

#### **DETAILS OF PROGRAMMES**

### Legend

AN Aeronautics

BIO Biological Sciences

BIOT Biotechnology

CDP Courses on Development Process

CE Civil Engineering

CHE Chemical
CHEM Chemistry
CHI Chinese

CS/Comp/Comp Sc Computer Science

ECON Economics

ECE Electronics and Communication Engineering

EEE Electrical & Electronics Engineering

El Electronics & Instrumentation

ES Engineering Science
ET Engineering Technology

Engg Engineering: Chemical, Civil, Computer Science,

Electrical & Electronics, Electronics &

Instrumentation, Electronics and Communication,

Manufacturing, Mechanical

ENGL English

ExptlSc Experimental Science: Biological Sciences, Chemistry,

Physics

FIN Finance
FRE French
GER German

HSS Humanities and Social Sciences

IS Information Systems

ITEB Internet Technology and e-Business

JAP Japanese

L Lecture hours per week

MATH Mathematics

MBA Master of Business Administration

MECH Mechanical

MF Manufacturing Engineering

Min/Max Indicates minimum/maximum number of units specified in a

course or semester programme

MGTS Management

MGSYS Management Systems

MM Manufacturing Management
MPH Master in Public Health

MST Material Science and Technology

P Practical, Seminar & Project, etc. hours per week

PHIL Philosophy
PHARM Pharmacy
PHY Physics
RUS Russian

SAN Sanitation Science, Technology and Management

SS Software Systems

Sc. Biological Sciences, Chemistry, Economics, Mathematics,

**Physics** 

T Suffixed to a course number indicates that a non-letter grade

will be awarded in such a course

TA Technical Arts

TOC Technique Oriented Courses

U Number of units associated to a course

Course descriptions are available at: <a href="https://academic.bits-pilani.ac.in/Institute Important Documents.aspx">https://academic.bits-pilani.ac.in/Institute Important Documents.aspx</a>

#### INTEGRATED FIRST DEGREE PROGRAMMES

### (I) Structure of the Integrated First Degree Programmes

The structure and the requirements of the first degree programs ,namely, B.E.,B. Pharm., and M.Sc., are provided in the following sections.

The structure and the requirements of the first degree programs, namely, B.E., B. Pharm, M.Sc., and M.Sc.(Tech) are the same as provided in the following sections although the nomenclature of these programs is indicated without the Hons. / Tech. tag in the rest of the section.

# The category-wise structure of each programme:

Category	Number of Units Required	Number of Courses Required
(I) General Institutional Requ	uirement	
Humanities Electives	8	3
Science Foundation	12	6
Mathematics Foundation	12	4
Engineering Foundation	6	2
Technical Arts	10	4
General Awareness / Professional Courses	3 to 6	1 to 3
Sub-Total	51 to 54	20 to 22
(II) Discipline Requirement	,	
Core	33 to 48	10 to 16

Total	144 (min)	42 (min)
Thesis	9 to 16	1
OR	OR	OR
(IV) PS-I and II	25	2
Course-work Sub-Total	129 (min)	41 (min)
(III) Open Electives	15 to 27	5 to 9
Sub-Total	57 to 60	15 to 20
Elective	12 to 27	4 to 9

A student should complete the minimum number of courses and units required in each category as well as meet the minimum requirements of courses (42) and units (144) in total.

- 1. The following courses are needed to meet the General Institutional Requirement:
- a) General Biology, Biology Laboratory, General Chemistry, Chemistry Laboratory, Mechanics, Oscillations and Waves, and Physics Laboratory under the head of Science Foundation. For specific programs, General Physics may replace Mechanics, Oscillations and Waves.
- b) Electrical Sciences, Thermodynamics and Process Engineering under the head of Engineering Foundation.
- c) Computer Programming, Workshop Practice, Engineering Graphics, and Technical Report Writing under the head of Technical Arts.
- d) Principles of Economics, or Principles of Management and Environmental Studies\* under the head of General Awareness / Professional courses. \*[Students completing this course will be awarded a non-letter grade (GOOD or POOR)]

- 2. The courses under the following heads are designed to meet the General Institutional Requirement under the head of Humanities Electives:
  - Languages and Literature
  - History and Philosophy
  - Political and Social Sciences
  - Fine Arts and Professional Arts
- 3. A thesis is for 16 units and for a full semester duration. But a student has the option of pursuing a Thesis of 9 units concurrently with coursework over a full semester, in which case the additional coursework would be at least 2 courses of total 6 units to meet the minimum unit requirements.

The nominal semester-wise chart for first degree programs are given in the Pages 3-22.

## **Dual Degree Programs:**

Students admitted to M.Sc. programmes are given an opportunity to work under the dual degree scheme for one of the B.E. programmes, the assignment being made by competition on their performance at BITS at the end of the first year, separately in Pilani, Goa and Hyderabad campuses. The Dual Degree scheme at BITS Pilani is quite popular. Based on the above, the curricular structure of a dual degree programmmes has been derived using the following principles.

- General Institute Requirements will remain the same for both the degrees of the composite dual-degree program and therefore need not be repeated.
- While the Discipline Requirements of each of the two degrees in a dual degree program have to be met separately, any course that meets the discipline requirements of both the degree programs need not be repeated.
- o In addition the Discipline Elective courses of either of the two degrees

in a dual degree program may be used to fulfill the open elective requirement of the other degree.

- o A PS-II or Thesis must be done to meet the requirements of each degree. Therefore to complete the dual degree program a student must complete one of the following:
  - 2 Practice School-II courses
  - 2 Thesis courses
  - 1 Practice School-II course and 1 Thesis course.

A thesis for 9 units with concurrent course work for at most 9 units over a full semester duration is also possible as an option.

Based on these principles, the semester-wise patterns for a composite dual degree program as options for the student are shown in pages 23-25. However, the charts mentioned on pages 26-65 are designed to enable the students to complete the composite dual degrees in their respective programmes in 10 semesters.

	S	emeste	r-wise Pattern for Students A	Admitte	d to B.E	. Bioted	chnology Programme	
Year			First Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Open/Humanities Electives	3(min)			or	or
	вют	F211	Biological Chemistry	3	MGTS	F211	Principles of Management	3
	вют	F212	Microbiology	4			Open/Humanities Electives	3(min)
П	вют	F215	Biophysics	3	вют	F241	Genetic Engineering Techniques	4
	BIOT	F213	Cell Biology	3	BIOT	F243	Genetics	3
							Introduction to	
	BITS	F225	Environmental Studies	3	BIOT	F245	Environmental Biotechnology	3
					вют	F244	Instrumental Methods of Analysis	4
				22				20
Sumr	ner		BITS F221 Practice	School	- I (fo	r PS Op	tion Only)	
			Open/Humanities Electives	3to6			Open/Humanities Electives	3to6
	BIOT	F311	Recombinant DNA	3	BIOT	F342	Immunology	3
			Technology		BIOT	F343	Experiments in	
III							Biotechnology	3
	BIOT	F314	Industrial Microbiology &	4	BIOT	F344	Downstream Processing	3
			Bioprocess Engineering				Discipline Electives	6
			Discipline Electives	8				
				18/21				18/21
			Open Electives	5 to 11	BITS	F412	Practice School-II	20
			Discipline Electives	3			or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
					]		(6 to 9)	15to18
				8/14				15/20

