

# MEDICINAL CHEMISTRY

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
MC-510	Basics of Drug Action	2	3
MC-511	Spectral Analysis	2	4
MC-520	Logic in Organic Synthesis-I	3	5
NP-510	Separation Techniques	1	7
PC-540	Chemotherapy of Parasitic and Microbial Infections	1	17
PT-510	Industrial Process and Scale-up Techniques	1	41
GE-510	Biostatistics	2	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	6
<b>Total Credits</b>		<b>16</b>	
<b>Semester-II</b>			
MC-610	Drug Design	2	53
MC-620	Logic in Organic Synthesis-II	3	54
MC-630	Structure and Function of Biomolecules	2	55
MC-650	Stereochemistry and Drug Action	2	56
PC-610	Drug Metabolism	1	70
PC-611	Pharmacological Screening and Assays	1	70
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	57
<b>Total Credits</b>		<b>14</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	



# NATURAL PRODUCT

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
NP-510	Separation Techniques	1	7
NP-520	Natural Products-I	2	7
MC-510	Basics of Drug Action	2	3
MC-511	Spectral Analysis	2	4
PC-540	Chemotherapy of Parasitic and Microbial Infections	1	17
BT-510	Biotechnology in Pharmaceutical Sciences	1	24
GE-510	Biostatistics	2	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	8
<b>Total Credits</b>		<b>15</b>	
<b>Semester-II</b>			
NP-610	Natural Product and Bio-organic Chemistry	2	58
NP-620	Natural Products-II	2	58
NP-630	Standardization of Natural Product Drugs/Formulations	2	59
NP-640	Structure Elucidation	2	60
NP-650	Medicinal Plant Biotechnology and Cultivation	1	61
	Propagation		
MC-650	Stereochemistry and Drug Action	2	56
PC-611	Pharmacological Screening and Assays	1	70
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	61
<b>Total Credits</b>		<b>15</b>	
<b>Semester-III</b>			
	Project (22 weeks)		
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	

# TRADITIONAL MEDICINE

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
TM-510	Introduction to Traditonal Systems of Medicine	1	10
TM-520	Ayurvedic Pharmacy	1	10
NP-510	Separation Techniques	1	7
NP-520	Natural Products-I	2	7
PP-520	Clinical and Applied Therapeutics-I	3	33
PP-530	Clinical Pharmacy	1	35
GE-510	Biostatistics	2	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	11
<b>Total Credits</b>		<b>15</b>	
<b>Semester-II</b>			
TM-610	Chemical Standardization of Herbal Drugs	2	62
TM-620	Pharmacological Evaluation of Herbal Drugs	2	62
TM-630	Clinical Aspects of Herbal Drugs	2	63
TM-640	Herbal Formulations	2	64
PP-620	Clinical and Applied Therapeutics-II	3	94
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	3	64
<b>Total Credits</b>		<b>15</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Credits (I to IV semesters)</b>		<b>50</b>	

# PHARMACEUTICAL ANALYSIS

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PA-510	Topics in Pharmaceutical Analysis	2	13
MC-511	Spectral Analysis	2	4
NP-510	Separation Techniques	1	7
PE-510	Dosage Form Design Parameters	1	21
BT-510	Biotechnology in Pharmaceutical Sciences	1	24
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	14
<b>Total Credits</b>		<b>14</b>	
<b>Semester-II</b>			
PA-610	Pharmacopoeial Methods of Analysis	2	66
PA-620	Instrumental Techniques for Evaluation of APIs and Drug Products	2	66
PA-630	Stability Testing	1	67
PA-640	Quality Control and Quality Assurance	2	68
NP-640	Structure Elucidation	2	60
PC-611	Pharmacological Screening and Assays	1	70
PE-630	Pharmaceutical Product Development-I	2	79
PE-660	Solid State Pharmaceutics	1	82
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of specialization	2	69
<b>Total Credits</b>		<b>16</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Credits (I to IV semesters)</b>		<b>50</b>	

