

# MAHARISHI MARKANDESHWAR (DEEMED TO BE UNIVERSITY)

MULLANA-AMBALA, HARYANA (INDIA), 133-207

(Established under Section 3 of the UGC Act, 1956)

(Accredited by NAAC with Grade 'A++')

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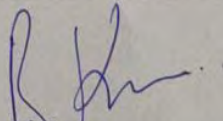


Website: www.mmumullana.org  
E.Mail: info@mmumullana.org

## Programmes with Choice-Based Credit System (CBCS)\* Academic Year 2022-23

\*Since all supporting documents for this metric exceeds the upload limit of 5MB, we are providing samples as shown below. If required, we will provide all/any supporting documents.

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Registrar  
Maharishi Markandeshwar  
(Deemed to be University)  
Mullana-Ambala 133-207

**M.M. Engineering College**  
**B.Sc. Biotechnology (Hons. /Research) July 2022 onwards**  
**Four-year Undergraduate Programme**

**1<sup>st</sup>Semester (1<sup>st</sup> Year)**

Sr.No.	Course Description			Teaching Scheme			Credit
	Type of subject	Course Code	Course Title	Contact Hrs/WK			
				L	T	P	
1	Core	BBIOT-101	Cell Biology	3	-	-	3
2	AEC	BHUM-013/ BHUM-117	Hindi/Essence of Indian Traditional Knowledge	3	-	-	3
3	General	MAN-001	Indian Constitutions	3	-	-	3
4	General	HSMC-051	Human Values & Ethics	3	-	-	3
5	General	BBIOT-102	Elementary Biology	3	-	-	3
6	Core	BBIOT-103	Animal Biotechnology	3	-	-	3
7	Core	BBIOT-104	Cell Biology Lab	-	-	4	2
8	General	BBIOT-105	Elementary Biology Lab	-	-	2	1
9	Core	BBIOT-106	Animal Biotechnology Lab	-	-	2	1
				18	00	08	22

**Note:** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

**2<sup>nd</sup> Semester (1<sup>st</sup> Year)**

Sr.No.	Course Description			Teaching Scheme			Credit
	Type of subject	Course Code	Course Title	Contact Hrs/WK			
				L	T	P	
1	Core	BBIOT-201	Genetics	3	-	-	3
2	Activity	HLY-001/ SPO-001	Health & Yoga/ Sports	-	-	4	2
3	AEC	BHUM-011	English	3	-	-	3
4	Core	BBIOT-202	Plant Biotechnology	3	-	-	3
5	General	BBIOT-203	Biofertilizer and Vermicomposting	2	-	-	2
6	General	BBIOT-204	Chemistry	3	1	-	4
7	Core	BBIOT-205	Genetics Lab	-	-	4	2
8	Core	BBIOT-206	Plant Biotechnology Lab	-	-	2	1
9	General	BBIOT-207	Chemistry Lab	-	-	4	2
				14	01	14	22

**Note:** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

**Exit option:** If the student wants to exit after 1<sup>st</sup> year, he/she will be eligible to get the certificate after completing the mandatory summer training of 6 weeks of 6 credits.

\*Exit with Certificate in Biotechnology @ 44 Credits + 6 Credits (summer internship/ industrial training)

  
 Professor & Head  
 Deptt. of Bio-Technology  
 M.M.E.C. Mullana (Ambala)

### 3<sup>rd</sup> Semester (2<sup>nd</sup> Year)

Sr.No.	Course Description			Teaching Scheme			
	Type of subject	Course Code	Course Title	Contact Hrs/WK			Credit
				L	T	P	
1	Core	BBIOT-301	General Microbiology	3	-	-	3
2	Core	BBIOT-302	Bioethics and Biosafety	2	-	-	2
3	General	BBIOT-303	Bioinformatics and Computer Application	3	-	-	3
4	General	BBIOT-304	Agricultural Biotechnology	3	1	-	4
5	General	BBIOT-305	Biochemistry	3	1	-	4
6	General	BBIOT-306	Bioinformatics and Computer Application Lab	-	-	2	1
7	General	BBIOT-307	Agricultural Biotechnology Lab	-	-	4	2
8	General	BBIOT-308	Biochemistry Lab	-	-	4	2
9	AEC	BHUM-022	English Communication Lab	-	-	2	1
				14	02	12	22

**Note:** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

### 4<sup>th</sup> Semester (2<sup>nd</sup> Year)

Sr.No.	Course Description			Teaching Scheme			
	Type of subject	CourseCode	Course Title	Contact Hrs/WK			Credit
				L	T	P	
1	Core	BBIOT-401	Molecular Biology	3	-	-	3
2	Core	BBIOT-402	Immunology	3	-	-	3
3	Core	BBIOT-403	Developmental Biology and Stem Cell Technology	3	1	-	4
4	DSE	BBIOT-EL-	Elective - I	3	-	-	3
5	Core	BBIOT-404	Molecular Biology and Immunology Lab	-	-	4	2
6	Core	BBIOT-405	Developmental Biology and Stem Cell Technology Lab	-	-	4	2
7	AEC	ES-101	Environment Studies	3	-	-	3
8	Activity	NSS-001/NCC-001/BBIOT-702	NSS/ NCC/Seminar	-	-	4	2
				15	01	12	22

**Note:** 1. Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

2. Students have to undergo a mandatory summer training of 6 weeks after the examinations of 4<sup>th</sup> semester of 6 credits. If the student wants to exit after 2<sup>nd</sup> year, the viva-voce examination of the training will be held after completion of training otherwise the same will be held during BSc (Hons.) Biotechnology 5<sup>th</sup> semester.

\*\*Exit with Diploma in Biotechnology @ 88 Credits + 6 Credits (summer internship/ industrial training)

### 5<sup>th</sup> Semester (3<sup>rd</sup> Year)

Sr.No.	Course Description			Teaching Scheme			Credit
	Type of subject	Course Code	Course Title	Contact Hrs/WK			
				L	T	P	
1	Core	BBIOT-501	Industrial Fermentation	3	1	-	4
2	Core	BBIOT-502	Biostatistics	3	1	-	4
3	Core	BBIOT-503	Environmental Biotechnology	3	1	-	4
4	SEC	BHUM-003	Entrepreneurship & Management	3	1	-	4
5	Elective	BBIOT-EL-	Elective II	3	1	-	4
6	Core	BBIOT-504	Industrial Fermentation Lab	-	-	4	2
7	Core	BBIOT-505	Environmental Biotechnology Lab	-	-	4	2
8	DSE	BBIOT-506	Internship/ Industrial training (6 weeks)*	-	-	12	6
				15	05	08	30


**Note:** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

### 6<sup>th</sup> Semester (3<sup>rd</sup> Year)

Sr.No.	Course Description			Teaching Scheme			Credit
	Type of subject	Course Code	Course Title	Contact Hrs/WK			
				L	T	P	
1	Core	BBIOT-601	Bio Analytical Tools and Techniques	3	-	-	3
2	Core	BBIOT-602	Recombinant DNA Technology	3	-	-	3
3	Core	BBIOT-603	Bio Analytical Tools and Techniques Lab	-	-	4	2
4	Elective	BBIOT-EL-	Elective III	3	-	-	3
5	SEC	BBIOT-604	Minor Project/Industrial Training	3	-	-	3
				12	00	04	14
<b>OR</b>							
1	Core	BBIOT-605	Industrial Training/ Internship				14

**Note:** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

Exit with Degree in Biotechnology @ 132 Credits

  
 Professor & Head  
 Deptt. of Bio-Technology,  
 M.M.E.C. Mullana (Ambeta),

**7<sup>th</sup> Semester (4<sup>th</sup> Year)**

Sr.No.	Course Description			Teaching Scheme			Credit
	Type of subject	Course Code	Course Title	Contact Hrs/WK			
				L	T	P	
1	Generic	MP-01	Research Methodology	3	1	-	4
2	Generic	MP-06	Research Publication & Ethics	3	1	-	4
3	Specialization	MP-04	Seminar based on literature review and data collection	-	-	8	4
4	Core	MP-05	Departmental Elective (Research-based)	3	1	-	4
				09	03	08	16

**8<sup>th</sup> Semester (4<sup>th</sup> Year)**

Sr.No.	Course Description			Teaching Scheme			Credit
	Type of subject	Course Code	Course Title	Contact Hrs/WK			
				L	T	P	
1	Core	BBIOT-801	Research Project/ Dissertation	-	-	-	12

Exit with Degree in Biotechnology Hons./Research @ 160 Credits



Dr. A.K. Sharma, Professor and Head,  
Department of Biotechnology  
MMEC, MM (DU), Mullana.  
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**Branch/Course: B.Sc. Biotechnology (Hons./Research)**  
**(Four Year Undergraduate Programme)**  
**List of Electives**

Department will offer the following elective courses:

Sr. No.	Course Code	Course Title	Credit
<b><u>Electives-I</u></b>			
1.	BBIOT-EL-001	Industrial Biotechnology	3.0
2.	BBIOT-EL-002	Nanobiotechnology	3.0
3.	BBIOT-EL-003	Molecular Carcinogenesis and Therapy	3.0
<b><u>Electives-II</u></b>			
1.	BBIOT-EL-004	Elementary Forensic Biotechnology	4.0
2.	BBIOT-EL-005	Transgenic Biotechnology	4.0
3.	BBIOT-EL-006	Bioreactor Design and Product Analysis	4.0
<b><u>Electives-III</u></b>			
1.	BBIOT-EL-007	Biophysics and Technology Innovations	3.0
2.	BBIOT-EL-008	Food Biotechnology	3.0
3.	BBIOT-EL-009	Plant Tissue Culture	3.0
<b><u>Departmental Electives (Research-Based)</u></b>			
1.	MP-05 A	Plant Biotechnology	4.0
2.	MP-05 B	Animal Biotechnology	4.0
3.	MP-05 C	Microbial Biotechnology	4.0

Dr. A.K. Sharma, Professor and Head,  
 Department of Biotechnology MMEC,  
 MM (DU), Mullana.  
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**MAHARISHI MARKANDESHWAR (DEEMED TO BE  
UNIVERSITY)**

**MULLANA, AMBALA**

**National Education Policy-2020**

**Department of Mathematics and Humanities**

**Proposed Scheme for B. Sc. (Hons) Mathematics as per NEP-20 guidelines  
1<sup>st</sup> Semester**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T(Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BMAT-611	Calculus	3	-	-	3	100(60+40)
		BMAT-612	Calculus Lab	-	2	-	1	100(40+60)
2	Core	BMAT-613	Algebra	3	-	1	4	100(60+40)
3	Core	BMAT-614	Group Theory-I	3	-	1	4	100(60+40)
4	AECC	BHUM-013 / BHUM-117	Hindi / Essence of Indian Traditional Knowledge	3	-	-	3	100(60+40)
5	SEC	BCSE-101	Introduction to computer language R	3	-	-	3	100(60+40)
		BCSE-102	Introduction to computer language R (Lab)	-	2	-	1	100(40+60)
6	GE-1 Elective-1	BMAT-615	Basic Operation Research	2	-	1	3	100(60+40)
OR								
			BCSE-103	Web Designing using HTML	2	2	-	3
		Total					22	800

**Note:** Student can opt for two subjects per semester from the MOOC /Swayam with the same credits of the assigned subjects in the scheme.

**2<sup>nd</sup> Semester**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T(Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BMAT-621	Differential Equations	3	-	-	3	100(60+40)
2	Core	BMAT-622	Differential Equations (Lab)	-	2	-	1	100(40+60)
3	Core	BMAT-623	Analytical Geometry	3	-	1	4	100(60+40)
4	Core	BMAT-624	Real Analysis	3	-	1	4	100(60+40)
5	AECC	BHUM-011	English	2	-	-	2	100(60+40)
6		BHUM-012	English (Lab)	-	2	-	1	100(40+60)
7	SEC	BMAT-625	Probability & Statistics	3	-	1	4	100(60+40)
8	GE -2 Elective-2	BMAT-626	Mathematical Finance	2	-	1	3	100(60+40)
		OR						
		BCSE-105	Database Management Systems	2	2	-	3	100(60+40)
		Total					22	800

**Note:** Student can opt for two subjects per semester from the MOOC /Swayam with the same credits of the assigned subjects in the scheme.

**Exit option with Certificate @44 credits (after completion of one year) in B.Sc.(Hons) Mathematics:** The Students must undergo summer Internship for 6 weeks and submit the certificate of the same so as to be eligible for the award of Certificate.

**3<sup>rd</sup> Semester**

Course	Paper Code	Paper	Hrs/Week			C r .	Marks T(Ex.+In.)		
			Lecture	Practical	Tutorial				
1	Core	BMAT-631	Numerical Methods	3	-		3	100(60+40)	
2		BMAT-632	Numerical Methods Lab	-	2	-	1	100(40+60)	
3	Core	BMAT-633	Linear Algebra	3	-	1	4	100(60+40)	
4	Core	BMAT-634	Ring Theory	3		1	4	100(60+60)	
5	AECC	BHUM-118	Human Value and Ethics	3	-		3	100(60+40)	
6	SEC	BMAT-635	Statistical Methods	2	-	-	2	100(60+40)	
7		BMAT-636	Statistical Methods (Lab)	-	2	-	1	100(40+60)	
8	Activity	CUL-001/ SPO-001 / HLY-001	Cultural/Sports/Health and Yoga	-	2	-	1	100(40+60)	
9	GE -3 Elective-3:	BCSE-106	Python	2	2	-	3	100(60+40)	
		OR							
		BMAT-637	Graph Theory	3	-	-	3	100(60+40)	
		Total					22	900	

**Note:** Student can opt for two subjects per semester from the MOOC /Swayam with the same credits of the assigned subjects in the scheme.

**4<sup>th</sup> Semester**

S.No	Course	Paper Code	Paper	Hrs/Week			C r .	Marks T(Ex.+In.)	
				Lecture	Practical	Tutorial			
1	Core	BMAT-641	Complex Analysis	4	-	-	4	100(60+40)	
2	Core	BMAT-642	Theory of Real Functions	3	-	1	4	100(60+40)	
3	Core	BMAT-643	Metric Space	3	-	1	4	100(60+40)	
4	SEC	ES-101	Environmental Science	3	-	-	3	100(60+40)	
5	SEC	BCSE-108	Introduction to Data Analysis	3	-	-	3	100(60+40)	
6	Activity	NSS-001 / NCC-001	NCC/NSS		2		1	100(40+60)	
7	GE -4 Elective -4	BMAT-644	Mechanics	2	-	1	3	100(60+40)	
		OR							
		BCSE-107	Programming in Java	2	2	-	3	100(60+40)	
		Total					22	700	

**Note:** Student can opt for two subjects per semester from the MOOC /Swayam with the same credits of the assigned subjects in the scheme.

**Exit option with Diploma @88 credits (after completion of two year) in B.Sc(Hons) Mathematics:** The Students must undergo summer Internship for 6 weeks and submit the certificate of the same so as to be eligible for the award of Certificate.



## 5<sup>th</sup> Semester

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T(Ex.+In.)
				Lecture	Practical	Tutorial		
1	AECC	MAN-001	Indian Constitutions	3	-	-	3	100(60+40)
2	SEC	BHUM-022	English Communication Lab	-	2	-	1	100(40+60)
3	SEC	BCSE-108	Introduction to Machine Learning Lab	-	4	-	2	100(40+60)
4	DSE-1 Elective -1	BMAT-651	Group Theory-II	5	-	1	6	100(60+40)
		OR BMAT-652	PDE & System of ODE	5	-	1	6	100(60+40)
5	DSE-2 Elective -2	BMAT-653	Multivariate calculus	5	-	1	6	100(60+40)
		OR BMAT-654	Number Theory	5	5	1	6	100(60+40)
6	DSE-3 Elective -3	BMAT-655	Linear Programming Problem	5	-	1	6	100(60+40)
		OR BMAT-656	Advance Calculus	5	5	1	6	100(60+40)
7	DSE-4	BMAT-657	Training/Entrepreneursh ip (VIVA-VOCE)				6	100
		Total					30	700

**Note :** Student can opt for two subjects per semester from the MOOC /Swayam with the same credits of the assigned subjects in the scheme.

## 6<sup>th</sup> Semester


S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T(Ex.+In.)
				Lecture	Practical	Tutorial		
1	SEC	BHUM-003	Entrepreneurship	4	-	-	4	100(60+40)
2	DSE-5	BMAT-661	<b>Elective -4:</b> Reimann Integration and Series of functions	4	-	1	5	100(60+40)
		OR BMAT-662	Differential Geometry	4	-	1	5	100(60+40)
3	DSE-6	BMAT-663	<b>Elective -5:</b> Discrete Mathematics	4	-	1	5	100(60+40)
		OR BMAT-664	Theory of Equations	4	-	1	5	100(60+40)
		Total		7	8	3	14	300

**Note:** Student can opt for two subjects per semester from the MOOC /Swayam with the same credits of the assigned subjects in the scheme.

## OR (6<sup>th</sup> Semester)

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks
				Lecture	Practical	Tutorial		
1	Project	BMAT-665	Industrial Project	-	-	-	14	200
		Total					14	200

After completion of three year, the students have option to quit with degree @ 132 credits in B.Sc.(Hons) Mathematics.

  
 Department of Mathematics  
 M. M. Engineering College  
 Ambala-Ambala

## 7<sup>th</sup> Semester

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T(Ex.+In.)
				Lecture	Practical	Tutorial		
1	GC	MP-01	Research Methodology	4	-	-	4	100(60+40)
2	DSE	MP-04	Seminar (Based on Literature Review and Data Collection)	2	-	-	2	100(60+40)
3	Core	MP-05 *	Department Elective (Research Based)	4	-	-	4	100(60+40)
4	GC	MP-06	Research Publication & Ethics	4	-	-	4	100(60+40)
5	SEC	MP-07	Synopsis Writing & Presentation	2	-	-	2	100(60+40)
		<b>Total</b>		<b>16</b>	<b>-</b>	<b>-</b>	<b>16</b>	<b>500</b>


**Note:** Student can opt for two subjects per semester from the MOOC /Swayam with the same credits of the assigned subjects in the scheme.

### \*Detail of Elective papers offered by the department.

MP-05 M(A)	Waiting time models
MP-05 M(B)	Fixed point theory
MP-05 M ( C )	Mechanics of continuous media
MP-05 M(D)	Symmetries and differential equations
MP-05 M (E)	Information Measures and Coding Theory
MP-05 M(F)	Reliability Theory and Modeling
MP-05 M(G)	Differential Geometry
MP-05 M(H)	Fluid Dynamics

## 8<sup>th</sup> Semester

S.No.	Course	Paper Code	Paper	Seminar-1	Seminar- 2	Viva-Voce	Marks	Cr.
1	Dissertation	BMAT-681	Course: Specialization Paper: Research & Thesis Writing	40	40	120	200	12
						<b>Total</b>	<b>200</b>	<b>12</b>

  
 Head  
 Department of Mathematics  
 M.M. Engineering College  
 Mullana-Ambala

**M. M. ENGINEERING COLLEGE**

July 2022 Onwards

Credit System for the four year undergraduate Programme


B.Sc. Physics (Hons./Research)–NEP-2020 Policy

Semester	Core Course (Cc) Sub. 1	Core Course (Cc) Sub. 2	Core Course (Cc) Sub. 3	Common Course (Cc)	Disciplinary Minor	Introductory Course	Total Credits	Exit With
1 <sup>st</sup> Sem	Mechanics @ 6 Credits			Modern Language (Hindi & English) @ 6 Credits	Mathematical Physics @ 6Credits (DSE-I)	Astronomy And Astrophysics@ 6 Credits	@ 24 Credits	Certificate In Physics@48 Credits
2 <sup>nd</sup> Sem	Electricity and Magnetism @ 4Credits	Computational Physics @ 2 Credits		English Communication@ 6 Credits	Analog System And Applications @ 6 Credits (DSE-II)	Economics /Human Values @ 6 Credits	@ 24 Credits	
3 <sup>rd</sup> Sem	Waves And Optics @ 4 Credits	Nuclear & Particle Physics@ 4Credits		Digital System And Application @4 credits	Thermal Physics And Statistical Mechanics @ 6 Credits	Philosophy@ 6 Credits	@ 24 Credits	Diploma In Physics @ 96 Credits
4 <sup>th</sup> Sem	Elements Of Modern Physics@6 Credits	Nanomaterial and applications@4Credits		Understanding India (Demography, Culture and Lingual Diversity)@3Credits	Experimental Techniques @ 5Credits (DSE-III)	Banking@ 6 Credits	@ 24 Credits	
5 <sup>th</sup> Sem	Solid State Physics@ 6 Credits	Atomic Spectroscopy @ 4 Credits	Laser and Fiber Optics@ 4 Credits	Yoga And Sports @ 2 Credits	Quantum Mechanics @ 6 Credits(DSE-IV)		@ 22Credits	Degree In Physics @ 132Credits
6 <sup>th</sup> Sem	Electro-Magnetic Theory@ 6Credits	Renewable Energy Sources@3Credits		Environmental Science @3 Credits	Physics Workshop Skill @2 Credits		@ 14 Credits	
	OR INDUSTRIAL PROJECT @ 14 Credits							
7 <sup>th</sup> Sem	Research Methodology@6 Credit	Development of Research Proposal@4 Credit	Field immersion @ 3 Credit	Community Engagement and Service (NCC,NSS) @3 Credit			@ 16 Credits	Honors In Physics @ 164Credits
8 <sup>th</sup> Sem	Dissertation@16							

Note: \*The Students can replace two subjects per semester from the MOOC/ Swayam courses with the same credit of the replaced subject

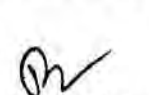
\*\*Six weeks industrial training is mandatory for the certificate/diploma course prior to exit of the programme.