Discipline Core -43 Units (13 Courses)

Discipline Electives-15 Units(5 Courses)

		Sem	ester-wise Pattern for Stu	udents Ad	lmitted t	o B.E. C	hemical Programme	
Year		Fi	rst Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH			3	BITS	F112	Technical Report Writing	2
	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211		3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	CHE	F211	Chemical Process		MGTS	F211	Principles of Management	
			Calculations	3			Humanities Electives	3(min)
	CHE		Engineering Chemistry	3	CHE	F241	Heat Transfer	3
II	CHE	F213	Chemical Engineering		CHE	F242	Numerical Methods for	
			Thermodynamics	3			Chemical Engineers	3
	CHE		Fluid Mechanics	3	CHE	F243	Material Science &	
	BITS	F225	Environmental Studies	3			Engineering	3
					CHE	F244	Separation Processes I	3
			5,55	21 (min)	<u> </u>			18(min)
Sumr	ner				School -	- I(for P	S Option Only)	0.0
			Open/Humanities Electives	3to6			Open/Humanities Electives	3to6
	CHE	F312	Chemical Engineering Laboratory I	3	CHE	F341	Chemical Engineering Laboratory II	3
	CHE	F313	Separation Processes II	3	CHE	F342	Process Dynamics &	3
III	CHE	F311	Kinetics & Reactor Design	3			Control	
	CHE	F314	Process Design Principles I	3	CHE	F343	Process Design	
			Discipline Electives	3			Principles II	3
							Discipline Electives	6
				18/21	<u></u>			18/21
			Open Electives	5 to 11	BITS	F412	Practice School-II	20
			Discipline Electives	6			or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15 to 18
1	l			11/17	1			15/20

Discipline Core -45 Units (15 Courses)

Discipline Electives-15 Units(5 Courses)

		Se	emester-wise Pattern for S	Students	Admitte	ed to B.E	. Civil Programme	
Year		F	irst Semester	U		Sec	cond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
ı	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3 (min)			or	or
	CE	F211	Mechanics of Solids	3	MGTS	F211	Principles of Management	3
	CE	F231	Fluid Mechanics	3			Humanities Electives	3 (min)
	CE	F213	Surveying	4	CE	F241	Analysis of Structures	3
II	CE	F230	Civil Engineering Materials	4	CE	F242	Construction Planning & Technology	3
					CE	F243	Soil Mechanics	4
					CE	F244	Highway Engineering	4
					BITS	F225	Environmental Studies	3
				20 (min)				20(min)
Sumr	ner		BITS F221 Pra	actice Scl	nool – I	(for PS	Option Only)	
		Open	/Humanities Electives	1 to 4			Open/Humanities	2 to 5
	CE	F320	Design of Reinforced Concrete Structures	3			Electives	
	CE	F312	Hydraulic Engineering	4	CE	F342	Water & Waste Water	4
III	CE	F313	Foundation Engineering	3			Treatment	
			Discipline Electives	6	CE	F321	Engineering Hydrology	3
					CE	F343	Design of Steel Structures	3
							Discipline Electives	6
				17/20				18/21
			Open Electives	8to14	BITS	F412	Practice School-II	20
							or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15to18
				8/14				15/20

Discipline Core -48 Units (14 Courses)

Discipline Electives-12 Units(4 Courses)

	Se	meste	r-wise Pattern for Students	Admitte	d to B. E	E. Compu	uter Science Programme	
Year			First Semester	U		Sec	ond Semester	U
	BIO		Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	cs	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	cs	F214	Logic in Computer Science	3	MGTS	F211	Principles of Management	3
	cs	F222	Discrete Structures for	3			Humanities Electives	3(min)
			Computer Science		CS	F211	Data Structures &	
II	CS	F213	Object Oriented Programming	4			Algorithms	4
	CS	F215	Digital Design	4	CS	F241	Microprocessors & Interfacing	4
					cs	F212	Database Systems	4
					BITS	F225	<b>Environmental Studies</b>	3
				20(min)				21(min)
Sumn	ner		BITS F221 Prac	tice Scho	ol – I	(for PS C	ption Only)	
			Open/Humanities Electives	3to6			Open/Humanities	2to5
	CS		Theory of Computation	3			Electives	
	CS		Operating Systems	3	CS	F363	Compiler Construction	3
	cs	F301	Principles of Programming		CS	F364	Design & Analysis of	3
III			Languages	2			Algorithms	
	cs	F342	Computer Architecture	4	CS	F303	Computer Networks	4
			Discipline Electives	3(min)			Discipline Electives	6(min)
				18/21				18/21
			Open Electives	6to12	BITS	F412	Practice School-II	20
			Discipline Electives	3(min)			or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15to18
				9/15				15/20

Discipline Core -48 Units (14 Courses)

Discipline Electives-12 Units(4 Courses)

	Seme	ster-wi	se Pattern for Students Ad	mitted t	o B.E. E	lectric	al & Electronics Programme	•
Year		F	irst Semester	U		S	econd Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	EEE	F211	Electrical Machines	4	MGTS	F211	Principles of Management	3
	EEE	F212	Electromagnetic Theory	3			Humanities Electives	3(min)
п	EEE	F215	Digital Design	4	EEE	F241	Microprocessors & Interfacin	4
"	EEE	F214	Electronic Devices	3	EEE	F242	Control Systems	3
					EEE	F243	Signals & Systems	3
					EEE	F244	Microelectronic Circuits	3
					BITS	F225	Environmental Studies	3
				<b>20(</b> min)	1			22(min)
Sumi	ner				hool –	for F	S Option Only)	ı
			Open/Humanities Electives				Open/Humanities Electives	3to6
	EEE	F311	Communication Systems	4	EEE		Analog Electronics	4
	MATH	F212	Optimization	3	EEE	-	Power Electronics	4
			or		EEE	F312	Power Systems	3
III	ME	F344	Engineering Optimization	2			Discipline Electives	4(min)
	EEE	F313	Analog & Digital VLSI Design	3				
			Discipline Electives	5(min)				
				18/21				18/21
			Open Electives		BITS	F412	Practice School-II	20
			Discipline Electives	3(min)			or .	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
					1		(6 to 9)	15to18
				8/14				15/20

Discipline Core -47 or 48 Units (14 Courses)

Discipline Electives-12 Units (4 Courses)

