core III – Advanced Algorithms	3	0	0	3
PGIT(AI)202	Program Core IV – Artificial Neural Networks	3	0	0	3
PGIT(AI)203A/B/C/D	Program Elective III – Natural Language Processing / Advanced Data Mining / Big Data Analytics/ Computational Intelligence	3	0	0	3
PGIT(AI)204 A/B	Program Elective IV– Geographical Information System / Soft Computing	3	0	0	3
PGIT(AI)205	Audit Course	2	0	0	0

PGIT(AI)292	Laboratory 3 (Based on Artificial Neural Network)	0	0	4	2
PGIT(AI)293	Laboratory 4 (Based on Elective III)	0	0	4	2
PGIT(AI)294	Laboratory 4 (Based on Elective IV)	0	0	4	2
PGIT(AI)295	Term Paper with Seminar	4	0	0	2
Total Credits: 20					

*Students be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.

M.Tech III Sem*

Code	Course Title	Hours per week			Credits
		L	T	P	
PGIT(AI)301A/B/C/D	Program Elective V – Computer Vision & Robotics / Digital Signal Processing / Deep Learning/ Remote Sensing and GIS/	3	0	4	03
PGIT(AI)302A/B/C/D/E/F/G	Open Elective Business Analytics Project Management and Entrepreneurship Industrial Safety Operations Research Cost Management of Engineering Projects Composite Materials Waste to Energy	3	0	0	03
PGIT(AI)391	Laboratory 5(Based on Computer Vision	0	0	4	02
PGIT(AI)392	Dissertation-I /Industrial Project	0	0	20	10
Total Credits: 18					

*Students going for Industrial Project/Thesis will complete these courses through MOOCs.

M.Tech Sem-IV

	Course Title	Hours per week			Credits
		L	T	P	
PGIT(AI) 491	Dissertation II	0	0	32	16
Total Credits: 16					

The program offers several elective courses, focusing on different aspects of Artificial Intelligence. A student can choose to do any course from given program elective set.

Audit course 1 & 2

English for Research Paper Writing

Disaster Management

Sanskrit for Technical Knowledge.

Value Education

Constitution of India

Pedagogy Studies

Stress Management by Yoga

Personality Development through Life Enlightenment Skills

8.M.TECH. INFORMATION TECHNOLOGY (DATA SCIENCE)

Course Scheme for M.Tech. Information Technology Specialization: Data Science

M.TechSem-I.

Course Number	Subjec t	Scheme Of Studies Per Week			Credits
		L	T	P	
PGIT(DS)101	Program Core I- Mathematical foundations of Computer Science	3	0	0	3
PGIT(DS)102	Program Core II- Advanced Data Structures	3	0	0	3
PGIT(DS)103A/B/C	Program Elective I- Data Science/ Distributed Systems/ Data Preparation and Analysis	3	0	0	3
PGIT(DS)104A/B/C	Program Elective II- Recommender Systems / Machine Learning/ Data Visualization	3	0	0	3
PGIT(DS)105	Research Methodology and IPR	2	0	0	2
PGIT(DS)106A/B/C/D	Audit Course	2	0	0	0
PGIT(DS)192	Laboratory 1 (Advanced Data Structures)	0	0	4	2
PGIT(DS)193A/B/C/D	Laboratory 2 (Based on Elective1)	0	0	4	2
PGIT(DS)194A/B/C/D	Laboratory 3 (Based on Elective 2)	0	0	4	2
Total Credits: 20					

M.Tech Sem- II

Course Number	Subjec t	Scheme Of Studies Per Week			Credits
		L	T	P	
PGIT(DS)201	Program Core III – Advanced Computer Architecture	3	0	0	3
PGIT(DS)202	Program Core IV – Advanced Database	3	0	0	3
PGIT(DS)203A/B	Program Elective III – Big Data Analytics/ Data Warehouse and Data Mining	3	0	0	3
PGIT(DS)204A/B/C	Program Elective IV – Data Security/ Web Analytics and Development/ Knowledge Discovery	3	0	0	3
PGIT(DS)205	Audit Course	2	0	0	0

PGIT(DS)291	Advanced Computer Architecture Lab	0	0	4	2
PGIT(DS)292	Advanced Database Lab	0	0	4	2
PGIT(DS)293A/B	Big Data Analytics lab/ Data Warehouse and Data Mining lab	0	0	4	2
PGIT(DS)293	Term Paper with Seminar	0	0	4	2
Total Credits: 20					

*Students be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.