# PHARMACOLOGY AND TOXICOLOGY

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PC-511	Pathophysiology	1	15
PC-520	General Pharmacology	2	15
PC-530	Experimental Pharmacology	1	16
PC-540	Chemotherapy of Parasitic and Microbial Infections	1	17
NP-510	Separation Techniques	1	7
PE-520	Biopharmaceutics and Pharmacokinetics	2	21
BT-510	Biotechnology in Pharmaceutical Sciences	1	24
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	18
<b>Total Credits</b>		<b>16</b>	
<b>Semester-II</b>			
PC-610	Drug Metabolism	1	70
PC-611	Pharmacological Screening and Assays	1	70
PC-620	CNS and Respiratory Pharmacology	2	70
PC-630	Autonomic, CVS, Blood, Renal and GI Pharmacology	2	71
PC-640	Autocoid and Endocrine Pharmacology	1	72
PC-650	Clinical Pharmacology and Regulatory Toxicology	2	72
PC-660	Chemotherapy and Immunopharmacology	2	73
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	74
<b>Total Credits</b>		<b>14</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Credits (I to IV semesters)</b>		<b>50</b>	

# REGULATORY TOXICOLOGY

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
RT-540	Principles and Methods in Toxicology	1	19
RT-550	Introduction to Regulatory Toxicology	2	19
PC-511	Pathophysiology	1	15
PC-520	General Pharmacology	2	15
PC-530	Experimental Pharmacology	1	16
PE-520	Biopharmaceutics and Pharmacokinetics	2	21
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	20
<b>Total Credits</b>		<b>16</b>	
<b>Semester-II</b>			
RT-630	Molecular Toxicology	2	75
RT-640	Target Organ Toxicology	2	75
RT-650	Good Laboratory Practice in Regulatory Toxicology	2	76
RT-660	Bioethics	1	76
PC-610	Drug Metabolism	1	70
PC-611	Pharmacological Screening and Assays	1	70
PC-650	Clinical Pharmacology and Regulatory Toxicology	2	72
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	77
<b>Total Credits</b>		<b>14</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Credits (I to IV semesters)</b>		<b>50</b>	



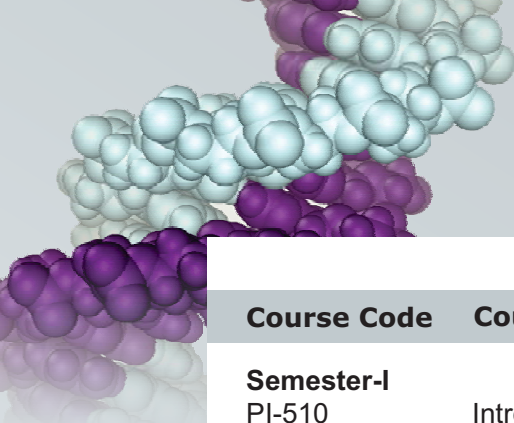
# PHARMACEUTICS

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PE-510	Dosage Form Design Parameters	1	21
PE-520	Biopharmaceutics and Pharmacokinetics	2	21
MC-510	Basics of Drug Action	2	3
MC-511	Spectral Analysis	2	4
NP-510	Separation Techniques	1	7
BT-510	Biotechnology in Pharmaceutical Sciences	1	24
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LG-510	General Laboratory Experience	3	22
<b>Total Credits</b>		<b>16</b>	
<b>Semester-II</b>			
PE-620	Drug Delivery Systems	2	78
PE-630	Pharmaceutical Product Development-I	2	79
PE-640	Pharmaceutical Product Development-II	2	80
PE-650	Biomaterials	2	81
PE-660	Solid State Pharmaceutics	1	82
PC-610	Drug Metabolism	1	70
PC-611	Pharmacological Screening and Assays	1	70
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	82
<b>Total Credits</b>		<b>14</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Credits (I to IV semesters)</b>		<b>50</b>	

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
BT-520	Cell Biology	2	25
BT-530	Microbial Genetics	1	25
BT-550	Biochemistry	2	26
PT-520	Microbiology	1	43
PT-530	Biochemical Engineering Fundamentals	2	44
MC-511	Spectral Analysis	2	4
NP-510	Separation Techniques	1	7
GE-510	Biostatistics	2	48
GE-511	Seminar	1	50
LG-510	General Laboratory Experience	3	27
<b>Total Credits</b>		<b>17</b>	
<b>Semester-II</b>			
BT-610	Molecular Biology	2	83
BT-620	Recombinant DNA Technology	2	84
BT-630	Immunology and Immunotechnology	2	85
BT-650	Analysis, Diagnostics and Cell Based Screening	2	85
BT-660	Sequence Analysis	2	86
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	87
<b>Total Credits</b>		<b>13</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	