Se	emester	-wise F	Pattern for Students Adm	itted to I	B.E. Elec	ctronics &	& Communication Progra	mme
Year		Fi	rst Semester	U		Seco	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
l	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	ECE	F211	Electrical Machines	4	MGTS	F211	Principles of Management	3
	ECE	F212	Electromagnetic Theory	3			Humanities Electives	3(min)
	ECE	F215	Digital Design	4	ECE	F241	Microprocessors and	
II	ECE	F214	Electronic Devices	3			Interfacing	4
					ECE	F242	Control Systems	3
					ECE	F243	Signals & Systems	3
					ECE	F244	Microelectronic Circuits	3
					BITS	F225	<b>Environmental Studies</b>	3
				20(min)				22(min)
Sumn	ner			S F221 F	Practice	School -	I (for PS Option Only)	
			Open/Humanities Electives	3 to 6			Open/Humanities Electives	3 to 6
	ECE	F311	Communication Systems	4	ECE	F341	Analog Electronics	4
III	ECE	F314	Electromagnetic Fields &		ECE	F343	Communication Networks	3
			Microwave Engineering	3	ECE	F344	Information Theory &	
	ECE	F434	Digital Signal Processing	4			Coding	3
			Discipline Electives	4(min)			Discipline Electives	5(min)
				18/21				18/21
			Open Electives	5 to 11	BITS	F412	Practice School-II	20
			Discipline Electives	3			or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
					1		(6 to 9)	15 to 18
L				8/14				15/20

Discipline Core-48 Units (14 Courses)

Discipline Electives-12 Units (4 Courses)

S	emester	-wise F	Pattern for Students Adm	itted to B	.E. Elec	tronics a	and Instrumentation Progra	mme
Year		Fi	rst Semester	U		Se	cond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
•	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	INSTR	F211	Electrical Machines	4	MGTS	F211	Principles of Management	3
	INSTR	F212	Electromagnetic Theory	3			Humanities Electives	3(min)
Ш	INSTR	F215	Digital Design	4	INSTR	F241	Microprocessors & Interfacing	4
	INSTR	F214	Electronic Devices	3	INSTR	F242	Control Systems	3
					INSTR	F243	Signals & Systems	3
					INSTR	F244	Microelectronic Circuits	3
					BITS	F225	Environmental Studies	3
				20(min)				22(min)
Sumr	ner		BITS F221 Pract	ice Scho	ol – I	(for PS	Option Only)	
			Open/Humanities Electives	3to6			Open/Humanities Electives	3to6
	INSTR	F311	Electronic Instruments &		INSTR	F341	Analog Electronics	4
			Instrumentation Technology	4	INSTR	F342	Power Electronics	4
III	INSTR	F312	Transducers & Measurement Systems	3	INSTR	F343	Industrial Instrumentation & Control	3
	INSTR	F313	Analog & Digital VLSI Design	3			Discipline Electives	4(min)
			Discipline Electives	5(min)				
				18/21				18/21
			Open Electives	5to11	BITS	F412	Practice School-II	20
			Discipline Electives	3			or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15to18
				8/14				15/20

Discipline Core- 48 Units (14 Courses)
Discipline Electives-12 Units (4 Courses)

		Semes	ster-wise Pattern for Stude	nts Admi	tted to E	B.E. Mec	hanical Programme	
Year			rst Semester	U			ond Semester	U
	BITS	F110	Engineering Graphics	2	BITS	F111	Thermodynamics	3
	BIO	F110	Biology Laboratory	1	BITS	F112	Technical Report Writing	2
	BIO	F111	General Biology	3	CS	F111	Computer Programming	4
	CHEM	F110	Chemistry Laboratory	1	EEE	F111	Electrical Sciences	3
1	CHEM	F111	General Chemistry	3	MATH	F112	Mathematics II	3
'	MATH	F111	Mathematics I	3	MATH	F113	Probability and Statistics	3
	PHY	F110	Physics Laboratory	1	ME	F112	Workshop Practice	2
	PHY	F111	Mechanics, Oscillations and Waves	3				
				17				20
	MATH	F211	Mathematics III	3	BITS	F225	Environmental Studies	3
	ME	F211	Mechanics of Solids	3	ECON	F211	Principles of Economics	3
	ME	F212	Fluid Mechanics	3			or	or
	ME	F216	Materials Science & Engineering	3	MGTS	F211	Principles of Management	3
II	ME	F217	Applied Thermodynamics	4	ME	F218	Advanced Mechanics of Solids	2
			Humanities Electives	3(min)	ME	F219	Manufacturing Processes	4
					ME	F220	Heat Transfer	4
					ME	F221	Mechanisms and Machines	3
							Humanities Electives	3(min)
_				19(min)				22(min)
Sumr	ner		BITS F221 Practice	School -	· I (fo	or PS Op	otion Only)	
			Open/Humanities Electives	1 to 4			Open/Humanities Electives	3 to 6
	ME	F314	Design of Machine Elements	3	ME	F318	Computer-Aided Design	3
	ME	F315	Advanced Manufacturing Processes	3	ME	F319	Vibrations & Control	3
Ш	ME	F316	Manufacturing Management	2	ME	F320	Engineering Optimization	3
	ME	F317	Engines, Motors, and Mobility	2	ME	F341	Prime Movers & Fluid Machines	3
			Discipline Electives	6(min)			<b>5</b> 1 1 1 <b>5</b> 1 1	
							Discipline Electives	3(min)
				17/20	1			18/21
			Open Electives	7to13	BITS	F412	Practice School-II	20
			Discipline Electives	3(min)			or	or
					BITS	F4217	Thesis	16
IV							or	
							Thesis (9) and Electives	45
				40//-	4		(6 to 9)	15 to 18
1	l			10/16	1			15/20

Discipline Core - 48 Units (16 Courses)
Discipline Electives - 12 Units (4 Courses)

	S	Semest	er-wise Pattern for Studer	nts Admi	tted to B	B.E. Man	ufacturing Programme	
Year		F	irst Semester	U		Sec	ond Semester	U
	BITS	F110	Engineering Graphics	2	BITS	F111	Thermodynamics	3
	BIO	F110	Biology Laboratory	1	BITS	F112	Technical Report Writing	2
	BIO	F111	General Biology	3	CS	F111	Computer Programming	4
	CHEM	F110	Chemistry Laboratory	1	EEE	F111	Electrical Sciences	3
1	CHEM	F111	General Chemistry	3	MATH	F112	Mathematics II	3
ı '	MATH	F111	Mathematics I	3	MATH	F113	Probability and Statistics	3
	PHY	F110	Physics Laboratory	1	ME	F112	Workshop Practice	2
	PHY	F111	Mechanics, Oscillations and Waves	3				
				17				20
	MATH	F211	Mathematics III	3	BITS	F225	<b>Environmental Studies</b>	3
	MF	F211	Mechanics of Solids	3	ECON	F211	Principles of Economics	3
	MF	F216	Materials Science & Engineering	3			or	or
	MF	F217	Machine Drawing	2	MGTS	F211	Principles of Management	3
	MF	F218	Transport Phenomena in Manufacturing	4	MF	F219	Operations Management	3
II			Humanities Electives	3(min)	MF	F220	Metrology and Quality Assurance	3
					MF	F221	Mechanisms and Machines	3
					MF	F222	Casting, Forming and Welding	4
					<u></u>		Humanities Electives	3(min)
				18(min)				22(min)
Sumi	ner		BITS F221 I	Practice	School -	– I (fo	r PS Option Only)	1
			Open/Humanities Electives	2 to 5			Open/Humanities Electives	2 to 5
	MF	F314	Design of Machine Elements	3	MF	F317	Computer Aided Design and Manufacturing	3
Ш	MF	F315	Automation and Control	4	MF	F318	Non Traditional Manufacturing Processes	3
	MF	F316	Machining and Machine Tools	4	MF	F319	Supply Chain Management	3
			Discipline Electives	6(min)	MF	F320	Engineering Optimization	3
					<u> </u>		Discipline Electives	3(min)
				19/22				17/20
			Open Electives	7 to 13	BITS	F412	Practice School-II	20
			Discipline Electives	3(min)			or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15 to18
L			ts (15 Courses)	10/16				15/20