M.Tech III Sem*

Course No.	Subject	Scheme of Studies Periods Per Week			Credit s
		L	T	P	
PGIT(DS)301A/B/C/D	Program Elective V – GPU Computing/ Cloud Computing/ Distributed Databases/ Deep Learning	3	0	0	03

PGIT(DS)302A/B/C/D/E/F/G	Open Elective Business Analytics Project Management and Entrepreneurship Industrial Safety Operations Research Cost Management of Engineering Projects Composite Materials Waste to Energy	3	0	0	03
PGIT(DS)393	Dissertation-I /Industrial Project	0	0	20	10
Total Credits 16					

*Students going for Industrial Project/Thesis will complete these courses through MOOCs.

M.Tech Sem-IV

	Subjec t	Scheme of Studies Per Week			Credi t s
		L	T	P	
PGIT(DS) 491	Dissertation II	0	0	32	16
Total Credits: 16					

The program offers several elective courses, focusing on different aspects of Data Science. A student can choose to do any course from given program elective set.

Audit course 1 & 2

English for Research Paper Writing

Disaster Management

Sanskrit for Technical Knowledge

Value Education

Constitution of India

Pedagogy Studies

Stress Management by Yoga

Personality Development through Life Enlightenment Skills.

9. M.TECH. IN INTERNET OF THINGS

Syllabus of M.Tech. In Internet of Things

Semester I

Course Number	Subject	L	T	P	Credits
PGIT(IoT)101	Program Core I- Mathematical foundations of Computer Science	3	0	0	3
PGIT(IoT)102	Program Core II- Advanced Data Structures	3	0	0	3
PGIT(IoT)103 PGIT(IoT)103 B/PGIT(IoT) 103C	Program Elective I- Data Science/ Wireless Access Technologies/ Mobile Applications and Services	3	0	0	3
PGIT(IoT)104 PGIT(IoT)104 PGIT(IoT)104 C	Program Elective II- Machine Learning/ Smart Sensors and Internet of Things/ Logic and Functional Programming	3	0	0	3
PGIT(IoT)105	Research Methodology and IPR	2	0	0	2
PGIT(IoT)106A/ B/	Audit Course	2	0	0	0

C/D/E/F					
PGIT(IoT)192	Laboratory 1 (Advanced Data Structures)	0	0	4	2
PGIT(IoT)193A/ B/ C	Laboratory 2 (Based on Elective I)	0	0	4	2
PGIT(IoT)194A/ B/ C	Laboratory 3 (Based on Elective II)	0	0	4	2
	Total Credits: 20				

Semester II

Course Number	Subject	L	T	P	
PGIT(IoT)201	Program Core III – Advanced Computer Architecture	3	0	0	3
PGIT(IoT)202	ProgramCore IV – Wireless and Sensor Networks	3	0	0	3
PGIT(IoT)203A/ B/C	Program Elective III – Sensor Networks and Internet of Things Data Visualization IoT Application and Communication Protocol	3	0	0	3
PGIT(IoT)204 A/B/C	Program Elective IV – Big Data Analytics Network Security Advanced Machine Learning	3	0	0	3

PGIT(IoT)205A/ B/C/D	Audit Course	2	0	0	0
PGIT(IoT)291	Advanced Computer Architecture Lab	0	0	4	2
PGIT(IoT)292	Wireless and Sensor Networks Lab	0	0	4	2

PGIT(IoT)293A/ B/C	Lab based on Elective III	0	0	4	2
PGIT(IoT)294	Term Paper with Seminar	0	0	4	2
	Total Credits: 20				

Semester III

Course Number	Subject	L	T	P	Credits
PGIT(IoT)301A/B/ C	Program Elective V – Cloud Computing Real Time Operating Systems Emulation and Simulation Methodologies	3	0	0	03
PGIT(IoT)302A/ PGIT(IoT)302B/ PGIT(IoT)302C/ PGIT(IoT)302D/ PGIT(IoT)302E/ PGIT(IoT)302F	Open Elective Business Analytics Industrial Safety Operations Research Cost Management of Engineering Projects Composite Materials Waste to Energy	3	0	0	03
PGIT(IoT)391	Dissertation-I /Industrial Project	0	0	20	10