# PHARMACOINFORMATICS

M.S. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PI-510	Introduction to Pharmacoinformatics	1	29
PI-520	Pharmacoinformatics - Programming	2	29
PI-530	Physicochemical Parameters in Drug Design	2	30
MC-510	Basics of Drug Action	2	3
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LS-510	General Lab experience	3	31
<b>Total Credits</b>		<b>14</b>	
<b>Semester-II</b>			
PI-610	Bioinformatics	2	88
PI-620	Chemoinformatics	2	89
PI-630	Metabolomics and Toxicoinformatics	2	90
PI -640	Comparative Genomics, Transcriptomics, Immunoinformatics	1	91
PI-650	Pharmacoinformatics Database Management	1	91
MC-610	Drug Design	2	53
PC-611	Pharmacological Screening and Assays	1	70
BT-610	Molecular Biology	2	83
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	92
<b>Total Credits</b>		<b>16</b>	
<b>Semester-III</b>			
PI-560	Pharmacoinformatics - The Tools	1	113
PI-570	Pharmacoinformatics - The Methodology	1	113
PP-551	Pharmacy Informatics	1	115
GE-553	TRIPS - Issues - Seminar	1	
TH-598	Synopsis	2	
TH-599	Presentation	2	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	

# PHARMACY PRACTICE

M.Pharm.

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PP-510	Pharmacy Practice-I	1	33
PP-520	Clinical and Applied Therapeutics-I	3	33
PP-530	Clinical Pharmacy	1	35
NP-510	Separation Techniques	1	7
PE-520	Biopharmaceutics and Pharmacokinetics	2	21
GE-510	Biostatistics	2	48
GE-511	Seminar / Presentation	1	50
LG-511	Clinical Placement	3	35
LG-512	Computer Applications	2	36
<b>Total Credits</b>		<b>16</b>	
<b>Semester-II</b>			
PP-610	Pharmacy Practice-II	1	93
PP-611	Pharmacy Practice-III (Community and Rural Pharmacy)	1	93
PP-620	Clinical and Applied Therapeutics-II	3	94
PP-630	Evidence Based Medicine and Critical Appraisal	2	95
PP-631	Clinical Biostatistics	1	96
GE-611	Seminar / Presentation	1	110
LG-611	Clinical Placement	5	96
<b>Total Credits</b>		<b>14</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	

# CLINICAL RESEARCH

M.Pharm.

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
CR-510	Drug Discovery & Development	2	37
CR-520	Introduction to Clinical Research	1	37
CR-530	IRBs and Ethics in Clinical Trials	1	38
PE-520	Biopharmaceutics and Pharmacokinetics	2	21
PM-553	National Regulatory Environment	2	137
GE-510	Biostatistics	2	48
GE-511	Seminar/Presentations	1	50
LG-513	Computer Applications	2	38
<b>Total Credits</b>		<b>13</b>	
<b>Semester-II</b>			
CR-610	Bioavailability and Bio-Equivalence Testing	2	97
CR-620	Clinical Research Management	2	97
CR-630	Safety in Clinical Trials	1	98
CR-640	Document for Clinical Trials	2	99
CR-650	Clinical Data Management	2	99
CR-660	Medical Writing and Reporting	1	100
CR-670	Clinical Trials in Special Populations	2	100
CR-680	Research Designs	2	101
PC-611	Pharmacological Screening and Assays	1	70
PE-620	Drug Delivery Systems	2	78
<b>Total Credits</b>		<b>17</b>	
<b>Semester-III</b>			
CR-551	Clinical Trials Documentation	3	116
CR-552	Monitoring of Clinical Investigations	1	116
CR-553	Emerging Technologies in Clinical Trials	1	116
CR-554	Quality Control and Quality Assurance in Clinical Trials	2	117
CR-555	Protocol Writing/Defence Assignment	1	117
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	

# PHARMACEUTICAL TECHNOLOGY (FORMULATIONS) M.Pharm.

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PT-580	Regulatory Considerations for Formulation Development	1	39
MC-511	Spectral Analysis	2	4
NP-510	Separation Techniques	1	7
PA -510	Topics in Pharmaceutical Analysis	2	13
PE-510	Dosage Form Design Parameters	1	21
PE-520	Biopharmaceutics and Pharmacokinetics	2	21
BT-510	Biotechnology in Pharmaceutical Sciences	1	24
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	39
<b>Total Credits</b>		<b>17</b>	
<b>Semester-II</b>			
PT-620	Pharmaceutical Production Technology	1	102
PT-660	Formulation Development Concepts as Applied in Industry	2	102
PT-670	Industrial Pharmaceutical Processing (Scale up and validation)	1	103
PA -630	Stability Testing	1	67
PE-620	Drug Delivery Systems	2	78
PE-630	Pharmaceutical Product Development-I	2	79
PE-660	Solid State Pharmaceutics	1	82
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	104
<b>Total Credits</b>		<b>13</b>	
<b>Semester-III</b>			
	Project (22 weeks)		
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	