Discipline Core - 48 Units (15 Courses)
Discipline Electives - 12 Units (4 Courses)

Note:This is an operative pattern for the students who are admitted from August 2019 onwards as approved by the Senate-appointed committee, subject to change if the situation warrants.

		Sem	ester-wise Pattern for Stu	udents A	dmitted	to B. Pl	narm.Programme	
Year		Fir	st Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
ı	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
•	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	вітѕ	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	PHA	F211	Pharmaceutical Analysis	3	MGTS	F211	Principles of Management	3
	PHA	F214	Anatomy, Physiology &				Humanities Electives	3(min)
Ш			Hygiene	3	PHA	F241	Pharmaceutical Chemistry	3
	PHA	F216	Pharmaceutical Formulations I	3	PHA	F242	Biological Chemistry	3
	PHA	F217	Pharmaceutical Microbiology	3	PHA	F243	Industrial Pharmacy	3
	BITS	F225	Environmental Studies	3	PHA	F244	Physical Pharmacy	3
				21(min)				18(min)
Sumr	ner		BITS F221 Practice Sc	chool – I	(foi	PS Opt	tion Only)	
			Open/Humanities Electives	2 to 5			Open/Humanities Electives	4 to 6
	PHA	F311	Pharmacology I	3	PHA	F341	Pharmacology II	3
	PHA	F312	Medicinal Chemistry I	3	PHA	F342	Medicinal Chemistry II	3
III	PHA	F313	Instrumental Methods of Analysis	4	PHA	F343	Forensic Pharmacy	2
	PHA	F315	Pharmaceutical Formulations II	3	РНА	F344	Natural Drugs	3
			Discipline Electives	3(min)			Discipline Electives	3(min)
				18/21				18/20
			Open Electives	6 to 11	BITS	F412	Practice School-II	20
			Discipline Electives	6(min)			or	or
					BITS	F421T	Thesis	16
IV							or Thesis (9) and Electives	
							(6 to 9)	15 to 18
				12/17				15/20
			its (16 Courses): Discipline F					

Discipline Core - 48 Units (16 Courses); Discipline Electives-12 Units(4 Courses)

Note: This is operative pattern for the students who are admitted during 2011-2013 as approved by the Senate-appointed committee, subject to change if the situation warrants.

	Se	mester-wise Pattern for Stud	dents Ad	lmitted to B.	Pharm. Programme	
Year		First Semester	U	1	econd Semester	U
	BIO F110	Biology Laboratory	1	BITS F114	General Mathematics II*	3
	BIO F111	General Biology	3	OR		
	CHEM F110	Chemistry Laboratory	1	MATH F112	Mathematics II	
		General Chemistry	3	ME F112	Workshop Practice	2
	BITS F113	General Mathematics I*	3	CS F111	Computer Programming	4
	OR			PHA F214	Anatomy, Physiology, &	3
	MATH F111	Mathematics I		Hygiene		
ı	PHY F110	Physics Laboratory	1	PHA F216	Pharmaceutical Formulations I	3
	PHY F112	General Physics	3	BITS F112	Technical Report Writing	2
	OR			MGTS F211	Principles of Management	
	PHY F111	Mechanics, Oscillations and		OR		3
	Waves			ECON F211	Principles of Economics	
	BITS F110	Engineering Graphics	2	_		
			17			20
	Humanities E		3	Humanities E		3
	BITS F218	General Mathematics III*	3	BITS F111	Thermodynamics	3
	OR			PHA F241	Pharmaceutical Chemistry	3
	MATH F211				Probability and Statistics	3
п	PHA F211	Pharmaceutical Analysis	3	PHA F215	Introduction to Molecular	
	BITS F219	Process Engineering	3		Biology and Immunology	3
	PHA F242	Biological Chemistry	3	PHA F244	Physical Pharmacy	3
		narmaceutical Microbiology	3	1		
	BITS F225	Environmental Studies	3	1		
			21			18
Sumn		1 Practice School I (5 Units)	_			1
		nities Electives	2 to 5		nities electives	4 to 6
	PHA F311	Pharmacology I	3	PHA F341	Pharmacology II	3
	PHA F312	Medicinal Chemistry I	3	PHA F342	Medicinal Chemistry II	3
	PHA F313	Instrumental Methods of	4	PHA F343	Forensic Pharmacy	2
III		Analysis		PHA F344	Natural Drugs	3
	PHA F315	Pharmaceutical Formulations II	3	Discipline Ele	ectives	3(min)
	Discipline Ele	ectives	3 (min)			
			18 /21			18 /20
	Open elective		6to11	-	Practice School II	20
	Discipline Ele	ectives	6 (min)	OR		
IV				BITS F421T		16 or 15
				or Thesis (9)	and Electives (6 to 9)	to 18
			12/17	l		15/20

Discipline Core -48 Units (16 Courses)

Discipline Electives- 12 Units (4 Courses)

<sup>\*</sup> A student must pursue all three courses in one sequence only (i.e. either Mathematics I, Mathematics II, and Mathematics III, or General Mathematics, General Mathematics II, and General Mathematics III).