	Total Credits: 16

Semester IV

Course Number	Subject	L	T	P	Credits
PGIT(IoT)491	Dissertation II	0	0	32	16
	Total Credits: 16				

10. M.TECH IN IT(INFORMATION SECURITY)

Curriculum Structure Semester I

Curriculum Structure Semester I

Course Number	Subject	L	T	P	Credits
PGIT(IS)I0I	Program Core I- Mathematical foundations of Computer Science	3	0	0	3
PGIT(IS)I02	Program Core II-Advanced Data Structures	3	0	0	3
PGIT(IS)I03A/PGIT(IS)I038 / PGIT(IS)I03C	Program ElectiveI- A.Ethical Hacking/. B.Digital Forensic/ C. Intrusion Detection	3	0	0	3
PGIT(IS)I04A/PGIT(IS)I048 / PGIT(IS)I04C / PGIT(IS)I04D	Program Elective II- A.Machine Leaming/. Cryptography/ B.Securityin Cloud Computing C. Secure Coding	3	0	0	3
PGIT(IS)I05	Research Methodology and IPR	2	0	0	2
PGIT(IS)I06A/B/C/D/E/F	Audit Course	2	0	0	0
PGIT(IS)192	Laboratory 1(Advanced Data Structures)	0	0	4	2
PGIT(IS)I93A/B/C	Laboratory 2(Based on Elective I)	0	0	4	2
PGIT(IS)I*94A*/B/C	Laboratory 3(Based on Elective II)	0	0	4	2
	TotalCredits:20				

Semester II

Course Number	Subject	L	T	P	
PGIT(IS)201	Program Core III – Advanced Algorithms	3	0	0	3
PGIT(IS)202	Program Core IV – Soft Computing	3	0	0	3
PGIT(IS)203 A/ B/C	Program Elective III – Data Encryption & Compression/ Steganography & Digital Watermarking Malware Analysis & Reverse Engineering	3	0	0	3
PGIT(IS)204 A/ B/C	Program Elective IV – Information Theory & Coding/ Systems Security/ Biometrics Security	3	0	0	3
PGIT(IS)205 A/ B/C/D	Audit Course	2	0	0	0
PGIT(IS)291	Advanced Algorithms Lab	0	0	4	2
PGIT(IS)292	Soft Computing Lab	0	0	4	2
PGIT(IS)293 A/ B/C	Lab based on Elective III	0	0	4	2
PGIT(IS)293	Mini Project with Seminar	0	0	4	2
	Total Credits: 20				

Semester III

Course Number	Subject	L	T	P	Credits
PGIT(IS)301A/ PGIT(IS)301B/ PGIT(IS)301C	Program Elective V – Data Security and Access Control/ Web Search & Information Retrieval/ Blockchains and cryptocurency	3	0	0	03
PGIT(IS)302A/ PGIT(IS)302B/ PGIT(IS)302C/ PGIT(IS)302D/ PGIT(IS)302E/ PGIT(IS)302F	Open Elective A.Business Analytics Industrial Safety Operations Research Cost Management of Engineering Projects Composite Materials Waste to Energy	3	0	0	03
PGIT(IS)391	Dissertation-I /Industrial Project	0	0	20	10
	Total Credits: 16				

Semester IV

Course Number	Subject	L	T	P	Credits
PGIT(IS)491	Dissertation II	0	0	32	16
	Total Credits: 16				

11.M.TECH. IN INFORMATION TECHNOLOGY

Course Scheme for M.Tech. in Information Technology

M.Tech Sem-I.

Code	Course Title	Hours per week			Credits
		L	T	P	
PGIT-101	Program Core I- Mathematical foundations of Computer Science	3	0	0	3
PGIT- 102	Program Core II- Advanced Data Structures	3	0	0	3
PGIT - 103A/103B /1 03C	Program Elective I- Advanced Web Technology/ Data Science/Mobile Communication	3	0	0	3
PGIT - 104A/104B /1 04C/104D	Program Elective II- Internet of Things/ Machine Learning/Social Network Analysis/Information Security	3	0	0	3

PGIT-105	Research Methodology and IPR	2	0	0	2
PGIT	Audit Course	2	0	0	0
-					
106A/106B/1					
06C/106D					
PGIT-192	Laboratory 1 (Advanced Data Structures)	0	0	4	2
PGIT	Laboratory 2 (Based on Elective	0	0	4	2
-	1)				
193A/193B/1					
93C					
PGIT	Laboratory 3 (Based on Elective	0	0	4	2
-	II)				
194A/194B/1					
94C					
Total Credits: 20					