  
V. Sharma

  
B.S. Sandhu

  
A. Kumar

  
J.K. Sharma

  
D. Prasher

  
R. Senrawat

  
M.K. Bera

**SCHEME FOR**  
**Credit System for the four year under graduate Programme**  
**B.Sc. Physics (Hons./Research)–NEP-2020 Policy**

SEM	COURSE OPTED	COURSE NAME	L	T	P	Credits
I	Core Course -I	Mechanics	4	0	0	4
	Core Course –I Practical	Mechanics Lab	0	0	4	2
	Disciplinary Minor(DSE-I)	Mathematical Physics	5	1	0	6
	Common Course	Modern Language (Hindi)	3	0	0	3
	Common Course	Modern Language (English)	3	0	0	3
	Introductory Course	Astronomy and Astrophysics	5	1	0	6
			20	2	2	24
II	Core Course -II	Electricity and Magnetism	4	0	0	4
	Core Course III	Computational Physics	2	0	0	2
	Common Course	English Communication	4	1	0	5
	Common Course	English Communication Lab	0	0	2	1
	Disciplinary Minor (DSE-II)	Analog system and Application	4	0	0	4
	Practical	Analog system and Application Lab	0	0	4	2
	Introductory Course	Economics / Human Values	5	1	0	6
			19	2	3	24
III	Core Course -IV	Waves and Optics	4	0	0	4
	Core Course -V	Nuclear and Particle Physics	4	0	0	4
	Common Course	Digital System and Application	4	0	0	4
	Disciplinary Minor	Thermal Physics and Statistical Mechanics	4	0	0	4
		Thermal Physics and Statistical Mechanics Lab	0	0	4	2
		Introductory Course	Philosophy	5	1	0
			21	1	2	24
IV	Core Course -VI	Element of Modern Physics	4	0	0	4
	Core Course VII	Nano Materials and Application	4	0	0	4
	Common Course	Understanding India	3	0	0	3
	Disciplinary Minor (DSE-III)	Experimental Techniques	5	0	0	5
	Core Course -VI Practical	Element of Modern Physics lab	0	0	4	2
	Introductory Course	Banking	5	1	0	6
			21	1	2	24
V	Core Course -VIII	Solid State Physics	4	0	0	4
	Core Course IX	Atomic Spectroscopy	4	0	0	4
	Core Course VIIIPractical	Solid State Physics Lab	0	0	4	2
	Core Course X	Laser and Fiber Optics	4	0	0	4
	Common Course	Yoga and Sport	2	0	0	2

 V. Sharma
  B.S. Sandhu
  A. Kumar
  J.K. Sharma
  D. Prasher
  R. Sehrawat
  M.K. Bera

	Disciplinary Minor (DSE-IV)	Quantum Mechanics	5	1	0	6
			19	1	2	22
VI	Core Course -XI	Electro-Magnetic Theory	4	0	0	4
	Core Course -XI Practical	Electro-Magnetic Theory Lab	0	0	4	2
	Core Course -XII	Renewal Energy Sources	3	0	0	3
	Common Course	Environmental Science	3	0	0	3
	Disciplinary Minor	Physics Workshop Skill	2	0	0	2
	OR		12	0	2	14
Industrial Project @14 Credits						
VII	Core Course XIII	Research Methodology	5	1	0	6
	Core Course XIV	Development of Research Proposal	4	0	0	4
	Common Course	Community Engagement and Service (NCC, NSS)	3	0	0	3
	Disciplinary Minor	Field immersion	3	0	0	3
			15	1	0	16
VIII	Dissertation @16 Credits					

Note: \*The Students can replace two subjects per semester from the MOOC/ Swayam courses with the same credit of the replaced subject  
 \*\*Six weeks industrial training is mandatory for the certificate/diploma course prior to exit of the programme.

 V. Sharma    
  B.S. Sandhu  
 09/08/22

 A. Kumar    
  J.K. Sharma    
  D. Prasher    
  R. Sehrawat    
  M.K. Bera

## Scheme of BSC (HOSPITALITY AND HOTEL ADMINISTRATION)

<b>BSc Hospitality &amp; Hotel Administration (HHA) First Semester</b>									
S.no	Course Category	Course Code	Course Title	Teaching Load		Credit	Examination Marks		
				L	P		Internal	External	Total Marks
1	Core	HHA 101	Food Production Foundation -I	3	-	3	40	60	100
2	Core	HHA 103	Food & Beverage Service Foundation -I	3	-	3	40	60	100
3	Core	HHA 105	Accommodation & Front Office Operations Foundations -I	3	-	3	40	60	100
4	Core	HHA 101 Pr	Food Production Foundation –I Pr	-	4	2	60	40	100
5	Core	HHA 103 Pr	Food & Beverage Service Foundation –I Pr	-	2	1	60	40	100
6	Core	HHA 105 Pr	Accommodation & Front Office Operations Foundations –I Pr	-	2	1	60	40	100
7	Ability Enhancement Course –I	ES-101	Environmental Science	3	-	3	40	60	100
8	General	BHUM 013 Or BHUM 117	Hindi (Only for Indian Students) Or Essence of India Traditional Knowledge (Only for International Students)	3	-	3	40	60	100
9	Activity	IE 01	Industrial Exposure	-	-	3	50	-	50
<b>Total</b>				<b>15</b>	<b>08</b>	<b>22</b>	<b>2</b>	<b>420</b>	<b>850</b>
<b>Remedial classes/workshops/ Assignments/ Guest Lectures/Industrial Visits</b>				<b>10</b>					

<b>BSc Hospitality &amp; Hotel Administration (HHA) Second Semester</b>									
S.no	Course Category	Course Code	Course Title	Teaching Load		Credit	Examinational Marks		
				L	P		Internal	External	Total Marks
1	Core	HHA 102	Food Production Foundation -II	3	-	3	40	60	100
2	Core	HHA 104	Food & Beverage Service Foundation -II	3	-	3	40	60	100
3	Core	HHA 106	Accommodation & Front Office Operations Foundations -II	3	-	3	40	60	100
4	Core	HHA 102 Pr	Food Production Foundation –II Pr	-	4	2	60	40	100
5	Core	HHA 104 Pr	Food & Beverage Service Foundation –II Pr	-	2	1	60	40	100
6	Core	HHA 106 Pr	Accommodation & Front Office Operations Foundations –II Pr	-	2	1	60	40	100
7	Ability Enhancement Course –II	HHA 108	Applications of Computers in H&T	3	-	3	40	60	100
8	Ability Enhancement Course –II	HHA 108 Pr	Applications of Computers in H&T	-	2	1	60	40	100
9	General	BHUM-021	English	3	-	3	40	60	100
10	Activity	IE 02	Industrial Exposure	-	-	2	50	-	50
<b>Total</b>				<b>15</b>	<b>10</b>	<b>22</b>	<b>490</b>	<b>460</b>	<b>950</b>
<b>Remedial classes/workshops/ Assignments/ Guest Lectures/Industrial Visits</b>				<b>08</b>					
<b>Summer Internship*</b>				<b>06 weeks</b>					

**\*Optional**

**Exit Option with certificate in Hospitality & Hotel Administration (with the completion of courses equal to 43 Credits).**

**Students opting to quit after 1 Year with a Certificate in Hospitality & Hotel Administration must undergo summer Internship for 6 weeks and submit the certificate of the same so as to be eligible for the award of Certificate in Hospitality & Hotel Administration.**

BSc HHA 3<sup>rd</sup> Semester

S.no	Course Category	Course Code	Course Title	Evaluation Criteria	Teaching Load	Credits	Examinational Marks		
					P		Internal	External	Total Marks
1	Discipline Specific Core	HHA 201	Industrial Training	Training Log Book/ Training Report	6 Months	10	100	-	100
2	Discipline Specific Core	HHA 203	Industrial Training	Presentation		4	100	-	100
3	Discipline Specific Core	HHA 205	Industrial Training	Viva - Voce		8	-	100	100
				<b>Total</b>	<b>6 Months</b>	<b>22</b>	200	100	<b>300</b>



**BSc Hospitality & Hotel Administration (HHA)  
Fourth Semester**

S.no	Course Category	Course Code	Course Title	Teaching Load		Credits	Examinational Marks		
				L	P		Internal	External	Marks
1	Discipline Specific Elective	HHA 202*	Elective I	3	-	3	40	60	100
		HHA 202 Pr*	Elective I Pr.	-	4	2	60	40	100
2	Discipline Specific Elective	HHA 204	Elective II	3	-	3	40	60	100
3	Interdisciplinary	HHA 206	Accounting Skills for Hospitality	3	-	3	40	60	100
4	General	HSMC-051	Human Values & Ethics	3	-	3	40	60	100
5	Interdisciplinary	BHUM-003	Entrepreneurship Development & Management	4	-	4	40	60	100
6	Generic Elective	HM- GE4	Anyone from the Pool of Generic Electives	3	-	3	40	60	100
7	Activity	NSS-001/NCC-001/ CUL-001/ SPO-001/ HLY-001	NCC/ NSS/ Cultural/ Sports/ Health and Yoga	-	2	1	100	-	100
<b>Total</b>				<b>19</b>	<b>06</b>	<b>22</b>	<b>400</b>	<b>400</b>	<b>800</b>
<b>Remedial classes/workshops/ Assignments/ Guest Lectures/Industrial Visits</b>				<b>10</b>					

**1. Student can choose any one of the following electives for HHA 202 (Th & Pr) HHA 204**

**Note: \*Student has to choose the same subject for theory and practical & the same combination will be continued in the next semester**

**Elective – I (Theory & Practical)**

- i) HHA-202 (a) Introduction to Indian Cookery
- ii) HHA-202 (b) Food & Beverage Service Management -I
- iii) HHA-202 (c) Accommodation Management-I

**2. Student can choose any one of the following electives for HHA 204**

**Elective II**

- i) Bakery Management
- ii) Hotel Engineering
- iii) Kitchen Management
- iv) Basics of Tourism

**3. Generic Elective**

- i) Fundamentals of Management
- ii) Disaster Management
- iii) Organic Foods and Farming
- iv) Principles of Baking

**Note:** Student Can Replace the subject of Generic Elective Pool from the MOOC Courses (SWAYAM) with the same credits of the replaced Subject.

**Exit Option with Diploma in Hospitality & Hotel Administration (with the completion of courses equal to 88 Credits) Summer Internship for 6 weeks is compulsory for all the students and six credits for the same will be evaluated in 5<sup>th</sup> semester. Students opting to quit after 2 Years with a Diploma in Hospitality & Hotel Administration must undergo summer Internship for 6 weeks and submit the certificate of the same so as to be eligible for the award of Diploma in Hospitality & Hotel Administration. Students opting for an award of BSc Degree in Hospitality & Hotel Administration must continue with theory and practical classes in the 5th Semester.**

**BSc HHA 5<sup>th</sup> Semester**

S.no	Course Category	Course Code	Course Title	Teaching Load		Credits	Examinational Marks		
				L	P		Internal	External	Total Marks
1	Discipline Specific Elective	HHA 301*	Elective I	4	-	4	40	60	100
		HHA 301 Pr*	Elective I Pr	-	4	2	60	40	100
2	Discipline Specific Elective	HHA 303	Elective II	4	-	4	40	60	100
4	SEC	HHA 305 Pr	Media & Journalism in Hospitality Pr	-	2	1	60	40	100
5	SEC	HHA 307	Interior decoration in Housekeeping	2	-	2	40	60	100
6	General	HHA 309	Advance Communication Skills	3	-	3	40	60	100
7	General	MAN-001	Indian Constitutions	3	-	3	40	60	100
8	Generic Elective	HM- GE5	Anyone from the Pool of Generic Electives i) HACCP & Food Safety ii) Food Additives & Adulteration iii) Commodities	3	-	3	40	60	100
<b>Total</b>				<b>19</b>	<b>06</b>	<b>22</b>	<b>360</b>	<b>440</b>	<b>800</b>
<b>Remedial classes/workshops/ Assignments/ Guest Lectures/Industrial Visits</b>				<b>08</b>					

**1. Student can choose any one of the following electives for HHA 301 (Th & Pr) HHA 303**

**Note: \*The subject choice will be continued from the previous semester and student has to choose the same subject for theory and practical.**

**Elective – I (Theory & Practical)**

HHA 301 (a) Regional Cuisines of India

HHA 301 (b) Food & Beverage Service Management -II

HHA 301 (c) Accommodation Management-II

**2. Student can choose any one of the following electives for HHA 303**

**Elective II**

i) F&B Management & Controls

ii) Facility Planning in Hotels

iii) Larder

iv) Hotel Safety & Security

iv) Basics of Tourism

**BSc HHA 6<sup>th</sup> Semester**

S.no	Course Category	Course Code	Course Title	Evaluation Criteria	Teaching Load	Credits	Examinational Marks		
					P		Internal	External	Total Marks
1	Discipline Specific Core	HHA 302	Industrial Training	Training Log Book/ Training Report	6 Months	10	100	-	100
2	Discipline Specific Core	HHA 304	Industrial Training	Presentation		4	100	-	100
3	Discipline Specific Core	HHA 306	Industrial Training	Viva - Voce		8	-	100	100
				<b>Total</b>	<b>6 Months</b>	<b>22</b>	200	100	<b>300</b>

**Exit Option with BSc Degree in Hospitality & Hotel Administration (With the completion of courses equal to 132Credits)**

**Students opting for an award of BSc Degree (with Research) in Hospitality & Hotel Administration must continue with theory and practical classes in 7th & 8th Semester**

**BSc Hospitality & Hotel Administration (HHA)  
Seventh Semester**

Sr. No.	Course Category	Course Code	Course Title	Teaching Load			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1.	Generic	MP-01	Research Methodology	4	-	-	4.0	40	60	-	100
2.	Generic	MP-06	Research Publication & Ethics	4	-	-	4.0	40	60	-	100
3.	Core	MP-05	Departmental Elective (Research Based)	4	-	-	4.0	40	-	60	100
4.	Skill Enhancement	MP-07	Synopsis Writing & Presentation	2	-	-	2.0	100	-	-	100
5.	Specialization	MP-04	Seminar (Based on Literature Review and Data Collection)	2	-	-	2.0	100	-	-	100
<b>Total</b>				<b>16</b>	<b>-</b>	<b>-</b>	<b>16.0</b>	<b>320</b>	<b>120</b>	<b>60</b>	<b>500</b>

**BSc Hospitality & Hotel Administration (HHA)  
Eighth Semester**

Sr. No.	Course Category	Course Code	Course Title	Teaching Load			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1.	Specialization	MP-09	Research & Thesis writing	-	-	-	12.0	100	-	100	200
<b>Total</b>				<b>-</b>	<b>-</b>	<b>-</b>	<b>12.0</b>				

**Exit with BSc Degree (with Research) in Hospitality & Hotel Administration (With the completion of courses equal to 160 Credits)**

## Scheme of

1. **BSC (HONS.) FOOD SCIENCE WITH SPECIALIZATION IN NUTRITION AND DIETETICS**
2. **BSC (HONS.) FOOD SCIENCE WITH SPECIALIZATION IN FOOD SCIENCE AND TECHNOLOGY**

### BSc Food Science- 1<sup>st</sup> Semester

S No.	Course Category	Course Code	Course Title	Teaching Load		Credit	Examination Marks		
				L	P		Internal	External	Total Marks
1.	Core	FS-101	Basics of Food and Nutrition	4	-	4	40	60	100
2.	Core	FS-103	Principles of Food Science	4	-	4	40	60	100
3.	Core	FS-105	Food hygiene & Sanitation	4	-	4	40	60	100
4.	Core	FS-101 Pr	Basics of Food and Nutrition-Pr	-	2	1	60	40	100
5.	Core	FS-103 Pr	Principles of Food Science-Pr	-	2	1	60	40	100
6.	Core	FS-105 Pr	Food Hygiene & Sanitation-Pr	-	2	1	60	40	100
7.	Ability Enhancement Course	FS-107	Applications of Computers	3	-	3	40	60	100
8.	Ability Enhancement Course	FS-107 Pr	Applications of Computers- Pr	-	2	1	60	40	100
9.	Ability Enhancement Course	BHUM-013/ BHUM-117	Hindi / Essence of Indian Traditional Knowledge	3	-	3	40	60	100
			<b>Total</b>	<b>18</b>	<b>08</b>	<b>22</b>	<b>440</b>	<b>460</b>	<b>900</b>

**Note-** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

**BSc Food Science- 2<sup>nd</sup> Semester**

S No.	Course Category	Course Code	Course Title	Teaching Load		Credits	Examination Marks		
				L	P		Internal	External	Total
1.	Core	FS-102	Basics of Biochemistry	4	-	4	40	60	100
2.	Core	FS-104	Basics of Sensory evaluation of Food	4	-	4	40	60	100
3.	Core	FS-106	Basics of Food Quality Management	4	-	4	40	60	100
4.	Core	FS-102 Pr	Basics of Biochemistry-Pr	-	2	1	60	40	100
5.	Core	FS-104 Pr	Basics of Sensory evaluation of Food- Pr	-	2	1	60	40	100
6.	Core	FS-106 Pr	Basics of Food Quality Management-Pr	-	2	1	60	40	100
7.	Ability Enhancement Course	ES-101	Environmental Science	3	-	3	40	60	100
8.	Ability Enhancement Course	BHUM-011	English	3	-	3	40	60	100
9.	Activity	HW-01	Health & Wellness	-	2	1	50	-	50
			<b>Total</b>	<b>18</b>	<b>8</b>	<b>22</b>	<b>430</b>	<b>420</b>	<b>850</b>
<b>Summer Internship</b>				<b>6 Weeks</b>			<b>6 (for exit)</b>		

**Exit Option with Certificate in Food Science (with the completion of courses equal to 44 Credits).**

**Students opting to quit after 1 Year with a Certificate in Food Science must undergo summer Internship for 6 weeks and submit the certificate of the same so as to be eligible for the award of Certificate in Food Science.**

**Note-** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

**BSc Food Science-3<sup>rd</sup> Semester**

		a. Specialisation in Food Science & Technology (BFS- FT) b. Specialisation in Nutrition & Dietetics (BFS-ND)							
S No.	Course Credit	Course Code	Course Title	Teaching Load		Credits	Examination Marks		
				L	P		Internal	External	Total
1.	Core	FS-FT201 FS-ND201	Food Chemistry Clinical &Therapeutic Nutrition	3	-	3	40	60	100
2.	Core	FS-FT203 FS-ND203	Dairy Technology Public Health & Nutrition	3	-	3	40	60	100
3.	Specialization	FS-205	Food Microbiology	3	-	3	40	60	100
4.	Core	FS-FT201 Pr FS-ND201 Pr	Food Chemistry Pr Clinical &Therapeutic Nutrition Pr	-	2	1	60	40	100
5.	Core	FS-FT203 Pr FS-ND203Pr	Dairy Technology Pr Public Health & Nutrition Pr	-	2	1	60	40	100
6.	Specialization	FS-205 Pr	Food Microbiology Pr	-	2	1	60	40	100
7.	Ability Enhancement Course	FS-209	Advanced Communication Skills	3	-	3	40	60	100
8.	Ability Enhancement Course	HSMC-051	Human Values & Ethics	3	-	3	60	40	100
9.	Specialization	FS-FT207 FS-ND207	Food Laws & Standards Psychology Counseling	3	-	3	40	60	100
10.	Activity	CUL-001/ SPO- 001 / HLY-001	Cultural/ Sports/Health & Yoga	-	2	1	100	-	100
<b>Total</b>				<b>18</b>	<b>08</b>	<b>22</b>	540	460	<b>1000</b>

**Note-** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

**BSc Food Science- 4<sup>th</sup> Semester**

a. Specialisation in Food Science & Technology (BFS- FT)									
b. Specialisation in Nutrition & Dietetics (BFS-ND)									
S No.	Course Category	Course Code	Course Title	Teaching Load		Credits	Examination Marks		
				L	P		Internal	External	Total
1.	Discipline Specific Elective	FS-FT 202a* FS-ND 202b*	Elective-I	4	-	4	40	60	100
		FS-FT-202 Pr a* FS-ND 202 Pr b*	Elective-I (PR)	-	2	1	60	40	100
2.	Discipline Specific Elective	FS-FT 204 a FS-ND 204 b	Elective-II	4	-	4	40	60	100
3.	Specialization	FS-206	Food Analysis & Instrumentation	3	-	3	40	60	100
4.	Specialization	FS-206 Pr	Food Analysis & Instrumentation Pr	-	2	1	60	40	100
5.	Interdisciplinary	FS-208 Pr	Food Product Development Pr	-	2	1	50	-	50
6.	Interdisciplinary	BHUM-003	Entrepreneurship Development & Management	4	-	4	40	60	100
7.	Activity	NSS-001/NCC-001	NCC/ NSS	-	2	1	100	-	100
8.	Generic Elective	HM- GE4	Anyone from the Pool of Generic Electives	3	-	3	40	60	100
<b>Total</b>				<b>18</b>	<b>08</b>	<b>22</b>	470	380	<b>850</b>

**1. Student can choose any one of the following electives for FS-FT-202 (Th & Pr) & FS-ND-202 (Th & Pr)**

**Note:** \*Student has to choose the same subject for theory and practical.

**Elective-I (FT) (Theory & Practical)**

- i) FS-FT-202 (a) Technology of Fruits, Vegetables & Plantation Crops
- ii) **FS-FT-202 (b) Technology of Cereals, Legumes & Oilseeds**
- iii) FS-FT-202 (c) Technology of Meat, Fish & Poultry

**Elective-I (ND) (Theory & Practical)**

- i) FS-ND-202 (a) Medical Nutrition Therapy
- ii) FS-ND-202 (b) Paediatric Nutrition
- iii) **FS-ND-202 (c) Human Nutrition**