# PHARMACEUTICAL TECHNOLOGY

## (PROCESS CHEMISTRY)

### M.Tech. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PT-510	Industrial Process and Scale-up Techniques	1	41
PT-560	Synthetic Aspects of Process Chemistry	2	41
MC-511	Spectral Analysis	2	4
MC-520	Logic in Organic Synthesis-I	3	5
NP-510	Separation Techniques	1	7
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LG-510	General Lab Experience	3	42
<b>Total Credits</b>		<b>16</b>	
<b>Semester-II</b>			
PT-610	Topics Relevant to Drugs and Pharmaceutical Industry	1	105
PT-630	Synthetic Bulk Drug Technology	2	105
PT-690	Downstream Processing of Biological Products	1	108
MC-620	Logic in Organic Synthesis-II	3	54
MC-650	Stereochemistry and Drug Action	2	56
PA-620	Instrumental Techniques for Evaluation of APIs and Drug Products	2	66
GE-611	Seminar	1	110
LS-610	General Laboratory Experience in the Area of Specialization	2	106
<b>Total Credits</b>		<b>14</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	

# PHARMACEUTICAL TECHNOLOGY (BIOTECHNOLOGY) M.Tech. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PT-520	Microbiology	1	43
PT-530	Biochemical Engineering Fundamentals	2	44
PT-540	Animal and Plant Cell Technology	1	45
PT-550	Enzyme and Microbial Technology	1	46
MC-511	Spectral Analysis	2	4
NP-510	Separation Techniques	1	7
GE-510	Biostatistics	2	48
GE-520	Fundamentals of Intellectual Property (IP) and Technology Management	1	48
GE-511	Seminar	1	50
LG-510	General Laboratory Experience	3	47
<b>Total Credits</b>		<b>15</b>	
<b>Semester-II</b>			
PT-640	Bioprocess Technology	1	107
PT-690	Downstream Processing of Biological Products	1	108
PC-610	Drug Metabolism	1	70
PC-611	Pharmacological Screening and Assays	1	70
BT-610	Molecular Biology	2	83
BT-620	Recombinant DNA Technology	2	84
BT-630	Immunology and Immunotechnology	2	85
PI-610	Bioinformatics	2	88
GE-611	Seminar	1	110
LS-610	General Lab Experience in the Area of Specialization	2	109
<b>Total Credits</b>		<b>15</b>	
<b>Semester-III</b>			
Project (22 weeks)			
TH-598	Synopsis	5	
TH-599	Presentation	3	
<b>Total Credits</b>		<b>8</b>	
<b>Semester-IV</b>			
TH-698	Thesis	9	
TH-699	Defence of Thesis	3	
<b>Total Credits</b>		<b>12</b>	
<b>Grand Total (I to IV semesters)</b>		<b>50</b>	



# PHARMACEUTICAL MANAGEMENT

M.B.A. (Pharm.)

Course Code	Course Name	Credits	Page No.
<b>Semester-I</b>			
PM-501	Fundamentals of Management	3	121
PM-502	Accounting for Management	3	121
PM-503	Managerial Economics	3	122
PM-504	Pharmaceutical Marketing	3	123
PM-505	Quantitative Techniques and Management	3	124
PM-506	Information Technology and MIS	3	125
PM-507	Human Behaviour in Organisation	2	125
PM-508	IPRs in Pharma Management	1	126
PM-511	Seminar	1	127
<b>Total Credits</b>		<b>22</b>	
<b>Semester-II</b>			
PM-601	Pharmaceutical Business Environment	3	128
PM-602	Financial Management	3	129
PM-603	Marketing Research	3	130
PM-604	Materials and Operations Management	3	131
PM-605	Business Communication	3	132
PM-606	Human Resource Management	2	133
PM-607	Supply Chain Management in Pharma. Sector	3	133
PT-610	Topics Relevant to Drugs and Pharmaceutical Industry	1	134
PM-611	Seminar	1	135
<b>Total Credits</b>		<b>22</b>	
<b>Semester-III</b>			
PM-551	Project Management	3	136
PM-552	Entrepreneurial Development	3	137
PM-553	National Regulatory Environment	2	138
PM-554	International Marketing	3	139
PM-555	Sales and Sales Promotion	3	140
PM-556	Industrial and Service Marketing	3	140
PM-557	Contemporary Issues in Pharmaceutical Marketing	2	141
PM-558	Fundamentals of R&D Management-I	2	142
PM-581	Project Summer Training	2	
<b>Total Credits</b>		<b>23</b>	
<b>Semester-IV</b>			
PM-651	Management Control System	3	143
PM-652	Strategic Management	3	144
PM-653	International Regulatory Environment	2	144
PM-654	Pharmaceutical Product Management	3	145
PM-655	Pharmaceutical Brand Management	3	146
PM-656	Consumer Behaviour	2	147
PM-657	Advertising in Pharmaceutical Sector	3	147
PM-658	Fundamentals of R&D Management-II	2	148
PM-680(a)	Major Research Project (Thesis)	9	
PM-680(b)	Defence of Thesis	3	
<b>Total Credits</b>		<b>33</b>	
<b>Grand Total (I-IV semesters)</b>		<b>100</b>	