M.Tech Sem- II

Code	Course Title	Hours per week			Credits
		L	T	P	
PGIT-201	Program Core III – Advanced Computer Architecture	3	0	0	3
PGIT-202	Program Core IV – Advanced Operating System	3	0	0	3
	Program Elective III –				
PGIT-	Cloud Computing/ Image				
203A/203B/203C/203D/203E	Processing/ Soft Computing/Data Warehousing	3	0	0	3
	and Data Mining/Wireless and				
	Sensor Networks				
	Program Elective IV–				
PGIT-204A/204B/204C	Distributed Systems / Big Data Analytics / Information Theory and Coding/ Pattern Recognition	3	0	0	3
PGIT-205A/B/C/D	Audit Course-2	2	0	0	0
PGIT-291	Laboratory 1 (Advanced Computer Architecture)	0	0	4	2
PGIT-292	Laboratory 2 (Advanced Operating System)	0	0	4	2
PGIT-	Laboratory 3 (Based	0	0	4	2

293A/B/C/D	on Elective III)				
PGIT-293	Term Paper with Seminar	0	0	4	2
Total Credits: 20					

*Students be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.

M.Tech III Sem*

Code	Course Title	Hours per week			Credits
		L	T	P	
PGIT-301A/301B/301C/301D	Program Elective V – Bio-informatics/ Remote Sensing and GIS / Distributed Databases/	3	0	0	03
PGIT-302	Open Elective Business Analytics Project Management & Entrepreneurship Industrial Safety Operations Research Cost Management of Engineering Projects Composite Materials Waste to Energy	3	0	0	03
PGIT-393	Dissertation-I	0	0	20	10

	/Industrial Project				
Total Credits: 16					

*Students going for Industrial Project/Thesis will complete these courses through MOOCs.

M.Tech Sem-IV

	Course Title	Hours per week			Credits
		L	T	P	
PGIT-491	Dissertation II	0	0	32	16
Total Credits: 16					

12.MTECH IN MATERIAL SCIENCE AND TECHNOLOGY

Semester-I							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
Theory							
1	Program Core I	MST101	Introduction to Materials Science and Technology	4	1	0	4
2	Program Core II	MST102	Mechanical Behavior of Material	4	1	0	4
3	Program Core III	MST103	Electronic, Optical and Magnetic Properties of Materials	4	1	0	4
4	Program Core IV	MST104	Fundamentals of Materials Processing	4	1	0	4
5	Mandatory Learning Course	MLC101	Research Methodology and IPR	2	1	0	2
	Total Theory			18	5	0	18
Practical							
1	Laboratory I	MST191	Characterization of Materials	0	0	4	2
	Total Practical			0	0	4	2
Sessional							

1	Mini Project	MST181	Mini Project with Seminar	2	0	0	2
	Total of Semester-I			20	5	4	22
Semester-II							
Theory							
1	Program Core V	MST201	Nanostructures and Nanomaterials	4	1	0	4
2	Program Core VI	MST202	Mathematics for Materials Science and Technology	3	1	0	3
3	Program Elective I	MST203 A/B/C	Program Elective I	2	1	0	2
4	Open Elective I	MST204 A/B/C	Open Elective I	2	1	0	2
	Total Theory			11	4	0	11
Practical							
1	Laboratory I	MST291	Synthesis, Fabrication and Processing of Materials	0	0	6	3
	Total Practical			0	0	6	3
Sessional							
1	Mini Project	MST281	Mini Project with Seminar	2	0	0	2
	Total of Semester-II			13	4	6	16

Semester-III							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
Theory							
1	Program Core VII	MST301	Material and Energy Balances	3	1	0	3
2	Open Elective II	MST302 A/B/C	Open Elective II	2	1	0	2
	Total Theory			5	2	0	5
Sessional							
1	Major Project	MST381	Dissertation-I (Progress)	0	0	20	10
	Total of Semester-III			5	2	20	15
Semester-IV							
Theory							
1	Program Core VIII	MST401	Medical Biomaterials	3	1	0	3
2	Program Elective II	MST402 A/B/C	Program Elective II	2	1	0	2
Sessional							
1	Major Project	MST481	Dissertation-II (Completion)	0	0	20	10
	Total of Semester-IV			5	2	20	15
Total Credits for the Programme							68