**2. Student can choose any one of the following electives for FS-FT-204 and FS-ND-204**

**Elective-II (FT)**

- i) FS-FT-204 (a) Energy conservation in Food Processing
- ii) FS-FT-204 (b) IPR and Patent laws in Food Technology
- iii) **FS-FT-204 (c) Food Quality Testing & Evaluation**

**Elective-II (ND)**

- i) FS-ND-204 (a) Alternative & Complimentary System for health
- ii) FS-ND-204 (b) Advance Nutrition and Health
- iii) **FS-ND-204 (c) Food Quality Testing & Evaluation**

**3. Generic Elective**

- i) **Fundamentals of Management**
- ii) Disaster Management



iii) Organic Foods and Farming

**Note-** Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

**Exit Option with Diploma in Food Science with specialization in Food Science & Technology or Diploma in Food Science with specialization in Nutrition & Dietetics (with the completion of courses equal to 88 Credits).**

**Summer Internship for 6 weeks is compulsory for all the students and six credits for the same will be evaluated in 5th semester. Students opting to quit after 2 Years with a Diploma in Food Science with specialization in Food Science & Technology or Diploma in Food Science with specialization in Nutrition & Dietetics must undergo an internship of 6 weeks in their 4th Semester. Students opting for an award of BSc Degree in Food Science must continue with theory and practical classes in the 5th Semester.**

**BSc Food Science- 5<sup>th</sup> Semester**

a. Specialisation in Food Science & Technology (BFS- FT)									
b. Specialisation in Nutrition & Dietetics (BFS-ND)									
S No.	Course Category	Course Code	Course Title	Teaching Load		Credits	Examination Marks		
				Th.	Pr.		Internal	External	Total
1.	Discipline Specific Elective	FS-FT 301a* FS-ND 301b*	Elective-I	4	-	4	40	60	100
		FS-FT 301 Pr a* FS-ND 301 Pr b*	Elective-I (PR)	-	2	1	60	40	100
2.	Discipline Specific Elective	FS-FT 303a FS-ND 303b	Elective-II	4	-	4	40	60	100
3.	Discipline Specific Elective	FS-FT 305a FS-ND 305b	Elective-III	3	-	3	40	60	100
4.	Interdisciplinary	FS-305	Introduction to Finance, Accounting & Audit	3	-	3	40	60	100
5.	Specialization	FS-307	Nutraceuticals & Functional Foods	3	-	3	40	60	100
6.	Ability Enhancement Course	MAN-001	Indian Constitutions	3	-	3	40	60	100
7.	Generic Elective	HM- GE5	Anyone from the Pool of Generic Electives	3	-	3	40	60	100
8.	Core	FS-309	Summer Internship (Viva Voce)	-	-	6	100	-	100
<b>Total</b>				<b>23</b>	<b>2</b>	<b>30</b>	<b>440</b>	<b>460</b>	<b>900</b>

**1. Student can choose any one of the following electives for FS-FT-301 (Th & Pr) and FS-ND-301 (Th & Pr)**

**Note:** \*Student has to choose the same subject for theory and practical.

**Elective-I (FT) (Theory & Practical)**

- i) FS-FT-301 (a) Bakery & Confectionery Technology
- ii) FS-FT-301 (b) Convenience and Specialty Foods
- iii) FS-FT-301 (c) Fundamentals of Food Technology

**Elective-I (ND) (Theory & Practical)**

- i) FS-ND-301 (a) Bakery & Confectionery Technology
- ii) FS-ND-301 (b) Human Physiology
- iii) FS-ND301 (c) Food Products Modification

**2. Student can choose any one of the following electives for FS-FT-303 and FS-ND-303**

**Elective-II (FT)**

- i) FS-FT-303 (a) Food Preservation technology
- ii) FS-FT-303 (b) Food Engineering
- iii) FS-FT-303 (c) Food Nanotechnology

**Elective-II (ND)**

- i) FS-ND-303 (a) Community Nutrition
- ii) FS-ND-303 (b) Maternal and child nutrition
- iii) FS-ND-303 (c) Nutrition for Sports

**3. Student can choose any one of the following electives for FS-FT-305 and FS-ND-305**

**Elective-III (FT)**

- i) FS-FT-305 (a) Food Packaging Technology
- ii) FS-FT-305 (b) Infestation Control and Storage of Food Grains
- iii) FS-FT-305 (c) HACCP & Food Safety

**Elective-III (ND)**

- i) FS-ND-305 (a) Macronutrients & Micronutrients
- ii) FS-ND-305 (b) HACCP & Food Safety
- iii) FS-ND-305 (c) Food Fermentation

**4. Generic Elective**

- i) HACCP & Food Safety
- ii) Food Additives & Adulteration
- iii) Commodities

**Note-** Student can replace the subject of Generic Elective Pool from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.

**BSc Food Science- 6<sup>th</sup> Semester**

<b>a. Specialisation in Food Science &amp; Technology (BFS- FT)</b>									
<b>b. Specialisation in Nutrition &amp; Dietetics (BFS-ND)</b>									
S No.	Course Category	Course Code	Course Title	Evaluation Criteria	Teaching Load	Credit	Examination Marks		
					P		Internal	External	Total
1.	Specialization	FS-302	Industrial Training	Training Log Book/ Training Report	6 Months	08	100	-	100
		FS-304		Presentation		2	100	-	100
		FS-306		Viva - Voce		4	-	100	100
				<b>Total</b>	<b>6 Months</b>	<b>14</b>			<b>300</b>

**Exit Option with BSc Degree in Food Science with specialization in Food Science &Technology or BSc Degree in Food Science with specialization in Nutrition & Dietetics (with the completion of courses equal to 132 Credits).**

**Students opting for an award of B Sc Degree (with Research) in Food Science with specialization in Food Science &Technology or BSc Degree (with Research) in Food Science with specialization in Nutrition & Dietetics must continue with theory and practical classes in 7<sup>th</sup> & 8<sup>th</sup> Semester**

**BSc Food Science (with Research)- 7<sup>th</sup> Semester**

a. Specialisation in Food Science & Technology (BFS- FT)											
b. Specialisation in Nutrition & Dietetics (BFS-ND)											
Sr. No.	Course Category	Course Code	Course Title	Teaching Load			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1.	Generic	MP-01	Research Methodology	4	-	-	4.0	40	60	-	100
2.	Generic	MP-06	Research Publication & Ethics	4	-	-	4.0	40	60	-	100
3.	Core	MP-05	Departmental Elective (Research Based)	4	-	-	4.0	40	-	60	100
4.	Skill Enhancement	MP-07	Synopsis Writing & Presentation	2	-	-	2.0	100	-	-	100
5.	Specialization	MP-04	Seminar (Based on Literature Review and Data Collection)	2	-	-	2.0	100	-	-	100
<b>Total</b>				<b>16</b>	<b>-</b>	<b>-</b>	<b>16.0</b>	<b>320</b>	<b>120</b>	<b>60</b>	<b>500</b>

Exit with B.Sc Degree (with Research) in Food Science with specialization in Food Science & Technology or B.Sc Degree (with Research) in Food Science with specialization in Nutrition & Dietetics (With the completion of courses equal to 160 Credits)

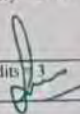
**BSc Food Science (with Research)- 8<sup>th</sup> Semester**

a. Specialisation in Food Science & Technology (BFS- FT)											
b. Specialisation in Nutrition & Dietetics (BFS-ND)											
Sr. No.	Course Category	Course Code	Course Title	Teaching Load			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1.	Specialization	MP-09	Research & Thesis writing	-	-	-	12.0	100	-	100	200
<b>Total</b>				<b>-</b>	<b>-</b>	<b>-</b>	<b>12.0</b>	<b>100</b>	<b>-</b>	<b>100</b>	<b>200</b>

**MMEC (Chemistry Department)**

**Proposed Scheme of Examination for B. Sc. Honours Under NEP-20**

Semester	Discipline Specific Course (Major)			Ability Enhancement Course (AEC)	Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	Activity	General Elective (GE)	Total Credits	Exit with
	Core Course (CC)	Core course (CC)	Core course (CC)							
I	Inorganic Chemistry-I		Physical Chemistry-I	Data analytics-I	Hindi	Molecules of life	Computer Science		22	Undergraduate certificate (B. Sc Honours).  Credit = 44+6
	Theory = 4 hrs. Practical = 4 hrs. Credits = 4+2		Theory = 4 hrs. Practical = 4 hrs. Credits = 4+2	Theory = 2 hrs. Credits = 2	Theory = 3 hrs. Credits = 3	Theory = 3 hrs. Credits = 3	Theory = 1 hrs. Practical = 2 hrs. Credits = 2			
II	Organic Chemistry-I		Inorganic Chemistry-II	Data analytics-II	Indian language (English)	English Communication Lab	★DSE-I		22	
	Theory = 4 hrs. Practical = 4 hrs. Credits = 4+2		Theory = 4 hrs. Practical = 4 hrs. Credits = 4+2	Theory = 1 hrs. Credits = 1	Theory = 2 hrs. Credits = 2	Practical = 2 hrs. Credits = 1	Theory = 4 hrs. Practical = 4 hrs. Credits = 4+2			
<p><b>Note:</b> Student can replace two subjects in a semester from the MOOC courses (SWAYAM) with the same credits and course category of the replaced subject.</p> <p><b>Exit option:</b> If the students want to exit after 1 st year, he/she will be eligible to get the certificate after completing the mandatory summer training of 6 weeks of 6 credits.</p>										
III	Chemistry-III	Botany-III/Physics-III	Zoology-III/Mathematics-III	Health informatics	DSE-2	Human value and ethics	Activity (Yoga/sports)	Ethics, social and political Philosophy /Fine arts	22	Undergraduate diploma (B. Sc Honours).  Credit = 88
	Theory = 3 hrs. Practical = 2 hrs. Credits = 3+1	Theory = 3 hrs. Practical = 2 hrs. Credits = 3+1	Theory = 3 hrs. Practical /Tutorial = 2 hrs. Credits = 3+1	Theory = 2 hrs. Credit = 2	Theory = 2 hrs. Practical = 2 hrs. Credits = 2+1	Theory = 3 hrs. Credits = 3	Activity = 2 hrs. Credit = 1	Theory = 2 hrs. Credit = 1		
IV	Chemistry-IV	Botany-IV/Physics-IV	Zoology-IV/Mathematics-IV	Applied Econometrics	DSE-3	Environmental science	NCC/NSS	Ethics, social and political Philosophy /Fine arts	22	
	Theory = 3 hrs. Practical = 2 hrs. Credits = 3+1	Theory = 3 hrs. Practical = 2 hrs. Credits = 3+1	Theory = 3 hrs. Practical /Tutorial = 2 hrs. Credits = 3+1	Theory = 2 hrs. Credits = 2	Theory = 2 hrs. Practical = 2 hrs. Credits = 2+1	Theory = 3 hrs. Credits = 3	Activity = 2 hrs. Credit = 1	Theory = 2 hrs. Credit = 1		

  
**Dr. BHAWNA PAREEK**  
 Professor & Head  
 Department of Chemistry  
 Maharshi Markandeshwar  
 (Deemed to be University)

<b>Exit option:</b> If the students want to exit after II <sup>nd</sup> year, he/she will be eligible to get the diploma certificate after completing the mandatory summer training of 6 weeks of 6 credits.									
<b>Discipline Specific Course (Minor)</b>									
V	Indian constitution	Basic analytical chemistry	Crop health and food production	DSE-4	DSE-5	DSE-6	Summer internship evaluation	Bachelor's degree (B. Sc. Honours) Credit = 132	
	Theory = 3 hrs.	Theory = 3 hrs.	Theory = 3 hrs. Practical = 2 hrs.	Theory = 4 hrs. Practical = 4 hrs.	Theory = 4 hrs. Practical = 4 hrs.	Theory = 2 hrs.		30	
	Credits = 3	Credits = 3	Credits = 3+1	Credits = 4+2	Credits = 4+2	Credits = 2	Credit = 6		
VI			Literature review and writing skill	DSE-7	DSE-8				
			Theory = 4 hrs.	Theory = 2 hrs. Practical = 4 hrs.	Theory = 4 hrs. Practical = 4 hrs.			14	
			Credit = 4	Credits = 2+2	Credits = 4+2				
<b>OR</b>									
Industrial Project								14	
VII	Generic Course		DSE	Core course (Research based)	SEC			Bachelor's degree with research (B. Sc. Honours) Credit = 160	
	Research Methodology	Research publication & ethics	Seminar (based on literature review and data collection)	Monitoring and assessment (Water & Soil)	Synopsis writing and presentation				
	Theory = 4 hrs.	Theory = 4 hrs.	Theory = 2 hrs.	Theory = 4 hrs.	Theory = 2 hrs.			16	
	Credits = 4	Credits = 4	Credits = 2	Credits = 4	Credits = 2			12	
Research and thesis writing									
VIII									

Dr. BHAWNA PAREEK  
 Professor & Head  
 Department of Chemistry  
 (Deemed to be University)

**Note:** The student can replace two subjects per semester from the MOOC/Swayam courses with the same credits of the replaced subject.

**DEPARTMENT OF LAW**

MM (Deemed to be University), Mullana – Ambala  
Deemed University Established Under Sec. 3 of the UGC Act, 1956  
Course of Study for B.A. LL.B, 5 Years Integrated Course  
Under Choice Based Credit System (CBCS)  
w.e.f. 2016-17

**B.A.LL.B-First Year**

Paper No	Semester-I Subjects	Credit			Total Credit	Paper No	Semester-II Subjects	Credit			Total Credit
		L	T	P				L	T	P	
ENG-101 (T)	English-I Communication Skills (Theory) w.e.f. 2017-18	3	0	0	3	ENG -201	English-II (English Literature)	4	1	0	5
ENG-101 (P)	English-I Communication Skills (Practical) w.e.f. 2017-18	0	0	2	2	BL-202	Political Science-II (Political - Theory II)	4	1	0	5
BL-102	Political Science-I (Political Theory-I)	4	1	0	5	ECO-203	Economics-II (Macro-Economics)	4	1	0	5
ECO-103	Economics-I (Micro-Economics)	4	1	0	5	COM -204	Application of Computers	3	1	1	5
COM-104	Computer Fundamentals	3	1	1	5	LAW-205	Law of Contract-II (Special)	4	1	0	5
LAW-105	Tort and Consumer Protection Laws	4	1	0	5	LAW-206	Legal Language	3	1	1	5
LAW-106	Law of Contract-I (General)	4	1	0	5	EVS 101	Environmental Studies	2	0	0	2
	<b>Total</b>	<b>22</b>	<b>5</b>	<b>3</b>	<b>30</b>			<b>24</b>	<b>6</b>	<b>2</b>	<b>32</b>

**B.A.LL.B. Second Year w.e.f 2017-18**

Paper No	Semester-III Subjects	Credit			Total Credit	Paper No	Semester-IV Subjects	Credit			Total Credit
		L	T	P				L	T	P	
ENG -301	English-III (Communication Skills in English)	3	1	1	5	BL-401	Political Science – IV (Indian Political Thought)	4	1	0	5
BL-301	Political Science-III (Major Constitutions of World)	4	1	0	5	CAI-402(i) LAN-402(ii)	Citizen & the Law(w.e.f. 2018-19) Indian language*-Hindi-II	4	1	0	5
HIS-303(i) LAN-303(i)	History of India(w.e.f 2018-19) Indian Language*-Hindi-I	4	1	0	5	ECO-403	Economics -III (Indian Economics)	4	1	0	5
LAW-304	Constitutional Law-I	4	1	0	5	LAW-404	Constitutional Law-II	4	1	0	5
LAW-305	Law of Crimes-II(Penal Code)	4	1	0	5	LAW-405	Law of Crimes-II(Criminal Procedure Code)	4	1	0	5
LAW-306	Constitutional and Legal History (w.e.f. 2018-19)	4	1	0	5	LAW-406	Family Law	4	1	0	5
	<b>Total</b>	<b>25</b>	<b>6</b>	<b>1</b>	<b>30</b>		<b>Total</b>	<b>24</b>	<b>6</b>	<b>0</b>	<b>30</b>

2019-20

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Head  
Department of Law  
Maharishi Markandeshwar  
(Deemed to be University)  
Mullana (Ambala) - 120001

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**B.A.L.L.B. Third Year w.e.f 2018-19**

Paper No	Semester-V Subjects	Credit			Total Credit	Paper No	Semester-VI Subjects	Credit		
		L	T	P				L	T	P
BL-501	Political Science-V (Political Thought)	4	1	0	5	BL-601	Political Science-VI (Public Administration in India)	4	1	0
HFM-502(i)	History of Freedom Movement in India (W.e.f. 2019-20)	4	1	0	5	BL-602	Sociology-I (w.e.f. 2018-19)	4	1	0
LAN-502(ii)	Hindi-III									
LAW-503	Jurisprudence	4	1	0	5	LAW-603	Administrative Law	4	1	0
LAW-504	Law of Evidence	4	1	0	5	LAW-604	Public International Law	4	1	0
LAW-505	Civil Procedure Code-I	4	1	0	5	LAW-605	Civil Procedure Code-II and Limitation Law	4	1	0
LAW-506	Legal Research Methodology	3	1	1	5	LAW-606	Property Law	4	1	0
	<b>Total</b>	<b>23</b>	<b>6</b>	<b>1</b>	<b>30</b>		<b>Total</b>	<b>24</b>	<b>6</b>	<b>0</b>

**B.A.L.L.B-Fourth Year w.e.f 2019-20**

Paper No	Semester-VII Subjects	Credit			Total Credit	Paper No	Semester-VIII Subjects	Credit		
		L	T	P				L	T	P
BL-701	Sociology- II (w.e.f. 2019-20)	4	1	0	5	BL-801	Sociology- III (w.e.f. 2019-20)	4	1	0
LAW-702	Right to Information Law	4	1	0	5	LAW-802	International Organization	4	1	0
LAW-703	Bio Diversity Protection Law	4	1	0	5	LAW-803	Company Law	4	1	0
LAW-704(i)	Optional Paper-I Principles of Interpretation Media and Law	4	1	0	5	LAW-804(i)	Optional Paper-III Women and Law Prison Administration	4	1	0
LAW-704(ii)						LAW-804(ii)				
LAW-705(i)	Optional Paper-II Competition Law Right to Education	4	1	0	5	LAW-805(i)	Optional Paper-IV Criminology and Penology Human Rights Law and Practice	4	1	0
LAW-705(ii)						LAW-805(ii)				
LAW-706	Conveyancing and Drafting (Practical/Clinical Course-I)	1	0	4	5	LAW-806	Moot Court Exercises and Internship (Practical/Clinical Course-II)	0	0	5
	<b>Total</b>	<b>21</b>	<b>5</b>	<b>4</b>	<b>30</b>		<b>Total</b>	<b>20</b>	<b>5</b>	<b>5</b>

\*The students are required to opt Hindi Language papers or other optional paper. The Language paper once selected will continue to be the same till 5<sup>th</sup> semester.

**Internal Assessment- 40 marks**

- (i) Written Class Tests - 20 marks
- (ii) Assignments - 15 marks (written with oral presentation)
- (iii) Attendance - 05 marks (75% one mark and one mark for every 5% increase)

**B.A.LL.B.-Fifth Year-w.e.f. 2016-17**

<b>Paper No</b>	<b>Semester-IX Subjects</b>	<b>Paper No</b>	<b>Semester-X Subjects</b>
L-XXV	Labour and Industrial Laws	L-XXXI	Principles of Taxation Law
L-XXVI	Alternative Dispute Resolution	L-XXXII	Land Laws including Tenure and Tenancy
L-XXVII	Legal Research Methodology (Optional Paper-I)	L-XXXIII	Banking Law (Optional Paper-IV)
L-XXVIII	Criminology and Penology (Optional Paper-II)	L-XXXIV	Human Rights Law and Practice (Optional Paper-V)
L-XXIX	Information Technology Law (Optional Paper-III)	L-XXXV	Intellectual Property Rights (General) (Optional Paper-VI)
L-XXX	Moot Court Exercises (Practical/Clinical Course-V)	L-XXXVI	Moot Court Exercises and Internship (Practical/Clinical Course-VI)

List of Optional Subjects/Groups- The selection of optional papers 1 to 6 from the following one or more groups shall be decided by the Head of the Department keeping in view the position of the Faculty.