	Sem	ester-w	vise Pattern for Students A	dmitted	to M.Sc	. Biolog	ical Sciences Programme	
Year		Fi	rst Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	BIO	F211	Biological Chemistry	3	MGTS	F211	Principles of Management	3
	BIO	F213	Cell Biology	3			Humanities Electives	3(min)
	BIO	F212	Microbiology	4	BIO	F241	Ecology & Environmental	
ш	BIO	F214	Integrated Biology	3			Science	3
•	BITS	F225	Environmental Studies	3	вю	F242	Introduction to Bioinformatics	3
					BIO	F243	Genetics	3
					вю	F244	Instrumental Methods of Analysis	4
				22(min)				19(min)
Sum	mer		BITS F221 Praction	ce Schoo	ol – I (f	or PS O <sub>l</sub>	otion Only)	
			Open/Humanities Electives	3 to 6			Open/Humanities Electives	0 to 3
	BIO	F311	Recombinant DNA	3	BIO	F341	Developmental Biology	3
			Technology		BIO	F342	Immunology	3
III	BIO	F312	Plant Physiology	3	BIO	F215	Biophysics	3
	BIO	F313	Animal Physiology	3			Discipline Electives	9(min)
			Discipline Electives	6(min)				
				18/21				18/21
			Open Electives	8 to14	BITS	F412	Practice School-II	20
							or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15 to18
				8/14				15/20

<sup>\*</sup>Discipline Core - 44 Units (14 Courses)

<sup>\*</sup>Discipline Electives - 15 Units (min)-(4 Courses (min))

		Semes	ster-wise Pattern for Stude	nts Adm	itted to	M.Sc. C	hemistry Programme	
Year		Fi	rst Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
l '	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	CHEM	F211	Physical Chemistry I	3	MGTS	F211	Principles of Management	3
	CHEM	F212	Organic Chemistry I	3			Humanities Electives	3(min)
	CHEM	F213	Physical Chemistry II	3	CHEM	F241	Inorganic Chemistry II	
II	PHY	F212	Electromagnetic Theory I	3	СНЕМ	F242	Chemical Experimentation I	3
	CHEM	F214	Inorganic Chemistry I	3	CHEM	F243	Organic Chemistry II	3
					CHEM	F244	Physical Chemistry III	3
					BITS	F225	<b>Environmental Studies</b>	3
				21(min)				21(min)
Sumi	mer		BITS F221 Practice	School	-I (	for PS O	ption Only)	
			Open/Humanities Electives	2 to 5			Open/Humanities Electives	2 to 5
	CHEM	F313	Instrumental Methods of		CHEM	F341	Chemical Experimentation II	4
			Analysis	4	CHEM	F342	Organic Chemistry IV	3
III	CHEM	F311	Organic Chemistry III	3	CHEM	F343	Inorganic Chemistry III	3
	CHEM	F312	Physical Chemistry IV	3			Discipline Electives	6(min)
			Discipline Electives	6(min)				
				18/21				18/21
			Open Electives	7 to13	BITS	F412	Practice School-II	20
							or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
					1		(6 to 9)	15 to18
				7/13				15/20

Discipline Core-47 Units (15 Courses)

Discipline Electives-12 Units(4 Courses)

	;	Semest	er-wise Pattern for Studen	ıts Admi	tted to N	/I. Sc. E	conomics Programme	
Year		Fi	rst Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
ı	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
			Humanities Electives	3(min)			Humanities Electives	3(min)
	ECON	F211	Principles of Economics	3	ECON	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance &		ECON	F242	Microeconomics	3
			Accounts	3	<b>ECON</b>	F243	Macroeconomics	3
II	ECON	F213	Mathematical & Statistical		ECON	F244	Economics of Growth &	
			Methods	3			Development	3
	ECON	F214	Economic Environment of Business	3				
	BITS	F225	Environmental Studies	3				
				21(min)				18(min)
Sum	mer		BITS F221 Pra	ctice Scl	hool – I	(for	PS Option Only)	
			Open/Humanities Electives	3 to 6			Open/Humanities Electives	3 to 6
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory &	
	ECON	F312	Money Banking & Financial	3			Policy	3
Ш			Markets		ECON	F342	Applied Econometrics	3
	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3
			Discipline Electives	6(min)			Discipline Electives	6(min)
				18/21	1			18/21
			Open Electives	5 to 11	BITS	F412	Practice School-II	20
			Discipline Electives	6	-		or	or
			-1		BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15to18
				11/17	1		(0 0)	15/20
		40.11	·· (44.0	1 1/17				13/20

Discipline Core -42 Units (14 Courses)

Discipline Electives -18 Units(6 Courses)

	5	Semest	er-wise Pattern for Studen	ts Admit	ted to M	.Sc. Mat	hematics Programme	
Year		Fi	irst Semester	U		Seco	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
l i	MATH	F111	Mathematics I	3	BITS	F112	<b>Technical Report Writing</b>	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	MATH	F212	Optimization	3	MGTS	F211	Principles of Management	3
	MATH	F213	Discrete Mathematics	3			Humanities Electives	3(min)
II	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3
	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3
	BITS	F225	<b>Environmental Studies</b>	3	MATH	F243	Graphs & Networks	3
					MATH	F244	Measure & Integration	3
				21(min)				18(min)
Sumi	mer		BITS F221 Pra	actice So	hool – I	(for F	PS Option Only)	
			Open/Humanities Electives	3 to 6			Open/Humanities	
	MATH	F311	Introduction to Topology	3			Electives	0 to 3
	MATH	F312	Ordinary Differential		MATH	F341	Introduction to Functional	
Ш			Equations	3			Analysis	3
	MATH	F313	Numerical Analysis	3	MATH	F342	Differential Geometry	3
			Discipline Electives	6	MATH	F343	Partial Differential Equations	3
							Discipline Electives	9
				18/21				18/21
			Open Electives	8 to14	BITS	F412	Practice School-II	20
							or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
					1		(6 to 9)	15 to18
				8/14				15/20

Discipline Core -42 Units (14 Courses)

Discipline Electives -15 Units (5 Courses)

		Semes	ter-wise Pattern for Studer	nts Admi	tted to I	M. Sc.	Physics Programme	
Year		Fi	rst Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
l i	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations		BITS	F111	Thermodynamics	3
			and Waves	3				
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	PHY	F211	Classical Mechanics	4	MGTS	F211	Principles of	3
							Management	
	PHY	F212	Electromagnetic Theory I	3			Humanities Electives	3(min)
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory	4
II	D1 1) (	<b>5044</b>	El		DI N	<b>F</b> 0.40		
	PHY	F214	Electricity, Magnetism &		PHY	F242	Quantum Mechanics I	3
			Optics Laboratory	2	PHY	F243	Mathematical Methods of Physics	3
					PHY	F244	Modern Physics	2
	BITS	F225	Environmental Studies	3	FIII	1 244	Laboratory	
				21(min)				18(min)
Sumi	mer		BITS F221 Pra		hool – I	(for F	S Option Only)	,
			Open/Humanities	3 to 6		`	Open/Humanities	3 to 6
			Electives				Electives	
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular	
	PHY	F313	Computational Physics	3			Physics	3
Ш			Discipline Electives	6(min)	PHY	F343	Nuclear & Particle	3
							Physics	
					PHY	F344	Advanced Physics	3
							Laboratory	
							Discipline Electives	3(min)
				18/21				18/21
			Open Electives	5 to 11	BITS	F412	Practice School-II	20
			Discipline Electives	6(min)			or	or
l					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
							(6 to 9)	15 to 18
			site (15 Courses)	11/17				15/20

<sup>\*</sup>Discipline Core - 45 Units (15 Courses)

<sup>\*</sup>Discipline Electives - 15 Units (min)-4 Courses(min)