# PH.D COURSES

Course Code	Course Name	Credits	Page No.
<b>Medicinal Chemistry</b>			
<b>Semester-I</b>			
MC-710	Stereoselective and Stereospecific Synthesis	2	151
MC-720	Synthetic Strategies in the Total Synthesis of Complex Organic Molecules	2	151
MC-730	Organometallic and Sustainable Chemistry in Synthesis of Pharmaceuticals	2	152
<b>Semester-II</b>			
MC-810	Principles of Peptide Chemistry	2	153
MC-820	Carbohydrates: Occurrence, Structure, Reactions, Syntheses, Functions and Applications in Present Day Drugs	2	154
MC-830	Advanced Topics in Drug Action and Drug Design	2	154
<b>Natural Products</b>			
<b>Semester-I</b>			
NP-710	Advanced Separation Techniques for Research	2	156
NP-720	Natural Product-Based Drugs and Lead Molecules	2	157
<b>Semester-II</b>			
NP-810	Advanced Structure Elucidation Techniques for Natural Products	2	158
<b>Pharmaceutical Analysis</b>			
<b>Semester-I</b>			
PA-710	Impurity and Metabolite Profiling	2	159
<b>Pharmacology and Toxicology</b>			
<b>Semester-II</b>			
PC-810	Application of Biotechnology in Parasitic Disease Research	2	160
PC-820	Pharmacological Interventions for Ischemic Brain Injury	2	160
PC-830	Parasitology/Microbiology, Community and Pharmacy	2	161
PC-840	Regulatory Toxicology and Drug Safety Evaluation	2	161
PC-850	Cellular and Molecular Parasitology	2	162
PC-860	Epigenetics and Diseases	2	163
<b>Pharmaceutics</b>			
<b>Semester-I</b>			
PE-710	Implications of Solid State Properties in Drug Delivery	2	164
<b>Semester-II</b>			
PE-810	Novel Approaches for Targeted Drug Delivery	2	164

# PH.D. COURSES

Course Code	Course Name	Credits	Page No.
<b>Biotechnology</b>			
<b>Semester-I</b>			
BT-710	Interfacial Enzymology	2	166
BT-720	Therapeutic and Diagnostic Approaches in Neglected Tropical Diseases	2	166
<b>Semester-II</b>			
BT-810	Protein Structure and Stability	2	167
BT-820	Host-Pathogen Interaction in Infectious Disease	2	167
<b>Pharmacoinformatics</b>			
<b>Semester-I</b>			
PI-710	Strategies in Lead Optimization	2	169
PI-720	Computational Biopharmaceutics and Pharmacokinetics	2	169
<b>Pharmacy Practice</b>			
<b>Semester-I</b>			
PP-701	Research Methods-I	2	171
<b>Semester-II</b>			
PP-801	Research Methods-II	2	171
<b>Pharmaceutical Technology (Process Chemistry)</b>			
<b>Semester-I</b>			
PT-710	Technologies for Green Chemistry	2	172
<b>Semester-II</b>			
PT-820	Topics in Organic Process Chemistry	2	172
<b>Pharmaceutical Technology (Biotechnology)</b>			
<b>Semester-II</b>			
PT-810	Biotransformation and Stereoselective Biocatalysis of Pharmaceutically Important Compounds	2	174