Group-A	Constitutional Law	Group-D	International Law
i	Legal Theory	i	International Organizations
ii	Legal & Constitutional History	ii	International Human Rights
iii	Law & Social Transformation	iii	Private International Law
iv	Comparative Federalism	iv	Uncitral Model Codes
v	Media and Law	v	International Labour Organization & Laws
vi	Principles of Legislation	vi	Maritime Law
vii	Service Law	vii	International Trade Laws
viii	Election Law	viii	Air & Space Law
Group-B	Business Law	Group-E	Intellectual Property Law
i	Insurance Law	i	Law Relating to Patent
ii	Banking Law ✓	ii	Copyright Law
iii	Legal Regulation of Economic Enterprises	iii	Trademark & Design Law
iv	Bankruptcy & Insolvency	iv	Bio Diversity Protection Law
v	Competition Law	v	Information Technology Law ✓
vi	Information Technology Law ✓	vi	Intellectual Property Rights (General) ✓
vii	Regulatory Authorities	vii	Farmers & Breeders Right IPR & Human Rights
viii	Anti-Corruption Laws	viii	
Group-C	Crime & Criminology	Group-F	Local & Personal Laws
i	Criminal Psychology ✓	i	Human Right Law & Practice ✓
ii	Forensic Science	ii	Local Self Government
iii	Prison Administration	iii	Customary Laws
iv	Penology & Victimology	iv	Rent Control Laws
v	Offences Against Women & Child	v	Co-operative Law
vi	Cyber Crimes	vi	Christian & Parsi Laws
vii	White Color Crimes	vii	Muslim Law
viii	Medical Jurisprudence	viii	Equity & Trust ✓

## DEPARTMENT OF LAW

**MM (Deemed to be University), Mullana – Ambala**

Deemed University Established Under Sec. 3 of the UGC Act, 1956

**Course of Study for B.Com. LL.B (Hons.) 5 Years Integrated Course**

**Under Choice Based Credit System (CBCS)**

**B.Com. LL.B.(H.)-First Year w.e.f. 2017-18**

Paper No	Semester-I Subjects	Credit			Total Credit	Paper No	Semester-II Subjects	Credit			Total Credit
		L	T	P				L	T	P	
ENG-101 (T)	English-I Communication Skills (Theory)	3	0	0	3						
ENG-101 (P)	English-I Communication Skills (Practical)	0	0	2	2	ENG-201	English-II (English Literature) *	4	1	0	5
PM-101	Principles of Management	4	1	0	5	FA-202	Financial Accounting-I	4	1	0	5
ECC-103	Economics-I (Micro- Economics) *	4	1	0	5	BM-203	Business Mathematics *	4	1	0	5
COM-104	Computer Fundamentals *	3	1	1	5	HIS-204(i) LAN-204(ii)	History of India(w.e.f.2018-19)/ Indian Language*-Hindi-I	4	1	0	5
LAW-105	Tort and Consumer Protection Laws	4	1	0	5	LAW-205	Law of Contract-II (Special)	3	1	1	5
LAW-106	Law of Contract-I (General)	4	1	0	5	LAW-206	Legal Language				
						EVS 101	Environmental Studies	2	0	0	2
	<b>Total</b>	<b>22</b>	<b>5</b>	<b>3</b>	<b>30</b>		<b>Total</b>	<b>25</b>	<b>6</b>	<b>1</b>	<b>32</b>

### B.Com.LL.B.(H.) -Second Year

Paper No	Semester-III Subjects	Credit			Total Credit	Paper No	Semester-IV Subjects	Credit			Total Credit
		L	T	P				L	T	P	
FA-301	Financial Accounting-II	4	1	0	5	BST-401	Business Statistics *	4	1	0	5
ECC-302	Economics-II (Macro- Economics) *	4	1	0	5	HFM-402(i) LAN-402(ii)	History of Freedom Movement in India (W.e.f. 2019-20) Indian language*-Hindi-III	4	1	0	5
C&L-303(i) LAN-303(ii)	Citizen & the Law(w.e.f. 2018- 19) Indian language*-Hindi-II *	4	1	0	5	ENG-403	English-III (Communications Skills in English) *	4	1	0	5
LAW-304	Constitutional Law-I	4	1	0	5	LAW-404	Constitutional Law-II	4	1	0	5
LAW-305	Law of Crimes-II(Penal Code)	4	1	0	5	LAW-405	Law of Crimes-II(Criminal Procedure Code)	4	1	0	5
LAW-306	Constitutional and Legal History	4	1	0	5	LAW-406	Family Law	4	1	0	5
	<b>Total</b>	<b>24</b>	<b>6</b>	<b>0</b>	<b>30</b>		<b>Total</b>	<b>24</b>	<b>6</b>	<b>0</b>	<b>30</b>

*[Signature]*  
Head

Department of Law

**B.Com. LL.B.(H.) Third Year**

Paper No	Semester-V Subjects	Credit			Total Credit	Paper No	Semester-VI Subjects	Credit	
		L	T	P				L	T
BECSR-501	Business Ethics and Corporate Social Responsibility *	4	1	0	5	MKM-601	Marketing Management	4	1
AUD-502	Auditing	4	1	0	5	HRM-602	Human Resource Management	4	1
LAW-503	Jurisprudence	4	1	0	5	LAW-603	Administrative Law	4	1
LAW-504	Law of Evidence	4	1	0	5	LAW-604	Public International Law	4	1
LAW-505	Civil Procedure Code-I	4	1	0	5	LAW-605	Civil Procedure Code-II and Limitation Law	4	1
LAW-506	Legal Research Methodology	3	1	1	5	LAW-606	Property Law	4	1
	<b>Total</b>	<b>23</b>	<b>6</b>	<b>1</b>	<b>30</b>		<b>Total</b>	<b>24</b>	<b>6</b>

\*The students are required to opt Hindi Language papers or other optional paper. The Language paper selected will continue to be the same till 4<sup>th</sup> semester.

**Internal Assessment- 40 marks**

- |                         |  |
|-------------------------|--|
| (i) Written Class Tests | - 20 marks   |
| (ii) Assignments        | - 15 marks (written with oral presentation)                    |
| (iii) Attendance        | - 05 marks (75%- one mark and one mark for every .5% increase) |

w.e.f. June 2019

**Bachelor of Technology (B.Tech) in Computer Science & Engineering: 3<sup>rd</sup> Semester Scheme**

Sr. No.	Category	Course	Course Title	Teaching Schedule			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1	Humanities and Social Sciences including Management Course	BHUM-004	Economics for Engineers	3	-	-	3	40	60	-	100
2	Basic Science Course	BMAT-003	Mathematics-III (Probability & Statistics)	3	1	-	4	40	60	-	100
3	Professional Core Course	BCSE-502	Computer Organization & Architecture	3	1	-	4	40	60	-	100
4	Professional Core Course	BCSE-503	Data Structure & Algorithms	3	-	-	3	40	60	-	100
6	Professional Core Course	BCSE-504	Operating System	3	-	-	3	40	60	-	100
5	Professional Core Course	BCSE-505	Data Structure & Algorithms Lab	-	-	2	1	60	-	40	100
7	Professional Core Course	BCSE-506	Operating System Lab	-	-	2	1	60	-	40	100
8	Professional Core Course	BCSE-507	Python Programming Lab	-	-	4	2	60	-	40	100
9	Mandatory Course (non-credit)		Essence of Indian Traditional Knowledge	2	-	-	0	40	60	-	100
<b>TOTAL</b>				<b>17</b>	<b>2</b>	<b>8</b>	<b>21</b>	<b>420</b>	<b>360</b>	<b>120</b>	<b>900</b>

w.e.f. June 2019

**Bachelor of Technology (B.Tech) in Computer Science & Engineering: 4<sup>th</sup> Semester Scheme**

Sr. No.	Category	Course	Course Title	Teaching Schedule			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1	Humanities and Social Sciences including Management Course	BHUM-005	Principle of Management	3	-	-	3	40	60	-	100
2	Professional Core Course	BCSE-508	Discrete Mathematics	3	1	-	4	40	60	-	100
3	Engineering Science Course	BECE-001	Analog & Digital Electronics	2	1	-	3	40	60	-	100
4	Professional Core Course	BCSE-509	Object Oriented Programming Using Java	3	-	-	3	40	60	-	100
6	Professional Core Course	BCSE-510	Database Management System	3	-	-	3	40	60	-	100
5	Engineering Science Course	BECE-002	Analog & Digital Electronics Lab	-	-	2	1	60	-	40	100
7	Professional Core Course	BCSE-511	Object Oriented Programming Using Java Lab	-	-	2	1	60	-	40	100
8	Professional Core Course	BCSE-512	Database Management System Lab	-	-	2	1	60	-	40	100
9	Project	BCSE-513	Project-I	-	-	4	2	60	-	40	100
<b>TOTAL</b>				<b>17</b>	<b>2</b>	<b>8</b>	<b>14</b>	<b>2</b>	<b>10</b>	<b>21</b>	<b>440</b>

Bachelor of Technology (B.Tech) in Computer Science & Engineering: 5<sup>th</sup> Semester Scheme

Sr. No.	Course No.	Course Category	Course Title	Teaching Schedule			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1.	MA-05 / HUM-11 / HUM-12	General	Multivariate Analysis, Linear Algebra and Special Functions / Economics for Engineers / Law for Engineers / *Swayam	3	1	-	4.0	40	60	-	100
2.	MA-08 / SAP-02/ HUM-13	General	Probability and Statistics  / SAP ABAP / Marketing Management /* Swayam	2	1	-	3.0	40	60	-	100
3.	CS-22	Specialization	Web Technologies	3	-	-	3.0	40	60	-	100
4.	CS-23	Specialization	Analysis and Design of Algorithms	3	1	-	4.0	40	60	-	100
5.	CS-24	Specialization	Unix & Linux Shell Programming	3	-	-	3.0	40	60	-	100
6.	CS-25	Specialization	Business Intelligence & its Applications	3	-	-	3.0	40	60	-	100
7.	CS-26	Specialization	Analysis and Design of Algorithms Lab	-	-	2	2.0	60	-	40	100
8.	CS-27	Specialization	Unix & Linux Shell Programming Lab	-	-	2	2.0	60	-	40	100
9.	CS-28	Specialization	Web Technologies Lab	-	-	2	2.0	60	-	40	100
10.	CS-29	Core	Project-I	-	-	4	4.0	60	-	40	100
<b>Total</b>				<b>17</b>	<b>3</b>	<b>10</b>	<b>30</b>	<b>480</b>	<b>360</b>	<b>160</b>	<b>1000</b>



**Bachelor of Technology (B.Tech) in Computer Science & Engineering: 6<sup>th</sup> Semester Scheme**

Sr. No.	Course No.	Course Category	Course Title	Teaching Schedule			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1.	MA-10 / SAP-02/ HUM-14/ HUM-15/ HUM-16	General	Fuzzy Maths / SAP ABAP / Finance Management / HR Management / Research Methodology / *Swayam	2	1	-	3	40	60	-	100
2.	CS-30	Specialization	Cloud Computing	3	1	-	4	40	60	-	100
3.	CS-31	General	Big Data & Analytics	3	1	-	4	40	60	-	100
4.	CS-32	Specialization	Elective-I	3	-	-	3	40	60	-	100
5.	CS-33	Specialization	Elective-II	3	-	-	3	40	60	-	100
6.	CS-34	Specialization	Elective-III	3	-	-	3	40	60	-	100
7.	CS-35	General	Big Data & Analytics Lab	-	-	2	2	60	-	40	100
8.	CS-36	Specialization	Elective-I Lab	-	-	2	2	60	-	40	100
9.	CS-37	Specialization	Elective-III Lab	-	-	2	2	60	-	40	100
10.	CS-38	Core	Project-II	-	-	4	4	60	-	40	100
<b>Total</b>				<b>17</b>	<b>3</b>	<b>10</b>	<b>30</b>	<b>480</b>	<b>360</b>	<b>160</b>	<b>1000</b>

**\*One Course -3 credit through Swayam**

\*Swayam means subject that cover under self study/learning mode via online study material

**Elective-I, II, III**

Course No.	Course Title
<b>Elective-I</b>	
CS-32 (a)	Mobile Application Development
CS-32 (b)	Advanced Java Programming

CS-32 (c)	Computer Graphics
CS-32 (d)	Internetworking Technologies
<b>Elective-II</b>	
CS-33 (a)	Cryptography & Network Security
CS-33 (b)	Wireless & Mobile Communication
CS-33 (c)	Adhoc Networks
CS-33 (d)	Robotic Process Automation Design & Development
<b>Elective-III</b>	
CS-34 (a)	Microprocessor & Interfacing
CS-34 (b)	Software Testing
CS-34 (c)	Advanced Python Programming
CS-34 (d)	Advanced Web Technology

Course No.	Course Title
<b>Elective-I Lab</b>	
CS-36 (a)	Mobile Application Development Lab
CS-36 (b)	Advanced Java Programming Lab
CS-36 (c)	Computer Graphics Lab
CS-36 (d)	Internetworking Technologies Lab
<b>Elective-III Lab</b>	
CS-37 (a)	Microprocessor & Interfacing Lab
CS-37 (b)	Software Testing Lab
CS-37 (c)	Advanced Python Programming Lab
CS-37 (d)	Advanced Web Technology Lab

**w.e.f. June 2019 (For Batch 2016-2020 Only)**  
**Bachelor of Technology (B.Tech) in Computer Science & Engineering: Scheme**

**7<sup>th</sup> SEMESTER**

Sr. No.	Course No.	Course Category	Course Title	Teaching Schedule			Credits	Examination Marks			
				L	T	P		Internal	Theory	Practical	Total
1.	CS-37	Core	Genetic Algorithms	3	-	-	3	40	60	-	100
2.	CS-38	Core	Distributed Operating System	3	-	-	3	40	60	-	100
3.	CS-39	Specialization	Elective-IV	3	-	-	3	40	60	-	100
4.	CS-40	Specialization	Elective-V	3	-	-	3	40	60	-	100
5.		General	Open Elective-I	3	1	-	4	40	60	-	100
6.		General	Open Elective-II	3	1	-	4	40	60	-	100
7.	CS-41	Core	Genetic Algorithms Lab	-	-	2	2	60	-	40	100
8.	CS-42	Core	Project-III	-	-	8	8	60	-	40	100
<b>Total</b>				<b>18</b>	<b>2</b>	<b>10</b>	<b>30</b>	<b>360</b>	<b>360</b>	<b>80</b>	<b>800</b>

**One Course -3 credit Swayam**

\*Swayam means subject that cover under self study/learning mode via online study material

**Elective-IV & V**

Course No.	Course Title	Course No.	Course Title
<b>Elective-IV</b>		<b>Elective-V</b>	
CS-39 (a)	<b>Software Project Management</b>	CS-40 (a)	Neural Networks
CS-39 (b)	Formal Languages & Automata Theory	CS-40 (b)	<b>Dataware Housing &amp; Data Mining</b>
CS-39 (c)	Statistical Modeling and Queuing Theory	CS-40 (c)	<b>AI &amp; Machine Learning</b>
CS-39 (d)	Robotic Process Automation Design & Development		

### List of Open Elective Courses

Course Code	Course Name	Course Code	Course Name
OE-CSE-01 / BCSE-510	Database Management Systems	OE-CE-11	General Principles of Building Construction
OE-CSE-02 / BCSE-503	Data Structure & Algorithm	OE-CE-12	Planning for sustainable development
OE-CSE-03 / CS- 32 (c)	Python Programming	OE-ECE-13 / EC-11	Principles of Communication
OE-CSE-04 / BCSE-509	Object Oriented Programming in JAVA	OE-ECE-14 / EC-10	Digital Electronics
OE-ME-05	Project & Production Management	OE-ECE-15 / EC-47	Internet of Things
OE-ME-06	Quality Assurance & Reliability	OE-ECE-16 / EC-38	Embedded System
<b>OE-ME-07</b>	<b>Entrepreneurship &amp; Family Business (Open Elective-II)</b>	OE-EE-17 / EE-04	Analog Electronics
OE-ME-08	Supply Chain Management	OE-EE-18 / EE-05	Network Analysis & Synthesis
<b>OE-CE-09</b>	<b>Disaster Management (Open Elective- I)</b>	OE-EE-19 / EE-18	Control Systems
OE-CE-10	Project Management	OE-EE-20 / EE-12	Measurements & Instrumentation

  
Dept. of Computer Engg.  
N.M. Engineering College  
Mullana (Ambala)-133203 Haryana

## Choice-Based Credit System Based Proposed Scheme for **MMIM's B.Com Program**

**Program Duration:** 3 Years comprising of 6 semesters

Degree to be awarded at 160 credits with 119 credits for the core and foundation courses which are mandatory and the remaining can be gained by the rest of the courses.

There will be no cap on the upper limit of the credits earned by the student, so one can earn a minimum of 160 and a maximum of 217 credits to earn an B.Com degree under CBCS.

### Semester-I

Course Code	Course Title	Course Type	Credits
BCGM-01	Environmental Studies	Core (Swayam)	2
BCFI-01	Financial Accounting	Core	5
BCGM-02	Business Organisation and Management	Core	5
BCGM-03	Principles of Micro Economics	Foundation	5
BCMS-01	Business Mathematics	Core	5
BCGM-04	Communication Skills-I	Foundation	5
BCHR-01	Organization Behaviour	Core	5
			Total Credits 32

### Semester-II

Course Code	Course Title	Course Type	Credits
BCGM-05	Communication Skills- II ✓	Foundation	5
BCLA-01	Business Law ✓	Core	5
BCMS-02	Business Statistics ✓	Foundation	5
BCGM-06	Research Methodology ✓	Core	5
BCGM-07	Indian Economy ✓	Interdisciplinary	5
BCGM-08	Environmental Science -II	Swayam (Core)	2
BCSS-01	Business Process ✓	Core	5

12/3/17

			Total Credits 32
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### Semester-III

Course Code	Course Title	Course Type	Credits
BCLA-02	Company Law	Core	5
BCFI-02	Income Tax Law and Practice	Core	5
BCFI-01	New Subject <u>HRM</u>	Core	5
BCIT-01	Computer Applications in Business	Foundation	5
BCMM-01	Personal Selling and Salesmanship	Specialization	5
BCPP-01	Project-I	Core	5
			Total Credits 30

### Semester-IV

Course Code	Course Title	Course Type	Credits
BCGM-09	Business Communication III	Core	5
a) BCFI-03 b) BCFI-04 c) BCGM-10 d) BCIT-02	<b>Any one of the following</b> a. Corporate Tax Planning b. Banking and Insurance c. <u>Management Accounting</u> d. Computerised Accounting System	Specialization	5
a) BCIB-01 b) BCGM-11 c) BCFI-05 d) BCLA-03	<b>Any one of the following</b> a. International Business b. Office Management and Secretarial Practice c. <u>Fundamentals of Investment</u> d. Consumer Protection	Specialization	5
BCFI-06	Corporate Accounting	Core	5
BCFI-07	Cost Accounting	Core	5
BCPP-02	Project-II	Core	5

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			Total Credits 30
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### Semester-V

Course Code	Course Title	Course Type	Credits
a) BCHR-02 b) BCMM-02 c) BCGM-12	<b>Any one the following</b> a. Human Resource Management b. Principles of Marketing c. Auditing and Corporate Governance	Specialization	5
a) BCFI-08 b) BCFI-09	<b>Any one of the following</b> a. Fundamentals of Financial Management b. Indirect Tax Law	Specialization	5
BCGM-13	Entrepreneurship	Specialization	5
BCIT-03	E-Commerce	Foundation	5
BCPP-03	Project -III	Core	5
BCSI-01	Internship	Core	5
			Total Credits 30

### Semester-VI

Course Code	Course Title	Course Type	Credits
BCGM-14	Principles of Macro Economics	Specialization	5
BCLA-04	Business Regulatory Framework in India	Interdisciplinary	5
BCFI-10	Banking Laws & Practice	Specialization	5
BCGM-15	Corporate Social Responsibility & Business Ethics	Interdisciplinary	5
BCDD-01	Dissertation	Interdisciplinary	10
			Total Credits 30

14/9/17  
 11/9/17  
 14/09/2017  
 11/9/17  
 11/9/17

in the sixth semester, the student can choose Industry attachment program duly approved by the university with the same credits that is of regular sixth semester. The details of the same are as follows:

### Industry Attachment/Industry Capstone Project

A full-fledged industry attachment is the defining feature of Industry Capstone Project (ICP) to be carried by students in their final semester. ICP thus provides students an opportunity to apply their knowledge and skills to solve real-world industry/corporate problems. A student shall be formally attached to relevant industrial/corporate organisation for their VI semester during which they shall be exposed to 360° industry experience.

### Basket of Courses Available

(These courses are available beyond normal working hours.)

#### Enrichment Courses

#### Paid basket of Courses

Sr. No.	Course Code	Course Name	Course Type	Credits
1	EC-01	Culinary Skills*	Inter-disciplinary	3
2	EC-02	T-Series-1**	Inter-disciplinary	3
3	EC-03	T-Series-2**	Inter-disciplinary	3
4	EC-04	T-Series-3**	Inter-disciplinary	3

On the payment of INR 8000/- or as prescribed from time to time.

\*\*On the payment of INR on payment of INR 8850/- or as prescribed from time to time.

T-Series-1 - Vocals
T-Series-2 - Singing
T-Series-3 - Performing arts

#### Free basket of Courses

#### MMU SAP Program Kit for Students

Value-Added Courses (200 Hrs of Self Learning Program ;  
Total Credits 12)

Sr. No.	Course Code	Course Name	Course Type	Credits
1	MBSS-02	SAP Functions	Foundation	12

MBSS-02  
14/7/17

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## Choice Based Functional Papers of SAP

- 1) Material Management
- 2) Sales & Distribution
- 3) HR
- 4) Finance

Out of these four functional papers, a student can choose any one functional paper, which is to be completed in 4 modules and the student earn 12 credits on completion of the course. Total learning hours = 200.

### Swayam Courses

A student shall earn a maximum of 9 credits from this basket of courses.

UGC Credit Framework for Online Learning Courses through SWAYAM, Regulation, 2016.