Sen	nester-v	vise Pa	ittern for Students Admitted St	d to M.S.		eral Stud	lies - Communication and	d Media
Year		F	First Semester	U		Sec	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH		Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
l '	PHY	F110	Physics Laboratory	1	MATH	_	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
			Mathematics III	3	ECON	F211	Principles of Economics	3
			Humanities Electives	3(min)			or	or
	GS	F221	Business Communication	3	MGTS	F211	Principles of Management	3
	GS	F222	Language Lab Practice	3			Humanities Electives	3(min)
II	GS	F223	Introduction to Mass Communication	3	GS	F244	Reporting & Writing for Media	3
	GS	F224	Print & Audio Visual	3	GS	F241	Creative Writing	3
			Advertising		GS	F245	Effective Public Speaking	3
	BITS	F225	Environmental Studies	3	GS	F243	Current Affairs	3
				21(min)				18(min)
Sumi	mer		BITS F221 Prac	tice Sch	nool – I	(for F	PS Option Only)	
			Open/Humanities Electives	3 to 6			Open/Humanities	
	GS	F321	Mass Media Content &				Electives	3 to 6
			Design	3	GS	F342	Computer Mediated	
Ш	GS	F322	Critical Analysis of Literature	3			Communication	3
			& Cinema		GS	F343	Short Film & Video Production	3
			Discipline Electives	9(min)			Discipline Electives	9(min)
				18/21	1			18/21
			Open Electives	5 to 11	BITS	F412	Practice School-II	20
			Discipline Electives	3(min)			or	or
					BITS	F421T	Thesis	16
IV							or	
							Thesis (9) and Electives	
					1		(6 to 9)	15 to18
				8/14				15/20

Discipline Core - 36 Units (12 Courses)

Discipline Electives - 21 Units(7 Courses)

Sem	ester-wi	se Patt	ern for Students Admitted	to M.Sc.	Genera	al Studie	s - Development Studies	Stream
Year		Fi	irst Semester	U		Seco	ond Semester	U
	BIO	F110	Biology Laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEM	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
l	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS	F110	Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
			Humanities Electives	3(min)			Humanities Electives	3(min)
	GS	F211	Modern Political Concepts	3	GS	F231	Dynamics of Social	
II	GS	F212	Environment, Development				Change	3
			& Climate Change	3	GS	F232	Introductory Psychology	3
	GS	F213	Development Theories	3	GS	F233	Public Policy	3
	ECON	F211	Principles of Economics	3	GS	F234	Development Economics	3
	BITS	F225	<b>Environmental Studies</b>	3				
				21(min)				18(min)
Sumi	mer		BITS F221 Practice	School	-I (	for PS O	ption Only)	
			Open/Humanities Electives	3 to 6			Open/Humanities	
	GS	F311	Introduction to Conflict				Electives	0 to 3
			Management	3	GS	F331	Techniques in Social	
	GS	F312	Applied Philosophy	3			Research	3
Ш			Discipline Electives	9(min)	GS	F332	Contemporary India	3
					GS	F333	Public Administration	3
					GS	F334	Global Business Technology & Knowledge Sharing	3
							Discipline Electives	6(min)
				18/21	1		Pigothine Flectives	18/21
			Open Electives	8 to 14	BITS	F412	Practice School-II	20
			Opon Licotives	0 10 14	5110	1712	or	or
					BITS	F421T	Thesis	16
IV					5110	1 7411	or	10
'V							Thesis (9) and Electives	
							(6 to 9)	15 to 18
				8/14	1		(0.10.0)	15/20
	1			U/ 17	1			13/20

Discipline Core - 42 Units (14 Courses)
Discipline Electives - 15 Units (5 Courses)

		Patter		tern for C	•		Degree Programmes	
Year		Fi	rst Semester	U			cond Semester	U
	BIO	F110	Biology laboratory	1	MATH	F112	Mathematics II	3
	ВЮ	F111	General Biology	3	ME	F112	Workshop Practice	2
	СНЕМ	F110	Chemistry Laboratory	1	cs	F111	Computer Programming	4
	СНЕМ	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
ı	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations		BITS	F111	Thermodynamics	3
	BITS	F110	and Waves	3				
			Engineering Graphics	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
			First Discipline Core				or	
			Courses	13 to 17	MGTS	F211	Principles of Management	
II			Electives	3 to 6			First Discipline Core	
							Courses	13 to 17
							Electives	3 to 6
				23/24				23/24
Sun	nmer		BITS F221 Pract	ice Scho	ol – l(fc	or PS O	otion Only)	T
			Second Discipline Core				Second Discipline Core	
			courses	12 to 16			Courses	12 to 16
III			First Discipline Courses-Core/Elective	7 to 11			First Discipline Courses – Core / Elective	7 to 11
				23/24				23/24
			First Discipline Elective Courses	3 to 10			First Discipline Elective Courses	3to10
IV			Second Discipline Courses – Core + Elective	14 to 18			Second Discipline Courses - Core + Elective	14 to 18
							Electives (0 to 6)	0 to 6
				23/24				23/24
			Electives	5 to 9	BITS	F412	Practice School-II	20
V	BITS	F423T	Thesis	9			or	or
v					BITS	F421T	Thesis	16

Patte	rn 2		Semester-wise Pattern fo (Option B: Duration 1				•	
Year			First Semester	U		Se	cond Semester	U
	BIO	F110	Biology laboratory	1	MATH	F112	Mathematics II	3
	BIO	F111	General Biology	3	ME	F112	Workshop Practice	2
	СНЕМ	F110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM	F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
1	MATH	F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
'	PHY	F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY	F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	4
	BITS	F110	Engineering Graphics(2)	2				
				17				20
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics or	
II			First Discipline Core Courses	13 to 17	MGTS	F211	Principles of Management	3
II.			Electives	3 to 6			First Discipline Core Courses	13 to 17
							Electives	3 to 6
				23/24				23/24
Sumi	ner		BITS F221 Prac	tice Scho	ool – l(f	or PS	Option Only)	
			Second Discipline Core				Second Discipline Core	
			Courses	12 to 16			Courses	12 to 16
Ш			First Discipline Courses - Core / Elective	7 to 11			First Discipline Courses - Core / Elective	7 to 11
				23/24				23/24
			First Discipline Elective Courses	3/10			First Discipline Elective Courses	3 to 10
IV			Second Discipline Courses – Core + Elective	14 to 18			Second Discipline Courses - Core + Elective	14 to 18
			Electives	0 to 6			Electives	0 to 6
				23/24	1			23/24
Sumi	ner		Electives	5/9				
	BITS	F412	Practice School - II	20	BITS	F413	Practice School - II	20
			or	or			or	or
V	BITS	F421 T	Thesis	16	BITS	F422	Thesis	16