Students will go for internship/industrial training during semester break (between II & III)Curriculum Structure

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ist of Program Electives

Program Elective – I

Materials Data Science and Informatics (MST203A)

Computational Materials Science and Engineering (MST203B)

Atoms to Materials: Predictive Theory and Simulations (MST203C)

Program Elective – II

Waste Management and Critical Raw Materials (MST402A)

Waste Materials to Energy Conversion (MST402B)

E-Waste Materials and Its Management (MST402C)

List of Open Electives

Open Elective – I

Introduction to Artificial Intelligence (MST204A)

Block Chain Technology (MST204B)

Principles of Machine Learning (MST204C)

Open Elective – II

Micro and Nanofabrication (MST302A)

Internet of Things: Sensor and Devices (MST302B)

Internet of Things: Sensing and Actuation from Devices (MST302C)

13.M.TECH IN MICROELECTRONICS & VLSI TECHNOLOGY

Semester-1

Sl.No	Code	Paper Name	Marks	Credit points
1	PGMVD-101	Advanced Engineering Mathematics	100	4
2	PGMVD-102	Physics of VLSI Devices	100	4
3	PGMVD-103	Data Structure and Algorithm	100	4
4	PGMVD-104	Microelectronics Technology	100	4
5	PGMVD-105	Digital VLSI Circuit and Systems	100	4
		Total of Theory	500	20
6	PGMVD-191	a) Microelectronics Lab-I (Fabrication Techniques)	100	2
7	PGMVD-192	b) VLSI Design Lab-I	100	2
8	PGMVD-193	Seminar -Reviewof current research paper	100	2
		Total of Practical	300	6
		Total	800	26

Total Credit-26

Semester-2

Sl.No	Code	Paper Name	L P T 0	Marks	Credit points
			4 0 0		
1	PGMVD-201	Analog VLSI Circuit & Systems	4 0 0	100	4
2	PGMVD-202	Testing & Verification of VLSI Systems	4 0 0	100	4
3	PGMVD-203	A: Digital Signal Processing and Application B.Advanced communications system	4 0 0	100	4
4	PGMVD-204	Advanced Micro & Nano Devices	4 0 0	100	4
5	PGMVD-205	Project Management	4 0 0	100	4
		Total of Theory	0	500	20
6	PGMVD-291	Micro Electronics Lab-II (Characterisation)	3	100	2
7	PGMVD-292	VLSI Design Lab-II	3	100	2
8	PGMVD-293	Term paper leading to Thesis	4 0 0	100	2
		Total of Practical	6	300	6
		Total	0	800	26

Total Credit-26

Semester-3

Sl.No	Code	Paper Name	LPT	Marks		Credit points
			400	LT		
1	PGMVDE-301	AOperating System BComputer Organization Algorithms	400	40	100	4
		Total of Theory	400			
2	PGMVD-391	Project Part-I	0	0	100	4
3	PGMVD-392	Project Defence			100	4
4	PGMVD-393	Group Project			100	4
		Total of Practical			300	
		Total	400	40	400	16

Semester-4

Sl.No	Code	Paper Name	LPT	Marks		Credit points
			400	LT		
1	PGMVD-491	Project Part -II	0	0	100	10
			400			
2	PGMVD-492	Comprehensive Viva-voce	0		100	4
		Total	400	0	200	14

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0

14.MTECH RENEWABLE ENERGY ENGINEERING:

Curriculum Structure

Semester- I							
Sl.No	**Category**	**Course code**	**Course name**	**L**	**T**	**P**	**Credit**
1	Program Core-I	PC-MRE 101	Energy & Power System Technology	3	0	0	3
2	Program Core-II	PC-MRE 102	Renewable Energy – I (Hydel, Biomass, Geo-Thermal and Wind Energy)	3	0	0	3
3	Program Elective-I	PE-MRE 103 I/II/III	Transport Processes & Thermodynamics/ Mathematical Methods & Data Analysis/ Digital Control and Optimization of Energy Systems	3	0	0	3
4	Program Elective-II	PE-MRE104 I/II/III	Industrial Energy Analysis/Waste to Energy/Energy Storage Technologies	3	0	0	3
5	Mandatory learning	MC-MRE 105	Research Methodology & Intellectual Property Rights	2	0	0	2
6	Audit course - I	AC-MRE106 I/II/III/IV	Value Education/ Stress Management byYoga/ Constitution of India/Pedagogy Studies	0	0	0	0
Practical							
8	Lab-I	PC-MRE 191	Energy and Power System Technology Lab	0	0	4	2
9	Lab-II	PC-MRE 192	Renewable Energy - I Lab	0	0	4	2
			Total	14	0	8	18