Sr. No.	Course Code	Course Name	Credits
1	SW-01	Cognitive Science	TBA
2	SW-02	Quantitative Finance	TBA
3	SW-03	Technology Transfer through Joint Venture	TBA
4	SW-04	Legal Compliance for Incorporating Startup	TBA
5	SW-05	Public Finance and Policy in India	TBA
6	SW-06	Money and Banking	TBA
7	SW-07	International Economics	TBA
8	SW-08	Environmental Economics	TBA
9	SW-09	Educational Leadership	TBA
10	SW-10	Six Sigma	TBA
11	SW-11	Introduction to data Analytics	TBA
12	SW-12	Social Networks	TBA
13	SW-13	Introduction to R Software	TBA
14	SW-14	Experimental Stress Analysis	TBA
15	SW-15	Database Management System	TBA
16	SW-16	Probability and Stochastic of Finance	TBA
17	SW-17	Practical Englis: Learning & Teaching	TBA
18	SW-18	Probability and Statistics	TBA
19	SW-19	Emotional Intelligence	TBA
20	SW-20	Innovation and IT Management	TBA
21	SW-21	Statistics for Business	TBA

14/9/17

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15/11/17

### Credits Summary Sheet

Type of Course	No. Of Papers	Credits Earned
Foundation	6	30*
Core	18	89*
Specialization	8	40
Interdisciplinary	4	25
<b>Free / Paid Basket of Courses</b>		
Cullinary/T-Series	4	12
SAP	1	12
Swayam		9
	<b>Total Credits</b>	<b>217</b>

\* Mandatory Credits

*Manjula*  
14-9-17

*ATK*  
*1/9/12*  
*Keke*

*Ad*

*14-25-2017*


*11/11*

**B.Sc Optometry****First Semester**

Subject code	Core Subjects	Credits/Week			Hours/semester			IA <sup>*</sup>	UE <sup>**</sup>	Practical/Viva Voce	Total (IA+UE)
		L	P	C	L	T/P	Total				
BOPT-01 T	General Anatomy	2	-	2	30	-	30	10	60	-	70
BOPT-01 P	General Anatomy	-	1	1	-	30	30	10	-	20	30
BOPT-02 T	General Physiology	2	-	2	30	-	30	10	60	-	70
BOPT-02 P	General Physiology	-	1	1	-	30	30	10	-	20	30
BOPT-03 T	General Biochemistry	2	-	2	30	-	30	10	60	-	70
BOPT-03 P	General Biochemistry	-	1	1	-	30	30	10	-	20	30
BOPT-04 T	Geometrical Optics-I	3	-	3	45	-	45	10	60	-	70
BOPT-04 P	Geometrical Optics-I	-	1	1	-	30	30	10	-	20	30
<b>Ability Enhancement Elective Course</b>											
AEC-01T	English & Communication Skills	2	-	2	30	-	30	100	-	-	100
AEC-02T	Environment Sciences										
<b>TOTAL</b>		<b>11</b>	<b>4</b>	<b>15</b>	<b>165</b>	<b>120</b>	<b>285</b>	<b>180</b>	<b>240</b>	<b>80</b>	<b>500</b>

\*IA – Internal Assessment Examinations (Theory)

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## Second Semester

Subject code	Core Subjects	Credits /weeks			Hours per semester			IA*	UE**	Practical/ Viva Voce	Total I (IA+UE)
		L	P	C	L	T/P	Total				
BOPT-05T	Ocular Anatomy	3	-	3	45	-	45	10	60	-	70
BOPT-05P	Ocular Anatomy	-	1	1	-	30	30	10	-	20	30
BOPT-06T	Ocular Physiology	3	-	3	45	-	45	10	60	-	70
BOPT-06P	Ocular Physiology	-	1	1	-	30	30	10	-	20	30
BOPT-07T	Ocular Biochemistry	3	-	3	45	-	45	10	60	-	70
BOPT-07P	Ocular Biochemistry	-	1	1	-	30	30	10	-	20	30
BOPT-08T	Physical Optics	3	-	3	45	-	45	10	60	-	70
BOPT-08P	Physical Optics	-	1	1	-	30	30	10	-	20	30
BOPT-09T	Geometrical Optics-II	3	-	3	45	-	45	10	60	-	70
BOPT-09P	Geometrical Optics-II	-	1	1	-	30	30	10	-	20	30
BOPT-010P	Clinical Optometry-I	-	1	1	-	30	30	20	0	80	100
<b>Skill Enhancement Elective Course</b>											
SEC-01T	Medical Bioethics & IPR	3	-	3	45	-	45	100	-	-	100
SEC-02T	Human rights & Professional Values	3	-	3	45	-	45	100	-	-	100
<b>TOTAL</b>		<b>18</b>	<b>6</b>	<b>24</b>	<b>270</b>	<b>180</b>	<b>450</b>	<b>220</b>	<b>300</b>	<b>180</b>	<b>700</b>

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**Third Semester**

Subject code	Core subjects	Credits /weeks			Hours per semester			IA*	UE**	Practical/Viva Voce	Total (IA+ UE)
		L	P	C	L	T/P	Total				
BOPT-11 T	Ocular Microbiology	1		1	15		15	10	60	-	70
BOPT-11 P	Ocular Microbiology		1	1		30	30	10	-	20	30
BOPT-12 T	Visual optics -I	1		1	15		15	10	60	-	70
BOPT-12 P	Visual optics -I		1	1		30	30	10	-	20	30
BOPT-13 T	Optometric optics-I	3		3	45		45	10	60	-	70
BOPT-13 P	Optometric optics-I		1	1		30	30	10	-	20	30
BOPT-14 T	Optometric Instruments	2		2	30		30	10	60	-	70
BOPT-14 P	Optometric Instruments		1	1		30	30	10	-	20	30
BOPT-15 T	Ocular Disease -I	3		3	45		45	10	60	-	70
BOPT-15 P	Ocular Disease -I		1	1		30	30	10	-	20	30
BOPT-16 T	Clinical examination of visual system	2		2	30		30	10	60	-	70
BOPT-16 P	Clinical examination of visual system		1	1		30	30	10	-	20	30
BOPT-17 P	Clinical Optometry-II	2	2		60		60	20	-	80	100
<b>Generic Elective Course</b>											
GEC-01 T	Pursuit of Inner Self Excellence (POIS)	3		3	45		45	100			100
GEC-02 T	Organizational behaviour										
<b>TOTAL</b>		<b>15</b>	<b>8</b>	<b>2</b>	<b>225</b>	<b>240</b>	<b>465</b>	<b>240</b>	<b>420</b>	<b>140</b>	<b>800</b>

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#### Fourth Semester

Subject code	Core Subjects	Credits /weeks			Hours per Semester			IA*	UE**	Practical Viva Voce	Total (IA+ UE)
		L	P	C	L	T/P	Total				
BOPT-18 T	Optometric optics – II & Dispensing Optics	3		3	45		45	10	60	-	70
BOPT-18 P	Optometric optics – II & Dispensing Optics		1	1		30	30	10	-	20	30
BOPT-19 T	Visual Optics- II	3		3	45		45	10	60	-	70
BOPT-19 P	Visual Optics- II		1	1		30	30	10	-	20	30
BOPT-20 T	Ocular Disease –II and glaucoma	3		3	45		45	10	60	-	70
BOPT-20 P	Ocular Disease –II and glaucoma		1	1		30	30	10	-	20	30
BOPT-21 T	Basic and Ocular Pharmacology & Pathology	3		3	45		45	10	60	-	70
BOPT-21 P	Basic and Ocular Pharmacology & Pathology		2	2		60	60	10	-	20	30
BOPT-22 P	Clinical optometry-III		2	2		60	60	20	-	80	100
<b>Ability Enhancement Elective Course</b>											
AEC-03T	Computer Applications &										
AEC-04T	Biostatistics research methodology	&3		3	45		45	100			100
<b>TOTAL</b>		<b>15</b>	<b>7</b>	<b>22</b>	<b>225</b>	<b>210</b>	<b>435</b>	<b>200</b>	<b>240</b>	<b>160</b>	<b>600</b>

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Fifth Semester

Subject code	Core Subjects	Credits /weeks			Hours per Semester			IA*	UE**	Practical/ Viva Voce	Total (IA+ UE)
		L	P	C	L	T/P	Total				
		BOPT-23T	Contact lens -I	3		3	45				
BOPT-23P	Contact lens -I		1	1		30	30	10		20	30
BOPT-24T	Low Vision care	3		3	45		45	10	60	-	70
BOPT-24P	Low Vision care		1	1		30	30	10		20	30
BOPT-25T	Geriatric Optometry & Pediatric Optometry	3		3	45		45	10	60	-	70
BOPT-25P	Geriatric Optometry & Pediatric Optometry		1	1		30	30	10		20	30
BOPT-26T	Binocular Vision-I	3		3	45		45	10	60	-	70
BOPT-26P	Binocular Vision-I		1	1		30	30	10		20	30
BOPT-27T	Systemic Disease	3		3	45		45	10	60	-	70
BOPT-27P	Systemic Disease		1	1		30	30	10		20	30
BOPT-28P	Clinical optometry-IV		2	2		60	60	20	-	80	100
<b>Core Elective Course</b>											
CEC-01T	Basics of Clinical Skill learning	3		3	45		45	100			100
CEC-02T	Hospital Operation Management										
<b>TOTAL</b>		<b>18</b>	<b>7</b>	<b>25</b>	<b>270</b>	<b>210</b>	<b>480</b>	<b>220</b>	<b>300</b>	<b>180</b>	<b>700</b>

\*IA - Internal Assessment Examinations (Theory)

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**& Research, Nalliana-Ambala**

**Sixth Semester**

Subject code	Core Subjects	Credits /weeks			Hours per semester			IA*	UE**	Practical/ Viva Voce	Total 1 (IA-UE)
		L	P	C	L	T/P	Total				
BOPT-29 T	Contact Lens-II	3		3	45		45	10	60	-	70
BOPT-29 P	Contact Lens-II		2	2		60	60	10		20	30
BOPT-30 T	Binocular Vision -II3			3	45		45	10	60	-	70
BOPT-30 P	Binocular Vision -II		2	2		60	60	10		20	30
BOPT-31 T	Public Health & Community Optometry	3		3	45		45	10	60	-	70
BOPT-31 P	Public Health & Community Optometry		1	1		30	30	10		20	30
BOPT-32 T	Occupational optometry	3		3	45		45	10	60	-	70
BOPT-32 P	Occupational optometry		1	1		30	30	10		20	30
BOPT-33 P	Clinical Optometry V		3	3		90	90	20		80	100
<b>TOTAL</b>		<b>12</b>	<b>9</b>	<b>21</b>	<b>180</b>	<b>270</b>	<b>450</b>	<b>100</b>	<b>240</b>	<b>160</b>	<b>500</b>

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**Seventh and Eighth Semester**

Subject code	Core Subjects	Credits /week	Hours per semester			Total
			L/T	Clinical posting	L/T	
Semester 7 (Internship)	B Optom Internship			360		720
Semester 8 (Internship)	B Optom Internship			360		720
<b>TOTAL</b>				<b>720</b>		<b>1440</b>

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 Medical Sciences



M.M. (Deemed to be University) MULLANA - AMBALA

Program: **B.Sc in Radiography & Imaging Technology**

(Techniques) Semester/Term: I

S.No	Subjects	Credits/week			Hours/Semester			Written paper	IA	Viva-voce	Core/Elective Pre-Requisite/ Co Requisite	Total
		L	P	C	L	T/P	Total					
<b>THEORY</b>												
RIT-01T	HUMAN ANATOMY WITH CLINICAL ANATOMY-I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RITT-02T	PHYSIOLOGY AND PATHOLOGY-I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RITT-03T	RADIATION PHYSICS-I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RITT-04T	RADIATION PROTECTION-I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
<b>PRACTICAL</b>												
RIT-01P	HUMAN ANATOMY WITH CLINICAL ANATOMY-I (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-02P	PHYSIOLOGY AND PATHOLOGY-I (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-03P	RADIATION PHYSICS-I (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-04P	RADIATION PROTECTION-I (LAB)	-	3	3	-	90	90	-	10	20	Core	30
<b>ABILITY ENHANCEMENT ELECTIVE COURSE</b>												

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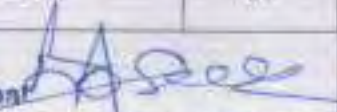
AEC-01T	English & Communication Skills	3		3	45	-	45		-	100		100
AEC-02T	Environmental Sciences											
	Total	15	12	27	225	360	585	240	120	260		620

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**M.M. (Deemed to be University) MULLANA - AMBALA**  
**Program: B.Sc in Radiography & Imaging Technology**

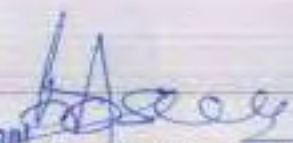
**SEMESTER/TERM: 2**

S.No	Subjects	Credits/week			Hours/Semester			Written paper	IA	Viva-voce	Core/Elective Pre-Requisite/Co Requisite	TOTAL
		L	P	C	L	T/P	Total					
<b>THEORY</b>												
RIT-05T	HUMAN ANATOMY WITH CLINICAL ANATOMY- II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-06T	PHYSIOLOGY AND PATHOLOGY - II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-07T	RADIATION PHYSICS - II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-08T	RADIATION PROTECTION - II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
<b>PRACTICAL</b>												
RIT-05P	HUMAN ANATOMY WITH CLINICAL ANATOMY -II (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-06P	PHYSIOLOGY AND PATHOLOGY - II (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-07P	RADIATION PHYSICS - II (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-08P	RADIATION PROTECTION - II (LAB)	-	3	3	-	90	90	-	10	20	Core	30

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## Skill Enhancement Elective Course

SEC-01 T	Medical Bioethics												100
SEC-02T	Human rights & Professional Values	3	-	3	45	-	45			100	-		
	Total	15	12	27	225	360	585	240	220	180			620

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M.M. (Deemed to be University) MULLANA - AMBALA

Program: **B.Sc in Radiography & Imaging Technology**

(Techniques) Semester/Term.: 3

S.No	Subjects	Credits/week			Hours/Semester			Written paper	LA	Viva-voce	Core/Elective Pre-Requisite/Co Requisite	T O T A L
		L	P	C	L	T/P	Total					
<b>THEORY</b>												
RIT-09T	CLINICAL RADIOGRAPHY- I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-10T	X-RAY FILM / IMAGEPROCESSING TECHNIQUES- I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-11T	CONTRAST SPECIAL RADIOGRAPHY-I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-12T	ULTRASOUND	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
<b>PRACTICAL</b>												
RIT-09P	CLINICAL RADIOGRAPHY - I(LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-10P	X-RAY FILM / IMAGEPROCESSING TECHNIQUES- I (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-11P	CONTRAST SPECIAL RADIOGRAPHY -I (LAB)	-	3	3	-	90	90	-	10	20	Core	30

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Generic Elective Course											
GEC-01 T	Pursuit of Inner Self Excellence (POIS)	1		1	45	-	45		100		100
GEC-02 T	Organizational behaviour										
Total		15	9	24	225	270	495	240	210	140	590

  
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M.M. (Deemed to be University) MULLANA - AMBALA  
 Program: **B.Sc in Radiography & Imaging Technology (Techniques)**

Semester/Term.: 4

S.No	S Subjects	Credits/week			Hours/Semester			Written paper	LA	Viva-voce	Core/Elective Pre-Requisite/ Co Requisite	TOTAL
		L	P	C	L	T/P	Total					
RIT-13T	CLINICAL RADIOGRAPHY- II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-14T	X-RAY FILM IMAGEPROCESSING TECHNIQUES – II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-15T	CONTRAST SPECIAL RADIOGRAPHY –II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-16T	DOPPLER ULTRASOUND AND MAMMOGRAPHY	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
<b>PRACTICAL</b>												
RIT-13P	CLINICAL RADIOGRAPHY – II (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-14P	X-RAY FILM IMAGEPROCESSING TECHNIQUES - II (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-15P	CONTRAST SPECIAL RADIOGRAPHY and	-	3	3	-	90	90	-	10	20	Core	30

MAMMOGRAPHY-II (LAB)

Ability Enhancement Elective Course

AEC-03T	Computer & Applications	3	-	3	45	-	45		100	-		100
AEC-04T	Biostatistics & research methodology											
Total		15	9	24	225	270	495	240	210	140		590

  
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M.M. (Deemed to be University) MULLANA - AMBALA

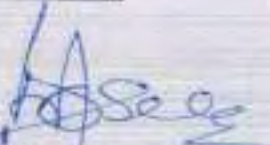
Program: **B.Sc in Radiography & Imaging Technology**

(Techniques) Semester/Term.: 5

S.No	Subjects	Credits/week			Hours/Semester			Written paper	LA	Viva-voce	Core/Elective Pre-Requisite/ Co Requisite	TOTAL
		L	P	C	L	T/P	Total					
<b>THEORY</b>												
RIT-17T	COMPUTED TOMOGRAPHY-BASIC PHYSICS	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-18T	MAGNETIC RESONANCE IMAGING- BASIC PHYSICS	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-19T	ANGIOGRAPHY & INTERVENTIONAL RADIOLOGY -I	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-20	NUCLEAR MEDICINE-- BASIC PHYSICS	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
<b>PRACTICAL</b>												
RIT-17P	COMPUTED TOMOGRAPHY - I (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-18P	MAGNETIC	-	3	3	-	90	90	-	10	20	Core	30

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	RESONANCE IMAGING - I (LAB)												
RIT-19P	ANGIOGRAPHY & INTERVENTIONAL RADIOLOGY - I (LAB)	-	3	3	-	90	90	-	10	20	Cor		30
<b>Core Elective Course</b>													
CEC-01T	Basics of Clinical Skill learning												
CEC-02T	Hospital Operation Management	3	-	3	45	-	45		100	-			100
Total		15	9	24	225	270	595	240	210	140			590

  
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**M.M. (Deemed to be University) MULLANA - AMBALA**  
**Program: B.Sc. in Radiography & Imaging Technology**  
**(Techniques) Semester/Term.: 6**

S.No	Subjects	Credits/week			Hours/Semester			Written paper	LA	Viva-voce	Core/Elective Pre-Requisite/Co Requisite	TOTAL
		L	P	C	L	T/P	Total					
<b>THEORY</b>												
RIT-20T	COMPUTED TOMOGRAPHY - TECHNIQUES	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-21T	MAGNETIC RESONANCE IMAGING - TECHNIQUES	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-22T	ANGIOGRAPHY & INTERVENTIONAL RADIOLOGY -II	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
RIT-23T	NUCLEAR MEDICINE-TECHNIQUES	3	-	3	45	-	45	Part A-30 Part B-30	20	20	Core	100
<b>PRACTICAL</b>												
RIT-20P	COMPUTED TOMOGRAPHY - II (LAB)	-	3	3	-	90	90	-	10	20	Core	30
RIT-21P	MAGNETIC RESONANCE	-	3	3	-	90	90	-	10	20	Core	30

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& Research, Mullana-Ambala

	IMAGING - II (LAB)												
RIT-22P	ANGIOGRAPHY & INTERVENTIONAL RADIOLOGY -II (LAB)	-	3	3	-	90	90	-	10	20	Core	30	
Total		12	9	21	225	270	495	240	110	140		490	

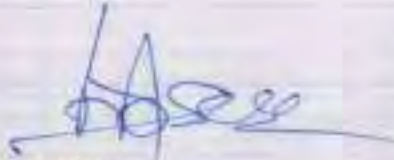
## Grading:

The total of the internal evaluation marks and final University examination marks in each course will be converted to a letter grade on to confirm as per the following scheme as recommended by UGC:

Letter Grade	Grade Points	Mark Range
O(Outstanding)	10	91 – 100
A+(Excellent)	9	81 – 90
A(Very good)	8	71 – 80
B+(Good)	7	61 – 70
B(Above average)	6	56 – 60
C(Average)	5	50 – 55
F(Fail)/RA (Reappear)	0	< 50 Failure due to insufficient marks in the course
Ab (Absent)	0	Failure due to non-appearance in examination

A student obtaining Grade F/RA shall be considered failed and will be required to reappear in the examination.