	Pa	attern 3 Semesterwise P	attern for	Dual D	egree	(Duration 11 Sem.)	
Year		First Semester	U		Se	econd Semester	U
	BIO F110	Biology laboratory	1	MATH	F112	Mathematics II	3
	BIO F111	General Biology	3	ME	F112	Workshop Practice	2
	CHEMF110	Chemistry Laboratory	1	CS	F111	Computer Programming	4
	CHEM F111	General Chemistry	3	EEE	F111	Electrical Sciences	3
	MATH F111	Mathematics I	3	BITS	F112	Technical Report Writing	2
l '	PHY F110	Physics Laboratory	1	MATH	F113	Probability and Statistics	3
	PHY F111	Mechanics, Oscillations and Waves	3	BITS	F111	Thermodynamics	3
	BITS F110	Engineering Graphics	2				
			17				20
	MATH F211	Mathematics III	3	ECON	F211	Principles of Economics	13
		First Discipline Core	13 to 17			or	
II		Courses	10 10 17	MGTS	F211	Principles of Management	
		Electives	3 to 6			First Discipline Core Courses	13 to 17
						Electives	3 to 6
		21/22				21/22	
Sumr	ner	BITS F221 Pra	actice Sch	nool – I	(fo	r PS Option Only)	
		Second Discipline Core courses	12 to 16			Second Discipline Core	
Ш		First Discipline Courses -				Courses	12 to 16
""		Core/Elective	7 to 10			First Discipline Courses – Core / Elective	7to11
			21/22				21/22
		First Discipline Elective Courses	3 to 10			First Discipline Elective Courses	3 to10
IV		Second Discipline Courses  – Core+Elective	14 to 18			Second Discipline Courses - Core + Elective	14 to 18
		Electives	0 to 6			Electives	0 to 6
			21/22				21/22
V		Electives	17 to 23	BITS F	<del>-</del> 412	Practice School-II	20
V						or	or
				BITS I	-421T	Thesis	16
	BITS F413	Practice School-II	20				
VI		or	or				
	BITS F4227	Thesis	16				

		Se	mester-wise pattern for c (M.Sc. Biological Sc	•		_	•	
Year		Fi	rst Semester	U			econd Semester	U
- 1	Sam	e as Fi	st degree Programme		Sa	me as	First degree Programme	
			rst Semester	U			second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics/	3
	BIO	F211	Biological Chemistry	3			Principles of Management	
	BIO	F213	Cell Biology	3	BIO	F241	Ecology & Environmental	
	BIO	F212	Microbiology	4			Science	3
	BIO	F214	Integrated Biology	3	BIO	F242	Introduction to	
II			Humanities Elective	3			Bioinformatics	3
	BITS	F225	<b>Environmental Studies</b>	3	BIO	F243	Genetics	3
					BIO	F244	Instrumental Methods of	
							Analysis	4
							Humanities Electives	5
				22				21
Summe	er		BITS F221 Practice Sch	ool -1	(for PS	Option	Only) (5 Units)	
		Fi	rst Semester	U		s	econd Semester	U
	BIO	F311	Recombinant DNA	3	BIO	F341	Developmental Biology	3
			Technology		BIO	F342	Immunology	3
	BIO	F312	Plant Physiology	3	BIO	F215	Biophysics	3
	BIO	F313	Animal Physiology	3	CHE	F241	Heat Transfer	3
III	CHE	F211	Chemical Process Calculations	3	CHE	F242	Numerical Methods for Chemical Engineers	3
	CHE	F212	Fluid Mechanics	3	CHE	F243	Material Science &	
	CHE	F214	Engineering Chemistry	3			Engineering	3
	CHE	F213	Chemical Engineering Thermodynamics	3	CHE	F244	Separation Processes I	3
				21				21
		Fi	rst Semester	U		S	econd Semester	U
	CHE	F311	Kinetics & Reactor Design	3	CHE	F341	Chemical Engineering Laboratory II	3
	CHE	F312	Chemical Engineering		CHE	F342	Process Dynamics & Control	3
			Laboratory I	3	CHE	F343	Process Design Principles II	3
	CHE	F313	Separation Processes II	3			First Discipline Electives	9
IV	CHE	F314	Process Design Principles I	3			Second Discipline Electives	6
			First Discipline Electives	6				
			Second Discipline Electives	3				
				21				24
		Fi	rst Semester	U		S	econd Semester	U
V	Second BITS F		ine Electives Thesis	6 9	BITS F	412	Practice School - Ii	20
				15				20

			Semester-wise pattern f	or co	mposite	Dual	Degree Programmes				
			(M.Sc. Biolog	jical (	Sciences	s with	B.E. Civil)				
Year		Fir	st Semester	>		Second Semester					
I	Samo	e as Fii	rst degree Programme			Same as First degree Programme					
		Fir	st Semester	>			Second Semester	U			
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics				
	BIO	F211	Biological Chemistry	3			or				
	BIO	F213	Cell Biology	3	MGTS	F211	Principles of Management	3			
l II	BIO	F212	Microbiology	4	BIO	F241	Ecology & Environmental Science	3			
"	BIO	F214	Integrated Biology	3	BIO	F242	Introduction to Bioinformatics	3			
			Humanities Elective	3	BIO	F243	Genetics	3			
	BITS	F225	Environmental Studies	3	BIO	F244	Instrumental Methods of Analysis	4			
							Humanities Electives	5			
				22				21			
	Sum	mer	BITS F2	21 Pr	actice S	chool	-1 (for PS Option Only) (5 Units)				
		Fir	st Semester	J			Second Semester	U			
	BIO	F311	Recombinant DNA Technology	3	BIO	F341	Developmental Biology	3			
	BIO	F312	Plant Physiology	3	BIO	F342	Immunology	3			
	BIO	F313	Animal Physiology	3	BIO	F215	Biophysics	3			
Ш	CE	F211	Mechanics of Solids	3	CE	F241	Analysis of structures	3			
	CE	F231	Fluid Mechanics	3	CE	F242	Construction Planning & Technology	3			
	CE	F230	Civil Engineering Materials	4	CE	F243	Soil Mechanics	4			
	CE	F213	Surveying	4	CE	F244	Highway Engineering	4			
				23				23			
		Fir	st Semester	J			Second Semester	U			
	CE	F320	Design of Reinforced Concrete Structures	3	CE	F342	Water & Waste Water Treatment	4			
	CE	F312	Hydraulic Engineering	4	CE	F321	Engineering Hydrology	3			
IV	CE	F313	Foundation Engineering	3	CE	F343	Design of Steel Structures	3			
			First Discipline Electives	6			First Discipline Electives	9			
			Second Discipline Electives	6			Second Discipline Electives	3			
				22				22			
		Fir	st Semester	U			Second Semester	U			
V		econd   BITS F	Discipline Electives 423T Thesis	3 9		BIT	S F412 Practice School - II	20			

Note: This is operative pattern for the students who are admitted from August 2017 onwards.