Semester- II							
Sl.No	**Category**	**Course code**	**Course name**	**L**	**T**	**P**	**Credit**
1	Program Core- III	PC-MRE201	Renewable Energy – II (Solar Energy)	3	0	0	3
2	Program Core-IV	PC-MRE 202	Renewable Energy – III (Ocean Energy, Fuel Cells, Hydrogen Energy)	3	0	0	3
3	Program Elective-III	PE-MRE 203 I/II/III	Materials & Devices for energy conversion and storage/ Composite Materials for Energy applications/ Recent advances in Solar Photovoltaics	3	0	0	3
4	Program Elective – IV	PE-MRE 204 I/II/III	Distributed Generation andSmart Grids/ Energy Distribution Systems and Automation /Green Environment and Sustainability	3	0	0	3
5	Audit Course II	AC-MRE205 I/II/III/IV	English for Research Paper Writing / Disaster Management/ Statistics & Probability with R / Personality Development through Life Enlightenment Skills	0	0	0	0
6	Lab-III	PC-MRE 291	Renewable Energy - II Lab	0	0	4	2
7	Lab-IV	PC-MRE 292	Renewable Energy – III Lab	0	0	4	2
9	Minor Project	PW-MRE 281	Minor Project on Designing of Renewable Energy Systems with Seminar	2	0	0	2
			Total	14	0	8	18

Semester- III							
Sl. No	**Category**	**Course code**	**Course name**	**L**	**T**	**P**	**Credit**
1	Program Elective - V	PC-MRE 301 I/II/III	Renewable Energy management, Cost Analysis and Audit/ Energy Policy & Regulatory Compliance/ Environmental Risk and Impact Assessment	3	0	0	3
2	Open Elective (IT course)	OE- MRE(CS) 304 I/II/III	AI and Machine Learning / IOT and Smart Sensors/ Data Analytics	3	0	0	3
3	Major project	PW-MRE 381	Dissertation-I (Initiation and Progression)	0	0	20	10
			Total	6	0	20	16

Semester- IV							
Sl. No	**Category**	**Course Code**	**Course Name**	**L**	**T**	**P**	**Credit**
1	Major Project	PW-MRE 481	Dissertation-II (Completion)	0	0	32	16
			Total	0	0	32	16

- Total credit- 68

- Each unit of all the credit courses will be covered under 12 class hours.

15. M. TECH IN SOFTWARE ENGINEERING

Curriculum for M. Tech in Software Engineering for in-house Course

(Applicable from the academic session 2019-2020)

Curriculum Structure							
Semester-I							
Sl No.	Category	Course Code	Course Name	Total Number of contact hours			Credits
				L	T	P	
Theory							
1	Program Core I	PGSE-101	Mathematical foundations of Computer Science	3	0	0	3
2	Program Core II	PGSE-102	Advanced Data Structures	3	0	0	3
3	Program Elective-I	PGSE-103	Program Elective-I	3	0	0	3
4	Program Elective-II	PGSE-104	Program Elective-II	3	0	0	3
5		PGSE-105	Research Methodology and IPR	2	0	0	2
6	Audit Course 1		Audit Course 1	2	0	0	0
	Total Theory			16	0	0	14
Practical							
7	Laboratory I	PGSE-191	Advanced Data Structures	0	0	2	2
8	Laboratory II	PGSE-192	Laboratory II [from Elective –I]	0	0	2	2
	Total Practical			0	0	4	4
	Total of Semester-I			16	0	4	18
Semester-II							
Theory							
1	Program Core III	PGSE-201	Advances in Algorithms	3	0	0	3
2	Program Core IV	PGSE-202	Software Quality Management	3	0	0	3
3	Program Elective-III	PGSE-203	Program Elective-III	3	0	0	3
4	Program Elective-IV	PGSE-204	Program Elective-IV	3	0	0	3
5	Audit Course 2		Audit Course 2	2	0	0	0
	Total Theory			14	0		12
Practical							
6	Laboratory III	PGSE-292	Laboratory III (Advances in Algorithm)	0	0	2	2