## Cumulative Grades and GradePoints

  
**Principal**  
 M.M Institute of Medical Sciences  
 & Research, Mulana-Ambala

M.M. (Deemed to be University) MULLANA - AMBALA  
 Program: **B.Sc. (DTT) Dialysis Therapy Technology Course**

Semester / Term: I


S.No	Subjects	Credit/week			Hrs/semesters				marks			
		Theory	practical	Total	Theory	practical	Lab posting	Total	Viva-voce	LA	Semester exam	TOTAL
<b>THEORY</b>												
DTT-01T	HUMAN ANATOMY-I	3		3	50	-	-	50	20	20	Part A - 30 Part B - 30	100
DTT-02T	HUMAN PHYSIOLOGY-I	3		3	50	-	-	50	20	20	Part A - 30 Part B - 30	100
DTT-03T	BIOCHEMISTRY	4		4	50	-	-	50	20	20	Part A - 30 Part B - 30	100
<b>PRACTICAL</b>												
DTT-01P	HUMAN ANATOMY-I (LAB)		4	4	-75	75		150		20	80	100
DTT-02P	HUMAN PHYSIOLOGY-I (LAB)		4	4	-75	75		150		20	80	100
DTT-03P	BIOCHEMISTRY(LAB)		4	4	-75	75		150		20	80	100
<b>ABILITY ENHANCEMENT ELECTIVE COURSE</b>												
AEC-01L	Environmental studies	3	-	3	80	-	-	80	-	40 (of Theory & Practical)	60	100
AEC-02 L	Data entry/ processing				10	10	-	20	-	-	-	-

  
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M.M. (Deemed to be University) MULLANA – AMBALA  
 Program: **B.Sc. (DTT) Dialysis Therapy Technology Course**

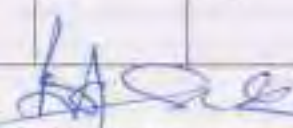
Semester/Term: II

S.No	Subjects	Credit/week			Hrs/semesters				marks			
		Theory	practical	Total	Theory	practical	Lab posting	Total	Viva-voce	IA	Semester exam	TOTAL
<b>THEORY</b>												
DTT-04T	HUMAN ANATOMY-II	2	-	2	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT -05T	HUMAN PHYSIOLOGY-II	2	-	2	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT-06T	PATHOLOGY	4	-	4	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT-07T	MICROBIOLOGY	3	-	3	50	-	-	50	20	20	Part A – 30 Part B – 30	100
<b>PRACTICAL</b>												
DTT -04P	HUMAN ANATOMY-II (LAB)	-	4	4	-	75	75	150	-	20	80	100
DTT -05P	HUMAN PHYSIOLOGY-II (LAB)	-	2	2	-	75	75	150	-	20	80	100
DTT-06P	PATHOLOGY (LAB)	-	4	4	-	75	75	150	-	20	80	100
DTT -07P	MICROBIOLOGY (LAB)	-	4	4	-	75	75	150	-	20	80	100
<b>SKILL ENHANCEMENT ELECTICECOURSE</b>												
SEC-01 L	Instrument maintenance	3	-	3	10	10	-	20	-	-	-	-
SEC-02 L	Chemical Hazards				10	10	-	20				

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M.M. (Deemed to be University) MULLANA – AMBALA  
 Program: **B.Sc. (DTT) Dialysis Therapy Technology Course**

S.No	Subjects	Credit/week			Hrs/semesters				marks				
		Theor y	practi cal	Lab postin g	Total	Theo ry	practical	Lab posting	Total	Viva- voce	I.A	Semester exam	TOTAL
<b>THEORY</b>													
DTT-01T	Applied Pathology & Microbiology related to Dialysis Therapy Technology-I	3	-	-	3	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT -02T	General Pharmacology-I	3	-	-	3	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT-03T	Pharmacology related to dialysis technology-I	3	-	-	3	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT-04T	Concept of renal Disease, dialysis & nutrition-I	3	-	-	3	60	-	-	60	20	20	Part A – 30 Part B – 30	100
<b>PRACTICAL</b>													
DTT -01P	Applied Pathology & Microbiology related to Dialysis Therapy Technology-I	-	4	-	4	-	100	100	200	-	20	80	100
DTT -02P	General Pharmacology-I	-	4	-	4	-	100	100	200	-	20	80	100
DTT-03P	Pharmacology related to dialysis technology-I	-	4	-	4	-	80	100	180	-	20	80	100
DTT -04P	Concept of renal Disease, dialysis & nutrition-I	-	4	-	4	-	-	90	90	-	20	80	100
DTT -05P	B.Sc. DTT Directed Clinical Education – Part-I (Practical)	-	-	24	8	-	-	150	150	-	20	80	100

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M.M. (Deemed to be University) MULLANA – AMBALA

Program **B.Sc. (DTT) Dialysis Therapy Technology Course**

Syllabus for Part - II

S.No	Subjects	Credit/week				Hrs/semesters				marks			
		Theory	practical	Lab posting	Total	Theory	practical	Lab posting	Total	Viva-voce	LA	Semester exam	TOTAL
<b>THEORY</b>													
DTT-01T	Applied Pathology & Microbiology related to Dialysis Therapy Technology-II	3	-	-	3	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT -02T	General Pharmacology-II	3	-	-	3	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT-03T	Pharmacology related to dialysis technology-II	3	-	-	3	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT-04T	Concept of renal Disease, dialysis & nutrition-II	3	-	-	3	60	-	-	60	20	20	Part A – 30 Part B – 30	100
<b>PRACTICAL</b>													
DTT -01P	Applied Pathology & Microbiology related to Dialysis Therapy Technology-II	-	4	-	4	-	100	100	200	-	20	80	100
DTT -02P	General Pharmacology-II	-	4	-	4	-	100	100	200	-	20	80	100
DTT-03P	Pharmacology related to dialysis technology-II	-	4	-	4	-	80	100	180	-	20	80	100
DTT -04P	Concept of renal Disease, dialysis & nutrition-II	-	4	-	4	-	-	90	90	-	20	80	100
DTT -05P	B.Sc. DTT Directed Clinical Education – Part-II (Practical)	-	-	30	10	-	-	150	150	-	20	80	100



M.M. (Deemed to be University) MULLANA – AMBALA

Program: **B.Sc. (DTT) Dialysis Therapy Technology Course**

Semester - I

S.No	Subjects	Credit/week			Hrs/semesters				marks				
		Theory	practical	Lab posting	Total	Theory	practical	Lab posting	Total	Viva-voce	LA	Semester exam	TOTAL
<b>THEORY</b>													
DTT-01T	Applied Dialysis Therapy Technology-Part-I	4	-	-	4	50	-	-	50	20	20	Part A – 30 Part B – 30	100
DTT -02T	Applied Dialysis Therapy Technology-Part-II	4	-	-	4	50	-	-	50	20	20	Part A – 30 Part B – 30	100
<b>PRACTICAL</b>													
DTT -01P	Applied Dialysis Therapy Technology-Part-I	-	4	-	4	-	100	100	200	-	20	80	100
DTT -02P	Applied Dialysis Therapy Technology-Part-II	-	4	-	4	-	100	100	200	-	20	80	100
DTT-03P	B.Sc. DTT Directed Clinical Education – Part-III (Practical)	-	-	24	8	-	-	100	100	-	20	80	100

  
**Principal**  
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 & Research, Mullana-Ambala

M.M. (Deemed to be University) MULLANA – AMBALA  
 Program: **B.Sc. (DTT) Dialysis Therapy Technology Course**

Semester/Term: VI

S.No	Subjects	Credit/week			Hrs/semesters				Marks				
		Theory	practical	Lab posting	Total	Theory	practical	Lab posting	Total	Viva-voce	LA	Semester exam	TOTAL
<b>THEORY</b>													
DTT-01T	Applied Dialysis Therapy Technology-Part-III	4	-	-	4	50	-	-	50	20	20	Part A – 30 Part B – 30	100
<b>PRACTICAL</b>													
DTT -01P	Applied Dialysis Therapy Technology-Part- III	-	4	-	4	-	100	100	200	-	20	80	100
DTT -02P	B.Sc. DTT Directed Clinical Education – Part-IV (Practical)	-	4	-	4	-	100	100	200	-	20	80	100
DTT-03P	B.Sc. DTT Directed Clinical Education – Part-V (Practical)	-	-	30	10	-	100	100	200	-	20	80	100

  
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 M.M. Institute of Medical Sciences  
 No. 10/19, Mullana-Ambala

**M.M. (Deemed to be University) MULLANA – AMBALA**  
**Program: B.Sc. (DTT) Dialysis Therapy Technology Course**  
**Semester/Term.: VII & VIII**

**OUTLINE OF COURSE CURRICULUM**  
**B.Sc. Medical Dialysis Technology**

**Semester VII & Semester VIII**

Code No.	Course Subjects	Credits/Week				Hrs/Semester					Marks		
		Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posting/Rotation	Total Credits (C)	Lecture (L)	Tutorial (T)	Practical (P)	Clinical Posting/Rotation	Test hrs.	Internal Assessment	University Exam
	Sem VII (Internship)				120	14				120	720		
	Sem VIII (Internship)				120	14				120	720		
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>240</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>240</b>	<b>1440</b>	<b>0</b>	<b>0</b>

**Grading:**

The total of the internal evaluation marks and final University examination marks in each course will be converted to a letter grade on to confirm as per the following scheme as recommended by UGC:

Letter Grade	Grade Points	Mark Range
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A student obtaining Grade F/RA shall be considered failed and will be required to reappear in the examination.

Principal  
M.A. Institute of Medical Sciences  
& Research, Mullana-Ambala

## Semester III [Second year]

## Branch/Course: Electrical Engineering

Sr. No.	Category	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credit
				Lecture	Tutorial	Practical		
1	Program Core Course	BELE-502	Analog Electronics Circuits	3	0	0	3	3
2	Program Core Course	BELE-503	Electrical Circuit Analysis	3	1	0	4	4
3	Program Core Course	BELE-504	Electrical Machines- I	3	0	0	3	3
4	Basic Science Course (General)	BMAT-003	Mathematics - III (Probability and Statistics)	3	1	0	4	4
5	Mandatory Course	<del>MMAN-001</del> BMAT-004	Indian Constitution	2	-	-	2	-
6	Program Core Course	BELE-505	Analog Electronics Circuits Lab	0	0	2	2	1
7	Program Core Course	BELE-506	Electrical Machines Lab - I	0	0	2	2	1
8	Program Core Course	BELE-507	Virtual Instrumentation Lab	0	0	2	2	1
9	ESC	BELE-508	MATLab Programming Lab	0	0	4	4	2
				14	02	10	26	19

One Swayam Course: 3 Credits

(Credits will be added in the final semester marksheet)







Professor R. H. Singh  
Department of Law  
M. M. Engineering College  
Mullana (Ambala) 131203

Semester IV (Second year)  
Branch/Course: Electrical Engineering

Sr. No.	Category	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credits
				Lecture	Tutorial	Practical		
1	Program Core Course	BELE-509	Digital Electronics	3	1	0	4	4
2	Program Core Course	BELE-510	Signals and Systems	3	1	0	4	4
3	Program Core Course	BELE-511	Electrical Machines - II	3	0	0	3	3
	Program Core Course	BELE-512	Power Electronics	3	0	0	3	3
5	Mandatory Course	MAN-002 B2-UM-117	Essence of Indian Traditional Knowledge	2	0	0	2	0
6	Program Core Course	BELE-513	Digital Electronics Lab	0	0	2	2	1
7	Program Core Course	BELE-514	Electrical Machines Lab - II	0	0	2	2	1
9	Program Core Course	BELE-515	Power Electronics Lab	0	0	2	2	1
10	Program Core Course	BELE-516	Project-I	0	0	4	4	2
				14	01	10	25	19

One Swayam Course: 3 Credits

(Credits will be added in the final semester marksheet)


  
 Professor & Head  
 Department of Electrical Engg  
 M. M. Engineering College  
 Mullana (Ambala) 133201

Semester V [Third year]  
Branch/Course: Electrical Engineering

Sl. No.	Category	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credits
				Lecture	Tutorial	Practical		
1	Program Core Course	BELE-517	Electromagnetic Field Theory	3	1	0	4	4
2	Program Core Course	BELE-518	Microprocessors and Microcontrollers	3	0	0	3	3
3	Program Core Course	BELE-519	Power Systems – I (Apparatus and Modelling)	3	0	0	3	3
	Specialization		Program Elective - 1	3	1	0	4	4
5	Interdisciplinary		OE-1	3	1	0	4	4
6		BHUM-004	Economics for Engineers	3	0	0	3	3
7	Program Core Course	BELE-523	Microprocessors and Microcontrollers Lab	0	0	2	2	1
8	Program Core Course	BELE-524	Power Systems Lab	0	0	2	2	1
9		BELE-525	Project-II	0	0	4	4	2
				18	03	08	29	25

One Swayam Course: 3 Credits

(Credits will be added in the final semester marksheet)

## Program Elective-1

1. BELE-520 Line Commutated and Active rectifiers
2. BELE-521 Electrical Energy Conservation & Auditing
3. BELE-522 Digital Signal Processing

## Open Elective-I

1. BCSE-503 Data Structure & Algorithm
2. BCSE-511 Computer Organization and Architecture
3. BECE-504 Analog and Digital Communication

*[Handwritten signatures]*

Professor & Head  
Department of Electrical Engg.  
M. M. Engineering College  
Mullana (Ambala) 131201

Semester VI [Third year]  
Branch/Course: Electrical Engineering

Sl. No	Category	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credits
				Lecture	Tutorial	Practical		
1	Program Core Course	BELE-526	Control Systems	3	1	0	4	4
2	Program Core Course	BELE-527	Power Systems - II (Operation and Control)	3	0	0	3	3
3	Specialization		Program Elective - 2	3	1	0	4	4
4	Specialization		Program Elective - 3	3	1	0	4	4
5	Interdisciplinary		OE-2	3	1	0	4	4
6		BHUM-005	Principle of Management	3	0	0	3	3
7	Program Core Course	BELE-534	Control Systems Lab	0	0	2	2	1
8	Program Core Course	BELE-535	Measurements and Instrumentation Lab	0	0	2	2	1
9		BELE-536	Project-III	0	0	4	4	2
				18	04	08	30	26

One Swayam Course: 3 Credits

(Credits will be added in the final semester marksheet)

Program Elective - 2

1. BELE-528 Electrical Machine Design
2. BELE-529 Measurements and Instrumentation
3. BELE-530 Electrical and Hybrid Vehicles

Program Elective - 3

1. BELE-531 Power System protection
2. BELE-532 Computational Electromagnetics
3. BELE-533 Electric Drives

Open Elective- 2

1. BCSE-517 Computer Network
2. BCSE-524 Business Intelligence
3. Essentials of IT

*[Handwritten Signature]*

*[Handwritten Signature]*  
 Professor & Head  
 Department of Electrical Engg  
 M.M. Engineering College  
 Mullana (Ambala)-131203.

*[Handwritten Signature]*

Semester VII [Fourth year]  
Branch/Course: Electrical Engineering

Sl. No.	Category	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credits
				Lecture	Tutorial	Practical		
1	Specialization		Program Elective-4	3	0	0	3	3
2	Specialization		Program Elective-5	3	0	0	3	3
	Interdisciplinary		OE-3	3	0	0	3	3
	Interdisciplinary		OE-4	3	0	0	3	3
		BELE-543	Project -IV	0	0	8	8	4
4		BELE-544	Simulation Lab	0	0	4	4	2
				12	0	12	24	18

## One Swayam Course: 3 Credits

(Credits will be added in the final semester mark sheet)

## Program Elective - 4

1. BELE-537 Wind and Solar Energy Systems
2. BELE-538 Power System Dynamics and Control
3. BELE-539 Industrial Electrical Systems

## Program Elective - 5




4. BELE-540 HVDC Transmission Systems
5. BELE-541 Power Quality and FACTS
6. BELE-542 Control Systems Design

## Open Elective-3

4. BECE-535 Digital Image and Video Processing
5. BECE-536 Biomedical Electronics
6. BECE-545 Speech and Audio Processing

## Open Elective-4

1. BECE-531 Embedded System
2. BECE-538 Wireless Sensor networks
3. BECE-540 Antenna and Wave Propagation

  
  
  
 Professor & Head  
 Department of Electrical Engg.  
 M. M. Engineering College,  
 Mullana (Ambala) 133001



Semester VIII [Fourth year]  
Branch/Course: Electrical Engineering

Sl. No.	Course Code	Course Title	Hours Per Week			Total Contact Hours	Credits
			Lecture	Tutorial	Practical		
1	BELE-545	Internship	0	0	08	08 weeks	08

OR (Two subjects)

Sl. No	Course Code	Category	Course Title	Hours Per Week			Total Contact Hours	Credits
				Lecture	Tutorial	Practical		
1	Specialization	BELE-546	Internet of Things (IOT)	3	1	0	4	4
2	Specialization	BELE-547	Installation, Testing, Commissioning and maintenance of Electrical equipments	3	1	0	4	4
3	Specialization	BELE-548	High Voltage Engineering	3	1	0	4	4
4	Specialization	BELE-549	Computer Methods in Power System	3	1	0	4	4
5	Specialization	BELE-550	System Engineering and Reliability	3	1	0	4	4
				15	05	0	20	20

TOTAL CREDITS

Sem	Credits
1 <sup>st</sup>	45
2 <sup>nd</sup>	
3 <sup>rd</sup>	19
4 <sup>th</sup>	19
5 <sup>th</sup>	25
6 <sup>th</sup>	26
7 <sup>th</sup>	18
8 <sup>th</sup>	08
Total Credits	160

TOTAL CREDITS (For Honors)

Sem	Credits
1 <sup>st</sup>	45
2 <sup>nd</sup>	
3 <sup>rd</sup>	19
4 <sup>th</sup>	19
5 <sup>th</sup>	25
6 <sup>th</sup>	26
7 <sup>th</sup>	18
8 <sup>th</sup>	08
Internship after 1 <sup>st</sup> , 4 <sup>th</sup> and 6 <sup>th</sup> sem / Swayam Courses/ 3 additional subjects in 8 <sup>th</sup> sem	20 (Minimum requirement)
Total Credits	180

*(Handwritten signatures and marks)*



B.Sc. Medical/Non-Medical/Chemistry Honours Scheme BOS 27<sup>th</sup> Aug. 2018.

FET Annexure 13.11.3 (page No. 37)

**Maharishi Markandeshwar (Deemed to be University)**

**Mullana-133207(Ambala), Haryana (India)**

(Established under Section 3 of the UGC Act, 1956 vide Notification No. F.9-65/2006-U3(A) dated 12-6-2007)

WEBSITE: [www.mmmullana.org](http://www.mmmullana.org)

**M. M. ENGINEERING COLLEGE, CHEMISTRY DEPARTMENT**

(An ISO 9001:2002 Certified Institute) E-Mail: [hod\\_chemistry@mimumullana.org](mailto:hod_chemistry@mimumullana.org), Tel. No.: 01731-304229

**Name of the Discipline: B.Sc. (Medical)-General (CBCS)  
(CHEMISTRY, BOTANY AND ZOOLOGY)-2017 onward**

Sem.	Core Course (Credit)(Hours)	Ability Enhancement Compulsory Course (AECC) (2)	Ability Enhancement Elective Course (AEEC) (2) (Skilled Based)	Elective Discipline Specific (DSE) (4)
I	Chemistry-I(4L+4P=8) (8hrs)	(English) Communication (2)(2 hrs)		
	Botany-I (4L+4P=8) (8hrs)			
	Zoology-I(6+2=8)(8hrs)			
	General= Total Credit =20,			
			Teaching hrs=26	
II	Chemistry-II (4L+4P=8) (8hrs)	EVS(2)(2hrs)		
	Botany-II(4L+4P=8) (8hrs)			
	Zoology-II(6+2=8)(8hrs)			
	General= Total Credit =20,			
			Teaching hrs=26	
III	Chemistry-III(4L+4P=8) (8hrs)		SEC- I (2)(2 hrs) (IT Skills for Chemists)	
	Botany-III(4L+4P=8) (8hrs)			
	Zoology-III(6+2=8)(8hrs)			
	General= Total Credit =20,			
			Teaching hrs=26	
IV	Chemistry-IV(4L+4P=8) (8hrs)		SEC-II(2)(2 hrs) (Chemistry)	
	Botany-IV(4L+4P=8) (8hrs)			
	Zoology-IV(6+2=8)(8hrs)			
	General= Total Credit =20,			
			Teaching hrs=26	
V			SEC-III(2)(2 hrs) (Botany)	DSE-1(4L+4P=8) (8hrs)(Chemistry-V) DSE-2(4L+4P=8) (8hrs) (Botany-V) DSE-3(4L+4P=8) (8hrs) (Zoology-V)
	General= Total Credit =20,			
			Teaching hrs=26	
VI			SEC-IV(2)(2 hrs) (Zoology)	DSE-4(4L+4P=8) (8hrs) (Chemistry-VI) DSE-5(4L+4P=8) (8hrs) (Botany-VI) DSE-6(4L+4P=8) (8hrs) (Zoology-VI)
	General= Total Credit =20,			
			Teaching hrs=26	

**Total Credits= 120**

Dr. R. V. Bawal

Dr. D. P. Singh

Mr. Keemat Jain

Dr. A. K. Gupta

Dr. P. Dogra

Dr. R. C. Saini

Dr. R. V. Bawal

Dr. V. Prakash

Dr. V. Prakash

Dr. I. Sharma

Dr. K. Sharma

Dr. P. Saini



BSc Medical/Non-Medical/Chemistry Honours Scheme BOS 27<sup>th</sup> Aug. 2018.  
 PET Annexure 13.11.3 (page No. 98)  
**Maharishi Markandeshwar (Deemed to be University)**  
**Mullana-133207 (Ambala), Haryana (India)**  
 (Established under Section 3 of the UCR Act, 1956 vide Notification No. F.9-65/2006-U.3 (A) dated 12-6-2007)  
 WEBSITE: [www.mmmullana.org](http://www.mmmullana.org)

**M. M. ENGINEERING COLLEGE, CHEMISTRY DEPARTMENT**  
 (An ISO 9001:2002 Certified Institute) E-Mail: [hod.chemistry@mmumullana.org](mailto:hod.chemistry@mmumullana.org), Tel. No.: 01731-304229


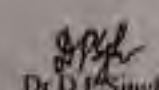
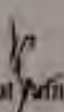

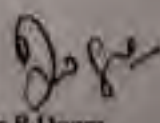


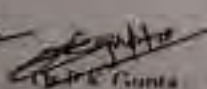
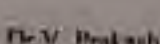
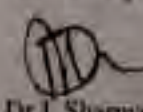
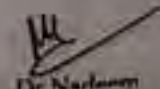

**SCHEME B.Sc. (Medical: July 2018 onwards)**  
**CHOICE BASED CREDIT SYSTEM**

**FIRST SEMESTER**

S.N o.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BC-111	Chemistry-I	4	-	-	4	100(60+40)
2	Core	BC-112	Chemistry Practical-I	-	4	-	2	50(20+30)
3	Core	BB-111	Botany-I	4	-	-	4	100(60+40)
4	Core	BB-112	Botany Practical-I	-	4	-	2	50(20+30)
5	Core	BZ-111	Zoology-I	4	-	-	4	100(60+40)
6	Core	BZ-112	Zoology Practical-I	-	4	-	2	50(20+30)
7	AECC	BE-111	English Communication	2	-	-	2	50(30+20)
		<b>Total</b>		<b>14</b>	<b>12</b>	<b>-</b>	<b>20</b>	<b>500</b>

**SECOND SEMESTER**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BC-121	Chemistry-II	4	-	-	4	100(60+40)
2	Core	BC-122	Chemistry Practical-II	-	4	-	2	50(20+30)
3	Core	BB-121	Botany-II	4	-	-	4	100(60+40)
4	Core	BB-122	Botany Practical-II	-	4	-	2	50(20+30)
5	Core	BZ-121	Zoology-II	4	-	-	4	100(60+40)
6	Core	BZ-122	Zoology Practical-II	-	4	-	2	50(20+30)
7	AECC	ES-101	Environmental Science	2	-	-	2	100(60+40)
		<b>Total</b>		<b>14</b>	<b>12</b>	<b>-</b>	<b>20</b>	<b>550</b>

 Dr. P. Khare    
  Dr. D.P. Singh    
  Mr. Keemat Parfi    
  Dr. S.K. Gupta    
  Dr. P. Dogra    
  Dr. R.C. Saini  
 Dr. H.K. Bawaal    
  Dr. K. Gupta    
  Dr. V. Prakash    
  Dr. J. Sharma    
  Dr. Narayan    
  Dr. P. Chahi



BSc Medical/Non-Medical/Chemistry Honours Scheme BOS 27<sup>th</sup> Aug. 2018.

FET Annexure 13.11.3 (page No. 99)

**Maharishi Markandeshwar (Deemed to be University)**

**Mullana-133207(Ambala), Haryana (India)**

It is established under Section 3 of the DGC Act, 1956 vide Notification No. F.9-65/2006-U-3 (A) dated 12-6-2007

WEBSITE: [www.mmmullana.org](http://www.mmmullana.org)

**M. M. ENGINEERING COLLEGE, CHEMISTRY DEPARTMENT**

(An ISO 9001-2002 Certified Institute) E-Mail: [hod.chemistry@mmumullana.org](mailto:hod.chemistry@mmumullana.org), Tel. No.: 01731-304229

**THIRD SEMESTER (2017-20 & 2018 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BC-231	Chemistry-III	4	-	-	4	100(60+40)
2	Core	BC-232	Chemistry Practical-III	-	4	-	2	50(20+30)
3	Core	BB-231	Botany-III	4	-	-	4	100(60+40)
4	Core	BB-232	Botany Practical-III	-	4	-	2	50(20+30)
5	Core	BZ-231	Zoology-III	4	-	-	4	100(60+40)
6	Core	BZ-232	Zoology Practical-III	-	4	-	2	50(20+30)
7	SEC	BIT-231	IT Skills for chemists	2	-	-	2	50(30+20)
<b>Total</b>				<b>14</b>	<b>12</b>	<b>-</b>	<b>20</b>	<b>500</b>

**FOURTH SEMESTER(2017-20 & 2018 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BC-241	Chemistry-IV	4	-	-	4	100(60+40)
2	Core	BC-242	Chemistry Practical-IV	-	4	-	2	50(20+30)
3	Core	BB-241	Botany-IV	4	-	-	4	100(60+40)
4	Core	BB-242	Botany Practical-IV	-	4	-	2	50(20+30)
5	Core	BZ-241	Zoology-IV	4	-	-	4	100(60+40)
6	Core	BZ-242	Zoology Practical-IV	-	4	-	2	50(20+30)
7	SEC	BC-243/ BB-243/ BZ-243	Basic Analytical Chemistry	2	-	-	2	50(30+20)
<b>Total</b>				<b>14</b>	<b>12</b>	<b>-</b>	<b>20</b>	<b>500</b>

Dr. P. Khare

Dr. D. P. Singh

Mr. Keemraj Jain

Dr. A. K. Gupta

Dr. P. Dogra

Dr. R. C. Saini

Dr. R. K. Rastogi

Dr. P. K. Gupta

Dr. V. Desai

Dr. I. Sharma

Dr. S. Sharma

Dr. D. Singh



BSc Medical/Non-Medical/Chemistry Honours Scheme (BOS 27<sup>th</sup> Aug. 2018,  
FET Annexure 13.11.3 (page No. 100)

**Maharishi Markandeshwar (Deemed to be University)**  
**Mullana-133207 (Ambala), Haryana (India)**

It established under Section 3 of the U.G.A. Act, 1956 vide Notification No. F.9-65/2006-U.3 (A) dated 12-6-2007.

WEBSITE: [www.mmmullana.org](http://www.mmmullana.org)

**M. M. ENGINEERING COLLEGE, CHEMISTRY DEPARTMENT**

Reg. No. 9081/2002 (Central Institute) E-Mail: [hod.chemistry@mmamullana.org](mailto:hod.chemistry@mmamullana.org), Tel. No.: 01731-304229

**FIFTH SEMESTER (2017-20 & 2018 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	DSE	BC-351	Chemistry-V	4	-	-	4	100(60+40)
2	DSE	BC-352	Chemistry Practical-V	-	4	-	2	50(20+30)
3	DSE	BB-351	Botany-V	4	-	-	4	100(60+40)
4	DSE	BB-352	Botany Practical-V	-	4	-	2	50(20+30)
5	DSE	BZ-351	Zoology-V	4	-	-	4	100(60+40)
6	DSE	BZ-352	Zoology Practical-V	-	4	-	2	50(20+30)
7	SEC	BC-353/ BB-353/ BZ-353	Analytical Clinical Biochemistry	2	-	-	2	50(30+20)
<b>Total</b>				<b>14</b>	<b>12</b>	<b>-</b>	<b>20</b>	<b>500</b>

**SIXTH SEMESTER (2017-20 & 2018 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	DSE	BC-361	Chemistry-VI	4	-	-	4	100(60+40)
2	DSE	BC-362	Chemistry Practical-VI	-	4	-	2	50(20+30)
3	DSE	BB-361	Botany-VI	4	-	-	4	100(60+40)
4	DSE	BB-362	Botany Practical-VI	-	4	-	2	50(20+30)
5	DSE	BZ-361	Zoology-VI	4	-	-	4	100(60+40)
6	DSE	BZ-362	Zoology Practical-VI	-	4	-	2	50(20+30)
7	SEC	BC-363/ BB-363/ BZ-363	Pesticide Chemistry	2	-	-	2	50(30+20)
<b>Total</b>				<b>14</b>	<b>12</b>	<b>-</b>	<b>20</b>	<b>500</b>

**Total Credits = 120**

Dr. P. K. Khare

Dr. D. P. Singh

Mr. Keemay Jain

Dr. A. K. Gupta

Dr. P. Dogra

Dr. R. C. Sami

Dr. P. K. Bhatnagar

Dr. P. K. Gupta

Dr. V. Deshpande

Dr. I. Sharma

Dr. N. Sharma

Dr. P. Gupta



B.Sc. Medical/Non-Medical/Chemistry Honours Scheme BCS 27<sup>th</sup> Aug. 2018.

PET Annexure 13.11.3 (page No. 187)

**Maharishi Markandeshwar (Deemed to be University)**

**Mullana-133207 (Ambala), Haryana (India)**

It is established under Section 3 of the U.G. Act, 1956 vide Notification No. F.9-65/2006-CC.3 (A) dated 12.6.2007.

WEBSITE: [www.mmmullana.org](http://www.mmmullana.org)

**M. M. ENGINEERING COLLEGE, CHEMISTRY DEPARTMENT**

(An ISO 9001:2002 Certified Institute) E-Mail: [ind.chemistry@mmumullana.org](mailto:ind.chemistry@mmumullana.org), Tel. No.: 01731-304229

**Scheme for B.Sc. (Non-Medical: (2017-20 & 2018 onwards))**  
**CHOICE BASED CREDIT SYSTEM**

**FIRST SEMESTER (2018 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BC-111	Chemistry-I	4	-	-	4	100(60+40)
2	Core	BC-112	Chemistry Practical-I	-	4	-	2	50(20+30)
3	Core	BP-111	Physics-I	4	-	-	4	100(60+40)
4	Core	BP-112	Physics Practical-I	-	4	-	2	50(20+30)
5	Core	BM-111	Mathematics-I	6	-	2	7	150(90+60)
6	AECU	BE-111	English Communication	2	-	-	2	50(30+20)
		<b>Total</b>		<b>16</b>	<b>08</b>	<b>2</b>	<b>21</b>	<b>500</b>

**SECOND SEMESTER (2018 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	Core	BC-121	Chemistry-II	4	-	-	4	100(60+40)
2	Core	BC-122	Chemistry Practical-II	-	4	-	2	50(20+30)
3	Core	BP-121	Physics-II	4	-	-	4	100(60+40)
4	Core	BP-122	Physics Practical-II	-	4	-	2	50(20+30)
5	Core	BM-121	Mathematics-II	6	-	2	7	150(90+60)
6	AECU	ES-101	Environmental Science	2	-	-	2	100(60+40)
		<b>Total</b>		<b>16</b>	<b>08</b>	<b>2</b>	<b>21</b>	<b>550</b>

*[Signature]*  
Dr. K. K. K. K.

*[Signature]*  
Dr. D. P. Singh

*[Signature]*  
Mr. Keerat Jain

*[Signature]*  
Dr. A. K. Gupta

*[Signature]*  
Dr. P. Dogra

*[Signature]*  
Dr. R. C. Saini

*[Signature]*  
Dr. M. K. K. K.

*[Signature]*  
Dr. K. K. K. K.

*[Signature]*  
Dr. V. B. B. B.

*[Signature]*  
Dr. J. K. K. K.

*[Signature]*  
Dr. N. K. K. K.

*[Signature]*  
Dr. P. K. K. K.



BSc Medical Non-Medical Chemistry Honours Scheme DOS 2<sup>nd</sup> Aug. 2016.  
 FET Annexure D.11.3 (page No. 1 of 1)

**Maharishi Markandeshwar (Deemed to be University)**  
**Mullana-133207 (Ambala), Haryana (India)**

(Established under Section 3 of the U.G. Act, 1956 vide Notification No. U.O. 1006-D-1 (Gy) dated 17.10.2001)  
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**M. M. ENGINEERING COLLEGE, CHEMISTRY DEPARTMENT**

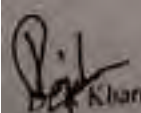
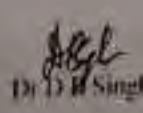
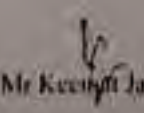
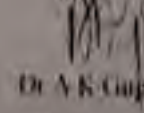
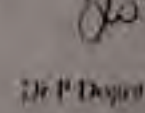
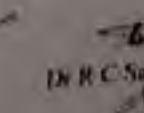


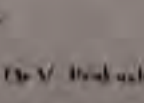
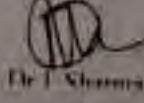
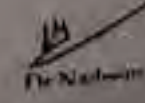
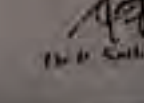
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**THIRD SEMESTER (2017 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex. + In.)
				Lecture	Practical	Tutorial		
1	Core	BC-231	Chemistry-III	4	-	-	4	100(60+40)
2	Core	BC-232	Chemistry Practical-III	-	4	-	2	50(20+30)
3	Core	BP-231	Physics-III	4	-	-	4	100(60+40)
4	Core	BP-232	Physics Practical-III	-	4	-	2	50(20+30)
5	Core	BM-231	Mathematics-III	6	-	2	7	150(90+60)
6	SEC	BI-231	Basic Analytical Chemistry	2	-	-	2	50(30+20)
		<b>Total</b>		<b>16</b>	<b>08</b>	<b>2</b>	<b>21</b>	<b>500</b>

**FOURTH SEMESTER (2017 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex. + In.)
				Lecture	Practical	Tutorial		
1	Core	BC-241	Chemistry-IV	4	-	-	4	100(60+40)
2	Core	BC-242	Chemistry Practical-IV	-	4	-	2	50(20+30)
3	Core	BP-241	Physics-IV	4	-	-	4	100(60+40)
4	Core	BP-242	Physics Practical-IV	-	4	-	2	50(20+30)
5	Core	BM-241	Mathematics-IV	6	-	2	7	150(90+60)
6	SEC	BC-243	Basic Analytical Chemistry	2	-	-	2	50(30+20)
		BP-243	Computational Physics	-	-	-	-	-
		BM-242		-	-	-	-	-
		<b>Total</b>		<b>16</b>	<b>08</b>	<b>2</b>	<b>21</b>	<b>500</b>

 Dr. D. R. Khare    
  Dr. D. R. Singh    
  Mr. Keshav Jain    
  Dr. A. K. Gupta    
  Dr. P. Dey    
  Dr. R. C. Saini  
 Dr. R. K. Rawal    
  Dr. P. K. Gupta    
  Dr. V. Bhatnagar    
  Dr. J. Chandra    
  Dr. N. Dey    
  Dr. P. Saini



DSE Medical Non-Medical/Chemistry Honours Scheme BOS 27<sup>th</sup> Aug, 2018,  
 FET Annexure 13.11.3 (page No. 10)

**Maharishi Markandeshwar (Deemed to be University)**

**Mullana-133207(Ambala), Haryana (India)**

(Established under Section 3 of the UGC Act, 1956 vide Notification No. F.9-65/2006-U.3(A) dated 12-6-2007)

WEBSITE: [www.mmmullana.org](http://www.mmmullana.org)

**M. M. ENGINEERING COLLEGE, CHEMISTRY DEPARTMENT**

(An ISO 9001:2002 Certified Institute) - Mail: [ind.chemistry@mmmmullana.org](mailto:ind.chemistry@mmmmullana.org), Tel. No.: 01731-304229



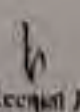
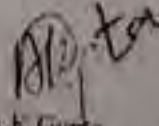
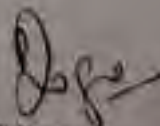
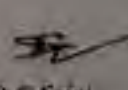
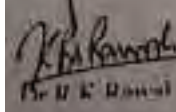
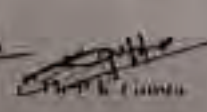
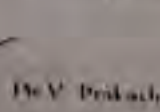

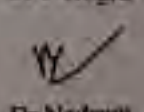
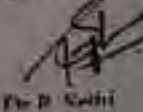
**FIFTH SEMESTER (2017 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	DSE	BC-351	Chemistry-V	4	-	-	4	100(60+40)
2	DSE	BC-352	Chemistry Practical-V	-	4	-	2	50(20+30)
3	DSE	BP-351	Physics-V	4	-	-	4	100(60+40)
4	DSE	BP-352	Physics Practical-V	-	4	-	2	50(20+30)
5	DSE	BM-351	Mathematics-V	6	-	2	7	150(90+60)
6	SEC	BC-353 BC-354 BM-352	Analytical Clinical Biochemistry	2	-	-	2	50(30+20)
<b>Total</b>				<b>16</b>	<b>08</b>	<b>2</b>	<b>21</b>	<b>500</b>

**SIXTH SEMESTER (2017 onwards)**

S.No.	Course	Paper Code	Paper	Hrs/Week			Cr.	Marks T (Ex.+In.)
				Lecture	Practical	Tutorial		
1	DSE	BC-361	Chemistry-VI	4	-	-	4	100(60+40)
2	DSE	BC-362	Chemistry Practical-VI	-	4	-	2	50(20+30)
3	DSE	BP-361	Physics-VI	4	-	-	4	100(60+40)
4	DSE	BP-362	Physics Practical-VI	-	4	-	2	50(20+30)
5	DSE	BM-361	Mathematics-VI	6	-	2	7	150(90+60)
6	SEC	BC-363 BP-363 BM-362	Pesticide Chemistry	2	-	-	2	50(30+20)
<b>Total</b>				<b>16</b>	<b>08</b>	<b>2</b>	<b>21</b>	<b>500</b>

Total Credits = 126

 Dr. D. P. Khare    
  Dr. D. P. Singh    
  Mr. Keenul Jain    
  Dr. A. K. Gupta    
  Dr. P. Dogra    
  Dr. R. C. Saini  
 Dr. U. K. Bansal    
  Dr. P. K. Gupta    
  Dr. V. Prakash    
  Dr. I. Sharma    
  Dr. Nishant    
  Dr. P. Gauri



**M.M. ENGINEERING COLLEGE, MULLANA (AMBALA)**

Study Scheme for Batches 2018-2022 onwards

**Branch: Civil Engineering Department**

<b>Bachelor of Technology -1st Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Basic Science Courses	BSC-001	Physics –I	3	1	0	4	4
2	Basic Science Courses	BSC-002 / BSC-002A	Mathematics –I (Common for all branches <b>except Biotechnology</b> ) Mathematics –I (Biotechnology Only)	3	1	0	4	4
3	Engineering Science Courses	ESC-001	Basic Electrical Engineering	3	1	0	4	4
4	Engineering Science Courses	ESC-002	Engineering Graphics & Design	0	0	5	5	2.5
5	Engineering Science Courses	ESC-003	Engineering Mechanics	3	1	0	4	4
6	Basic Science Courses	BSC-003	Physics Lab-I	0	0	2	2	1
7	Engineering Science Courses	ESC-004	Computer Programing Lab-I	0	0	4	4	2
8	Engineering Science Courses	ESC-005	Basic Electrical Engineering Lab	0	0	2	2	1
9	Engineering Science Courses	ESC-006	SAP-01	0	0	2	2	1
<b>Total</b>				<b>12</b>	<b>4</b>	<b>15</b>	<b>31</b>	<b>23.5</b>
<b>Bachelor of Technology: 2nd Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Basic Science Courses	BSC-008	Physics-II	3	1	0	4	4
2	Basic Science Courses	BSC-009 / BSC-009A	Mathematics-II (Common for all branches <b>except Biotechnology</b> ) Mathematics –II (Biotechnology Only)	3	1	0	4	4
3	Engineering Science Courses	ESC-007	Manufacturing Process	2	0	0	2	2
4	Basic Science Courses	BSC-004 / BSC-005	Chemistry-I / Biology	3	1	0	4	4
5	Humanities and Social Science including Management Course	HSMC-001	English	2	0	0	2	2
6	Engineering Science Courses	ESC-008	Workshop Practice	0	0	3	3	1.5
7	Basic Science Courses	BSC-006 / BSC-007	Chemistry-I / Biology Lab	0	0	3	3	1.5
8	Humanities and Social Science including Management Course	HSMC-002	English Lab	0	0	2	2	1
9	Engineering Science Courses	ESC-009 / ESC-010	Advance Computer Programing Lab / SAP-02	0	0	3	3	1.5
10	Personality Development Course	PDC-001	Personality Development ( <b>Non-Creditable</b> )	2	0	0	2	0
11	Mandatory Course	ES-101	Environmental Studies	3	0	0	3	0
<b>Total</b>				<b>18</b>	<b>3</b>	<b>11</b>	<b>32</b>	<b>21.5</b>

Optional

BCIV-029/A

Internship

Three to Six Weeks

**M.M. ENGINEERING COLLEGE, MULLANA (AMBALA)**

Study Scheme for Batches 2018-2022 onwards

Branch: **Civil Engineering Department**

BOS: 13.06.2019

Annexure-I

<b>Bachelor of Technology: 3rd Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Basic Science Course	BMAT-003	Mathematics-III	3	1	-	4	4
2	Professional Core Course	BCIV-001	Introduction to Fluid Mechanics	3	1	-	4	4
3	Professional Core Course	BCIV-002	Introduction to Solid Mechanics	2	2	-	4	4
4	Professional Core Course	BCIV-003	Surveying & Geomatics	3	1	-	4	4
5	Professional Core Course	BCIV-004	Materials, Testing & Evaluation	3	-	-	3	3
6	Mandatory Course		Indian Constitution	2	-	-	2	-
7	Professional Core Course	BCIV-005	Fluid Mechanics Lab	-	-	2	2	1
8	Professional Core Course	BCIV-006	Surveying & Geomatics Lab	-	-	2	2	1
<b>Total</b>				<b>16</b>	<b>5</b>	<b>4</b>	<b>25</b>	<b>21</b>

<b>Bachelor of Technology: 4th Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Core Course	BCIV-007	Design of Concrete Structures-I	2	2	-	4	4
2	Professional Core Course	BCIV-008	Concrete Technology	3	-	-	3	3
3	Humanities and Social Science including Management Course		Humanities -I	3	-	-	3	3
4	Professional Elective Course		Elective - I	3	-	-	3	3
5	Professional Core Course	BCIV-009	Concrete Technology Lab	-	-	2	2	1
6	Professional Core Course	BCIV-010	Structural Mechanics Lab	-	-	2	2	1
7	Engineering Science Courses	BCIV-011	Building Construction Drawing	-	-	2	2	1
8	Project	BCIV-012	Project- I	-	-	4	4	2
9	Professional Core Course	BCIV-013	Environmental Engineering	2	1	-	3	3
<b>Total</b>				<b>13</b>	<b>3</b>	<b>10</b>	<b>26</b>	<b>21</b>

Optional

BCIV-029/B

Internship

Three to Six Weeks

<b>Bachelor of Technology: 5th Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Core Course	BCIV-014	Geotechnical Engineering	3	1	-	4	4
2	Professional Core Course	BCIV-015	Transportation Engineering	2	1	-	3	3
3	Professional Elective Course		Elective-II	3	-	-	3	3
4	Professional Elective Course		Elective-III	2	1	-	3	3
5	Open Elective Course		Open Elective-I	3	-	-	3	3
6	Professional Core Course	BCIV-016	Transportation Engineering Lab	-	-	2	2	1
7	Professional Core Course	BCIV-017	Geotechnical Engineering Lab	-	-	2	2	1
8	Project	BCIV-018	Survey Camp	-	-	-	-	2
9	Engineering Science Courses	BCIV-019	Environmental Engineering Lab	-	-	2	2	1
10	Project	BCIV-020	Project - II	-	-	4	4	2
<b>Total</b>				<b>13</b>	<b>3</b>	<b>10</b>	<b>26</b>	<b>23</b>

**M.M. ENGINEERING COLLEGE, MULLANA (AMBALA)**

Study Scheme for Batches 2018-2022 onwards

Branch: **Civil Engineering Department**

<b>Bachelor of Technology: 6th Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Core Course	BCIV-021	Hydrology & WaterResource Eeengeeniring/Irrigation Engineering	3	1	-	4	4
2	Professional Core Course	BCIV-022	Design of Steel Structures	2	2	-	4	4
3	Professional Elective Course		Elective-IV	3	-	-	3	3
4	Open Elective Course		Open Elective-II	3	-	-	3	3
5	Open Elective Course		Open Elective-III	3	-	-	3	3
6	Project	BCIV-023	Project-III	-	-	4	4	2
7	Mandatory Course		Essence of Indian Traditional Knowledge	2	-	-	2	0
8	Project	BCIV-024	Seminar	-	-	2	2	1
9	Engineering Science Courses	BCIV-025	Computer-aided-Civil Engineering Design	-	-	2	2	1
<b>Total</b>				<b>16</b>	<b>3</b>	<b>8</b>	<b>27</b>	<b>21</b>