7	Laboratory IV	PGSE-293	Laboratory IV (from Elective-III)	0	0	2	2
	Total Practical			0	0	4	4
Sessional							
8	Mini Project	PGSE-294	Mini Project with Seminar	0	0	3	2
	Total Sessional			0	0	3	2
	Total of Semester-II			12	0	7	18
Semester-III							
Theory*							
1	Program Elective-V	PGSE-301	Program Elective-V	3	0	0	3
2	Open Elective	PGSE-302	Open Elective	3	0	0	3
	Total Theory			6	0	0	6
Sessional							
3	Major Project	PGSE-391	Dissertation –I	0	0	20	10
				0	0	20	10
	Total of Semester-III						16
Semester-IV							
Sessional							
1	Major Project	PGSE-491	Dissertation -II	0	0	32	16
	Total of Semester-IV						16
Total Credits for the programme							68

Program Elective - I

Machine Learning

Operating System Design

Object Oriented Design

Software Requirement Engineering

Program Elective - II

Advances in Wireless and Mobile Networks

Software Testing Methodologies

Software Architecture

Data Analytics

Program Elective – III

Artificial Intelligence

Software Development Tools

Advances in DBMS-

Object Oriented Software Engineering

Secure Software Design and Enterprise Computing

Program Elective – IV

Software Design Techniques

Theory of Computation

Cloud Computing

Network Security

Program Elective - V

Mobile Applications and Services

Optimization Techniques

IOT and its security

Digital Forensics

Software Automation

Open Elective (As per CSE)

Operations Research

Cost Management of Engineering Projects

Industrial Safety

Composite Materials

Waste to Wealth

Industry Overview (Enterprise & Solution Architecture)

Audit course 1 & 2

English for Research Paper Writing

Disaster Management

Sanskrit for Technical Knowledge

Value Education

Constitution of India

Pedagogy Studies

Stress Management by Yoga

Personality Development through Life Enlightenment Skills.

1.DIPLOMA IN GEO INFORMATICS:

Course Structure

Semester – I

Code	Course Title	Hours per week			Credits
		L	T	P	
DGI-101	Principles of Remote Sensing and Photogrammetry	3	0	0	3
DGI-102	Principles of Geographic Information Systems (GIS)	3	0	0	3
DGI-103	Basics of GNSS, Cartography & Digital Mapping.	3	0	0	3
DGI-104.	Mathematical Methods and Scientific Computing for Geospatial Data Analysis	3	0	0	3
DGI-105	RecentTrends in Geo- informatics: Machine Learning and Big Data.	3	0	0	3
DGI-106	Audit Course	2	0	0	0
DGI -191	Remote Sensing and Photogrammetry Lab.	0	0	4	2
DGI-192	GIS Lab	0	0	4	2
DGI-193	GNSS and Cartography Lab	0	0	4	2
DGI-194	Web Technology Lab	0	0	4	2
DGI-195	Programming in Python	0	0	4	2
Total Credits: 25					

Semester - II

Code	Course Title	Hours per week			Credits
		L	T	P	
DGI-201	Spatial Data Modeling	3	0	0	3
DGI-202	Satellite Image Processing	3	0	0	3
DGI-203A/B	Program Elective I – Applications of Geoinformatics/ Advanced Remote Sensing Techniques	3	0	0	3
DGI-204 A/B/C/D/E/F	Program Elective II– Geoinformatics in Disaster Management / Geoinformatics in Water Resources Management/ Geoinformatics in Agriculture/ Geoinformatics in Urban planning/ Geoinformatics in Geotechnical Engineering/ Geoinformatics in Environmental Management	3	0	0	3
DGI-205	Audit Course	2	0	0	0
DGI-206	Research Methodology and IPR	2	0	0	2
DGI-291	Database Analysis Lab	0	0	4	2
DGI-292	Satellite Image Processing Lab	0	0	4	2
DGI-293A/B	Laboratory 4 (Based on Elective I)	0	0	4	2
DGI-294 A/B/C/D/E/F	Laboratory 4 (Based on Elective II)	0	0	4	2
DGI-295	Project Work on Applications of Geoinformatics	4	0	0	2
Total Credits: 24					

***Students be encouraged to go to Industrial Training/Internship for at least 2-3 months during semester break.**