Optional

BCIV-029/C

Internship

Three to Eight Weeks

<b>Bachelor of Technology: 7th Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Core Course	BCIV-26	Engineering Economics, Estimation & Costing	2	2	-	4	4
2	Professional Elective Course		Elective-V	3	-	-	3	3
3	Professional Elective Course		Elective-VI	3	-	-	3	3
4	Open Elective Course		Open Elective-IV	3	-	-	3	3
5	Humanities and Social Science including Management Course		Humantities -II	3	-	-	3	3
6	Engineering Science Courses	BCIV-027	Concrete Structure Drawing	-	-	2	2	1
7	Project	BCIV-028	Project-IV	-	-	8	8	4
<b>Total</b>				<b>14</b>	<b>2</b>	<b>10</b>	<b>26</b>	<b>21</b>

<b>Bachelor of Technology: 8th Semester</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Project	BCIV-029	Internship	-	-	-	-	8
<b>Total</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>

OR

Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Core Course	BCIV-030	Airport Planning and Design	3	1	-	4	4
2	Professional Core Course	BCIV-031	Bridge Engineering	3	1	-	4	4
3	Professional Elective Course		Elective-VII	3	1	-	4	4
4	Professional Elective Course		Elective-VIII	3	1	-	4	4
5	Professional Elective Course		Elective-IX	3	1	-	4	4
<b>Total</b>				<b>15</b>	<b>5</b>	<b>0</b>	<b>20</b>	<b>20</b>

**M.M. ENGINEERING COLLEGE, MULLANA (AMBALA)**

Study Scheme for Batches 2018-2022 onwards

Branch: **Civil Engineering Department**

Total Credit	160
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<b>Total No. of Credits Offered</b>	160+21(Swayam)+8(Internship)+12(Honors)=201
Credits required for Honours Degree	180
Credits required for B. Tech. Degree	160
Maximum permissible Internship	8 Weeks/8 Credits for normal B.Tech degree

<b>Elective - I</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-032	Construction Equipments	3	-	-	3	3
2	Professional Elective Course	BCIV-033	Building Construction Practice	3	-	-	3	3
3	Professional Elective Course	BCIV-034	Ecological Engineering	3	-	-	3	3
4	Professional Elective Course	BCIV-035	Air and Noise Pollution and Control	3	-	-	3	3
5	Professional Elective Course	BCIV-036	Masonry Structures	3	-	-	3	3
6	Professional Elective Course	BCIV-037	Structural Geology	3	-	-	3	3

<b>Elective - II</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-038	Pavement Materials	3	-	-	3	3
2	Professional Elective Course	BCIV-039	Construction Engineering Materials	3	-	-	3	3
3	Professional Elective Course	BCIV-040	Solid and Hazardous Waste Management	3	-	-	3	3
4	Professional Elective Course	BCIV-041	Groundwater Engineering	3	-	-	3	3
5	Professional Elective Course	BCIV-042	Engineering Materials for Sustainability	3	-	-	3	3
6	Professional Elective Course	BCIV-043	Foundation Engineering	3	-	-	3	3

<b>Elective - III</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-044	Geometric Design of Highways	2	1	-	3	3
2	Professional Elective Course	BCIV-045	Transportation Economics	2	1	-	3	3
3	Professional Elective Course	BCIV-046	Construction Cost Analysis	2	1	-	3	3
4	Professional Elective Course	BCIV-047	Urban Hydrology and Hydraulics	2	1	-	3	3
5	Professional Elective Course	BCIV-048	Structural Analysis	2	1	-	3	3
6	Professional Elective Course	BCIV-049	Soil Mechanics-I	2	1	-	3	3

**M.M. ENGINEERING COLLEGE, MULLANA (AMBALA)**

Study Scheme for Batches 2018-2022 onwards

Branch: **Civil Engineering Department**

<b>Elective - IV</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-050	Traffic Engineering and Management	3	-	-	3	3
2	Professional Elective Course	BCIV-051	Pavement Construction and Management	3	-	-	3	3
3	Professional Elective Course	BCIV-052	Environmental Impact Assessment and Life Cycle Analyses	3	-	-	3	3
4	Professional Elective Course	BCIV-053	Rock Mechanics	3	-	-	3	3
5	Professional Elective Course	BCIV-054	Ground Improvement Technique	3	-	-	3	3

<b>Elective - V</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-055	Urban Transportation Planning	3	-	-	3	3
2	Professional Elective Course	BCIV-056	Contracts Management	3	-	-	3	3
3	Professional Elective Course	BCIV-057	Repairs & Rehabilitation of Structures	3	-	-	3	3
4	Professional Elective Course	BCIV-058	Environmental Laws and Policy	3	-	-	3	3
5	Professional Elective Course	BCIV-059	Environmental Geo-technology	3	-	-	3	3

<b>Elective - VI</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-060	Construction Project Planning & Systems	3	-	-	3	3
2	Professional Elective Course	BCIV-061	Sustainable Construction Methods	3	-	-	3	3
3	Professional Elective Course	BCIV-062	Environmental Systems	3	-	-	3	3
4	Professional Elective Course	BCIV-063	Physico-Chemical Processes for Water and Wastewater Treatment	3	-	-	3	3
5	Professional Elective Course	BCIV-064	Sewage and Sewerage Treatment	3	-	-	3	3

<b>Elective - VII</b>								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-065	Pavement Design	3	1	-	4	4
2	Professional Elective Course	BCIV-066	Railway Engineering	3	1	-	4	4
3	Professional Elective Course	BCIV-067	River Engineering	3	1	-	4	4
4	Professional Elective Course	BCIV-068	Environmental Fluid Mechanics	3	1	-	4	4
5	Professional Elective Course	BCIV-069	Prestressed Concrete	3	1	-	4	4

**M.M. ENGINEERING COLLEGE, MULLANA (AMBALA)**

Study Scheme for Batches 2018-2022 onwards

Branch: **Civil Engineering Department**

Elective - VIII								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-070	Public Transportation Systems	3	1	-	4	4
2	Professional Elective Course	BCIV-071	Open Channel Flow	3	1	-	4	4
3	Professional Elective Course	BCIV-072	Surface Hydrology	3	1	-	4	4
4	Professional Elective Course	BCIV-073	Structural Dynamics	3	1	-	4	4
5	Professional Elective Course	BCIV-074	Geotechnical Design	3	1	-	4	4

Elective - IX								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Professional Elective Course	BCIV-075	Construction Engineering & Management	3	1	-	4	4
2	Professional Elective Course	BCIV-076	Transport of Water and Wastewater	3	1	-	4	4
3	Professional Elective Course	BCIV-077	Design of Concrete Structures-II	3	1	-	4	4
4	Professional Elective Course	BCIV-078	Structural Engineering	3	1	-	4	4
5	Professional Elective Course	BCIV-079	Soil Mechanics-II	3	1	-	4	4

Open Elective Floated by Civil Engineering Department								
Sr. No.	Category	Code	Course Title	Hours per week			Total hours	Credits
				L	T	P		
1	Open Elective Course	BCIV-080	Disaster Management	3	-	-	3	3
2	Open Elective Course	BCIV-081	Project Management	3	-	-	3	3
3	Open Elective Course	BCIV-082	General Principles of Building Construction	3	-	-	3	3
4	Open Elective Course	BCIV-083	Planning for Sustainable Development	3	-	-	3	3



Dr. Vanita Aggarwal  
Professor and Head  
Department of Civil Engineering

# BPharma

Tables-X: Schemes for internal assessments and end semester examinations semester wise

## Semester I

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP101P	Human Anatomy and Physiology I- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP102T	Pharmaceutical Analysis I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP103T	Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP104T	Pharmaceutical Inorganic Chemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP105T	Communication skills – Theory *	5	10	1 Hr	15	35	1.5 Hrs	50
BP106RBT BP106RMT	Remedial Biology/ Mathematics – Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP107P	Human Anatomy and Physiology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP108P	Pharmaceutical Analysis I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP109P	Pharmaceutics I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP110P	Pharmaceutical Inorganic Chemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP111P	Communication skills – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
BP112RBP	Remedial Biology – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
<b>Total</b>		<b>70/75<sup>§</sup>/80<sup>#</sup></b>	<b>115/125<sup>§</sup>/130<sup>#</sup></b>	<b>23/24<sup>§</sup>/26<sup>#</sup> Hrs</b>	<b>185/200<sup>§</sup>/210<sup>#</sup></b>	<b>490/525<sup>§</sup>/ 540<sup>#</sup></b>	<b>31.5/33<sup>§</sup>/ 35<sup>#</sup> Hrs</b>	<b>675/725<sup>§</sup>/ 750<sup>#</sup></b>

<sup>#</sup> Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course.

<sup>§</sup> Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

\* Non University Examination (NUE)

Semester II

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks	
		Continuous Mode	Sessional Exams		Total	Marks		Duration
			Marks	Duration				
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
<b>Total</b>		<b>80</b>	<b>125</b>	<b>20 Hrs</b>	<b>205</b>	<b>520</b>	<b>30 Hrs</b>	<b>725</b>

\* The subject experts at college level shall conduct examinations



Semester III

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks	
		Continuous Mode	Sessional Exams		Total	Marks		Duration
			Marks	Duration				
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	Physical Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
<b>Total</b>		<b>60</b>	<b>100</b>	<b>20</b>	<b>160</b>	<b>440</b>	<b>28Hrs</b>	<b>600</b>

## Semester IV

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks	
		Continuous Mode	Sessional Exams		Total	Marks		Duration
			Marks	Duration				
BP401T	Pharmaceutical Organic Chemistry III- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP402T	Medicinal Chemistry I- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP403T	Physical Pharmaceutics II- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP404T	Pharmacology I- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP405T	Pharmacognosy I- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP406P	Medicinal Chemistry I- Practical	5	10	4 Hr	15	35	4 Hrs	50
BP407P	Physical Pharmaceutics II- Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP408P	Pharmacology I- Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP409P	Pharmacognosy I- Practical	5	10	4 Hrs	15	35	4 Hrs	50
<b>Total</b>		<b>70</b>	<b>115</b>	<b>21 Hrs</b>	<b>185</b>	<b>515</b>	<b>31 Hrs</b>	<b>700</b>

*Duty*

**Principal**  
**M.M. College of Pharmacy**  
**Maharishi Markandeya**  
**(Deemed to be University)**  
**Mullana-133207 (Ambala) HR**

## Semester V

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks	
		Continuous Mode	Sessional Exams		Total	Marks		Duration
			Marks	Duration				
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP502T	Industrial PharmacyI- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP506P	Industrial PharmacyI- Practical	5	10	4 Hr	15	35	4 Hrs	50
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	4 Hrs	50
<b>Total</b>		<b>65</b>	<b>105</b>	<b>17 Hr</b>	<b>170</b>	<b>480</b>	<b>27 Hrs</b>	<b>650</b>



Principal  
M. M. College of Pharmacy  
Maharishi Markandeshwar  
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Mullana-133207 (Ambaia) HR

## Semester VI

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP606T	Quality Assurance– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
<b>Total</b>		<b>75</b>	<b>120</b>	<b>18 Hrs</b>	<b>195</b>	<b>555</b>	<b>30 Hrs</b>	<b>750</b>

Semester VII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP702T	Industrial Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP705 P	Instrumental Methods of Analysis – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150
<b>Total</b>		<b>70</b>	<b>70</b>	<b>8Hrs</b>	<b>140</b>	<b>460</b>	<b>21 Hrs</b>	<b>600</b>

\* The subject experts at college level shall conduct examinations

  
**Principal**  
 M.S. College of Pharmacy  
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## Semester VIII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP803ET	Pharmaceutical Marketing – Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200
BP804ET	Pharmaceutical Regulatory Science – Theory							
BP805ET	Pharmacovigilance – Theory							
BP806ET	Quality Control and Standardization of Herbals – Theory							
BP807ET	Computer Aided Drug Design – Theory							
BP808ET	Cell and Molecular Biology – Theory							
BP809ET	Cosmetic Science – Theory							
BP810ET	Experimental Pharmacology – Theory							
BP811ET	Advanced Instrumentation Techniques – Theory							
BP812PW	Project Work	-	-	-	-	150	4 Hrs	150

<b>Total</b>	<b>40</b>	<b>60</b>	<b>4 Hrs</b>	<b>100</b>	<b>450</b>	<b>16 Hrs</b>	<b>550</b>
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Principal  
 17/11/2020 College of Pharmacy  
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 Mullana-133207 (Ambala) HR

FIRST SEMESTER								
	Course Code	Course Title	Contact Hours		Weight age		Total Marks	Credit
			Th.	Pr.	Internal	External		
Discipline Specific Core (DSC)	HM 101	Food Production Foundation -I	4	-	40	60	100	4
	HM 103	Food & Beverage Service Foundation -I	4	-	40	60	100	4
	HM 105	Accommodation & Front Office Operations Foundations -I	4	-	40	60	100	4
Discipline Specific Core (DSC) Practical	HM 101 Pr	Food Production Foundation -I	-	4	60	40	100	2
	HM 103 Pr	Food & Beverage Service Foundation -I	-	2	60	40	100	1
	HM 105 Pr	Accommodation & Front Office Operations Foundations -I	-	2	60	40	100	1
AECC SEC	ES 101	Environmental science	3	-	40	60	100	3
	HM 109	Applications of Computers in Hospitality & Tourism	2	-	40	60	100	2
DSE	HM 111	Fundamentals of Management	3	-	40	60	100	3
		<b>Total</b>	<b>20</b>	<b>08</b>			<b>900</b>	<b>24</b>




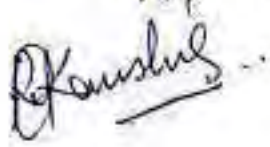
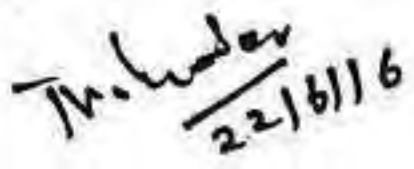
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SECOND SEMESTER

	Course Code	Course Title	Contact Hours		Weight age		Total Marks	Credit
			Th.	Pr.	Internal	External		
Discipline Specific Core (DSC)	HM 102	Food Production Foundation -II	4	-	40	60	100	4
	HM 104	Food & Beverage Service Foundation -II	4	-	40	60	100	4
	HM 106	Accommodation & Front Office Operations Foundations -II	4	-	40	60	100	4
Discipline Specific Core (DSC) Practical	HM 102 Pr	Food Production Foundation -II	-	4	60	40	100	2
	HM 104 Pr	Food & Beverage Service Foundation -II	-	2	60	40	100	1
	HM 106 Pr	Accommodation & Front Office Operations Foundations -II	-	2	60	40	100	1
AECC	HM 108	Communication	2	2	40	60	100	3
SEC	HM 110	Foreign Language Skill - I (French)	2	-	40	60	100	2
DSE	HM 112	Basics of Nutrition	3	-	40	60	100	3
		Total	19	10			900	24



THIRD SEMESTER								
	Course Code	Course Title	Contact Hours		Weight age		Total Marks	Credit
			Th.	Pr.	Internal	External		
Discipline Specific Core (DSC)	HM 201	Introduction to Indian Cookery	4	-	40	60	100	4
	HM 203	Food & Beverage Service Operations	4	-	40	60	100	4
	HM 205	Accommodation & Front Office Operations	4	-	40	60	100	4
Discipline Specific Core (DSC) Practical	HM 201 Pr	Introduction to Indian Cookery	-	4	60	40	100	2
	HM 203 Pr	Food & Beverage Service Operations	-	2	60	40	100	1
	HM 205 Pr	Accommodation & Front Office Operations	-	2	60	40	100	1
SEC	HM 207	Accounting Skills for Hospitality	2	-	40	60	100	2
DSE	HM 209	Choose Any Two	3	-	40	60	100	3
	HM211		3		40	60	100	3
<b>Total</b>			<b>20</b>	<b>8</b>			<b>900</b>	<b>24</b>

FOURTH SEMESTER								
	Course Code	Course Title	Contact Hours		Weight age		Total Marks	Credit
			Th.	Pr.	Internal	External		
SEC	HM 202	Personality Skills For Hospitality	-	4	60	40	100	2
DSE Theory (Choose any one)	HM 204	a. Regional Cuisines of India -I/ b. Food & Beverage Service Management -I/ c. Accommodation Management-I	3	-	40	60	100	3
DSE Practical (As per theory)	HM 204 Pr	a. Regional Cuisines of India -I/ b. Food & Beverage Service Management -I/ c. Accommodation Management-I	-	4	60	40	100	2
DSE	HM206	Hospitality Marketing	3	-	40	60	100	3
DSE	HM208	Hospitality Laws	3	-	40	60	100	3
DSE	HM 210	Choose Any Two	3	-	40	60	100	3
	HM 212		3		40	60	100	3
<b>Total</b>			<b>15</b>	<b>8</b>			<b>700</b>	<b>19</b>

*M. L...*

*Ranvir*  
22/06/16

*M. L...*  
22/6/16

Course Structure: B.H.M.C.T.(CBCS) Applicable from Session 2016-17

FIFTH SEMESTER

	Course Code	Course Title	Evaluation Criteria	Contact Hours		Weight age		Total Marks	Credit
				Pr.		Internal	External		
Discipline Specific Core (DSC)	HM301	Practice School (Industrial Exposure)	Training Log Book/ Training Report	22 Weeks		100	-	100	22
	HM303		Presentation			100	-	100	
	HM305		Viva - Voce			-	100	100	
			<b>Total</b>	<b>22 weeks</b>				<b>300</b>	<b>22</b>

SIXTH SEMESTER

	Course Code	Course Title	Contact Hours		Weight age		Total Marks	Credit
			Th.	Pr.	Internal	External		
SEC	HM 302	Skill Enhancement for Media & Journalism in Hospitality	-	4	60	40	100	2
DSE Theory (Choose any one)	HM 304	a. Regional Cuisines of India -II/ b. Food & Beverage Service Management -II/ c. Accommodation Management-II	3	-	40	60	100	3
DSE Practical (As per theory)	HM 304 Pr	a. Regional Cuisines of India -II/ b. Food & Beverage Service Management -II/ c. Accommodation Management-II	-	4	60	40	100	2
DSE	HM 306	Project Report	-	10	-	100	100	5
DSE	HM 308	Researching for Hospitality & Tourism Management	3	-	40	60	100	3
DSE	HM 310	Choose Any Two	3	-	40	60	100	3
	HM 312		3	-	40	60	100	3
		<b>Total</b>	<b>12</b>	<b>18</b>			<b>700</b>	<b>21</b>

*M. K. Singh*

*R. K. Singh*

*M. K. Singh*

Course Structure: B.H.M.C.T.(CBCS) Applicable from Session 2016-17

SEVENTH SEMESTER								
	Course Code	Course Title	Contact Hours		Weight age		Total Marks	Credit
			Th.	Pr.	Internal	External		
SEC	HM 401	Communication & Soft Skills in Hospitality	2	-	40	60	100	2
DSE	HM 403	Human Resource Management	3	-	40	60	100	3
DSE	HM 405	Safety, Security & Travel Documentation	3	-	40	60	100	3
DSE	HM 407	Choose Any Three	3	-	40	60	100	3
	HM 409		3	-	40	60	100	3
	HM 411		3	-	40	60	100	3
DSE (Practical)	HM 407	Choose Any Three		2	60	40	100	1
	HM 409			2	60	40	100	1
	HM 411			2	60	40	100	1
Total			17	6			900	20

EIGHTH SEMESTER								
	Course Code	Course Title	Evaluation Criteria	Contact Hours	Weight age		Total Marks	Credit
				Pr.	Internal	External		
Discipline Specific Core (DSC)	HM 402	Industrial Training	Training Log Book/ Training Report	22 Weeks	100	-	100	22
	HM 404		Presentation		100	-	100	
	HM 406		Viva - Voce		-	100	100	
Total				22 weeks			300	22

*M. S. Chavhan*

*Kanishk*

*M. S. Chavhan*

## BHMCT Elective Table (CBCS)

Semester	Discipline Specific Electives (DSE)					
	Group X		Group Y		Group Z	
	Code	Name	Code	Name	Code	Name
III	1	Principles of Baking	1	Business Etiquettes	1	Basics of Food Science
	2	Introduction to Tourism Concepts	2	Hotel Safety & Security	2	Hotel Engineering
	3	Commodities	3	Supervisory Management	3	Customer Relationship Management
IV	1	Confectionary	1	F& B Management & Control	1	Eco Tourism & Sustainable Development
	2	HACCP & Food safety	2	Professional Housekeeping	2	Financial Management
	3	Advance Cookery	3	Flower Arrangement	3	Facility Planning in Hotels
VI	1	Chocolate, Icing & sugar	1	Hotel Interior Decoration	1	Retail Management
	2	Kitchen Management	2	Room Division	2	Strategic Management
	3	Larder	3	Hotel Economics	3	Entrepreneurship Development
VII Choose any three	I	Laundry Management				
	II	Food Service Management				
	III	Accommodation Management				
	IV	Culinary Management				
	V	Bakery Management				
	VI	Front Office Management				
	VII	Event Management				
	VIII	Foreign Cuisine (Chinese and Italian)				

The student has to opt two subjects from group X/Y/Z (Choosing one from each). The Group choice will remain the same through out the course.

*M. M. Institute*

*Kaushik*

*M. M. Institute*