			Semester-wise pattern t		-		= -			
Year		F	irst Semester	U	,5 WIGH	Second Semester				
ı	Same	as Firs	t degree Programme		Same a	Same as First degree Programme				
		F	irst Semester	U			Second Semester	U		
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics			
	ВЮ	F211	Biological Chemistry	3			or			
	BIO	F213	Cell Biology	3	MGTS	F211	Principles of Management	3		
	BIO		Microbiology	4	вю	F241	Ecology & Environmental Science	3		
II	ВЮ		Integrated Biology	3	вю	F242	Introduction to Bioinformatics	3		
			0 0,		вю	F243	Genetics	3		
			Humanities Elective	3	вю	F244	Instrumental Methods of Analysis	4		
	BITS	F225	Environmental Studies	3			Humanities Electives	5		
				22				21		
Sumn	ner		BITS F221 Practic	1	hool -1	(for PS	Option Only) (5 Units)			
		F	irst Semester	U		(	Second Semester	U		
	вю	F311	Recombinant DNA Technology	3	вю	F341	Developmental Biology	3		
	ВЮ	F312	Plant Physiology	3	вю	F342	Immunology	3		
	ВЮ	F313	Animal Physiology	3	вю	F215	Biophysics	3		
	cs	F215	Digital Design	4	cs	F241	Microprocessors & Interfacing	4		
III	cs	F214	Logic in Computer Science	3	cs	F212	Database Systems	4		
	cs	F222	Discrete Structures for Computer Science	3	cs	F211	Data Structures & Algorithms	4		
	cs	F213	Object Oriented Programming	4						
				23				21		
		F	irst Semester	U			Second Semester	U		
	CS	F351	Theory of Computation	3	cs	F363	Compiler Construction	3		
	CS	F372	Operating Systems	3	cs	F364	Design and Analysis of Algorithms	3		
	CS	F342	Computer Architecture	4	cs	F303	Computer Networks	4		
IV	cs	F301	Principles of Programming Languages	2			First Discipline Elective	9		
			First Discipline Electives	6			Second Discipline Electives	3		
			Second Discipline	3						
			Electives							
				21				22		
		F	irst Semester	U			Second Semester	U		
V	Secon BITS F		pline Electives Thesis	6 9	BITS F	412	Practice School - II	20		

		S	Semester-wise pattern fo			_	•		
Year		Fir	(M.Sc. Biological Sciencester	U U	D.E. EI		Second Semester	U	
1	Same a		degree Programme		Same a	Same as First degree Programme			
	First Semester				<b>C</b> anno c	Second Semester	U		
	MATH	F211	Mathematics III	<b>U</b>	ECON	F211	Principles of Economics	3	
	вю	F211	Biological Chemistry	3			or		
	вю	F213	Cell Biology	3	MGTS	F211	Principles of Management	3	
	вю	F212	Microbiology	4	вю	F241	Ecology & Environmental Science	3	
II	вю	F214	Integrated Biology	3	вю	F242	Introduction to Bioinformatics	3	
			Humanities Elective	3	ВІО	F243	Genetics	3	
	BITS	F225	Environmental Studies	3	BIO	F244	Instrumental Methods of Analysis	4	
							Humanities Electives	`5	
				22				21	
Sumn	ner		BITS F221 Pract	ice Sch	nool -1 (f		Option Only) (5 Units)	•	
		Fir	st Semester	U		S	Second Semester	U	
	вю	F311	Recombinant DNA Technology	3	BIO	F341	Developmental Biology	3	
	BIO	F312	Plant Physiology	3	BIO	F342	Immunology	3	
Ш	BIO	F313	Animal Physiology	3	BIO	F215	Biophysics	3	
1111	EEE	F212	Electromagnetic Theory	3	EEE	F243	Signals and Systems	3	
	EEE	F211	Electrical Machines	4	EEE	F244	Microelectronic Circuits	3	
	EEE	F214	Electronic Devices	3	EEE	F241	Microprocessors & Interfacing	4	
	EE	F215	Digital Design	4	EEE	F242	Control Systems	3	
				23				22	
		Fir	st Semester	U		S	Second Semester	U	
	EEE	F311	Communication Systems	4	EEE	F341	Analog Electronics	4	
	MATH	F212	Optimization	3	EEE	F342	Power Electronics	4	
			or	or	EEE	F312	Power Systems	3	
IV	ME	F344	Engineering Optimization	2			First Discipline Electives	6	
	EEE	F313	Analog & Digital VLSI Design	3			Second Discipline Elective	4	
			First Discipline Electives	3					
			Second Discipline Electives	8					
				20/21				21	
		Fir	st Semester	U		S	Second Semester	U	
V	First Dis		Electives Thesis	6 9	BITS F	412 Pra	ctice School - II	20	

			emester-wise pattern for cor Sc. Biological Sciences with	•		_	•		
Year		F	First Semester	U			Second Semester	U	
I	Same a	s First o	degree Programme		Same as First degree Programme				
	First Semester U Second					Second Semester	U		
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3	
	BIO	F211	Biological Chemistry	3			or		
	BIO	F213	Cell Biology	3	MGTS	F211	Principles of Management	3	
II	BIO	F212	Microbiology	4	BIO	F241	Ecology & Environmental Science	3	
	BIO	F214	Integrated Biology	3	ВЮ	F242	Introduction to Bioinformatics	3	
					ВЮ	F243	Genetics	3	
			Humanities Elective	3	ВЮ	F244	Instrumentation of Analysis	4	
	BITS	F225	Environmental Studies	3			Humanities Electives	5	
				22				21	
Summe	Summer BITS F221 Practice Scho					Option	n Only) (5 Units)		
		F	First Semester	U			Second Semester	U	
	вю	F311	Recombinant DNA Technology	3	вю	F341	Developmental Biology	3	
	BIO	F312	Plant Physiology	3	ВЮ	F342	Immunology	3	
	BIO	F313	Animal Physiology	3	ВЮ	F215	Biophysics	3	
III	ECE	F212	Electromagnetic Theory	3	ECE	F241	Microprocessors & Interfacing	4	
	ECE	F215	Digital Design	4	ECE	F242	Control Systems	3	
	ECE	F211	Electrical Machines	4	ECE	F243	Signals and Systems	3	
	ECE	F214	Electronic Devices	3	ECE	F244	Microelectronic Circuits	3	
				23				22	
		F	First Semester	U		5	Second Semester	U	
	ECE	F311	Communication Systems	4	ECE	F341	Analog Electronics	4	
	ECE	F434	Digital Signal Processing	4	ECE	F344	Information Theory & Coding	3	
IV	ECE	F314	Electromagnetic Fields & Microwave Engineering	3	ECE	F343	Communication Networks	3	
			First Discipline Electives	3			First Discipline Elective	6	
			Second Discipline Electives	7			Second Discipline Electives	5	
				21				21	
		F	First Semester	U			Second Semester	U	
V	First Dis	•	Electives Γhesis	6 9	BITS F	412 Pra	actice School - II	20	

			Semester-wise pattern for con Sc. Biological Sciences with					
Year		,	First Semester	U		S	econd Semester	U
ı	Same a	s First o	degree Programme		Same a	s First	degree Programme	
			First Semester	U		S	econd Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	BIO	F211	Biological Chemistry	3			or	
	BIO	F213	Cell Biology	3	MGTS	F211	Principles of Management	3
	вю	F212	Microbiology	4	вю	F241	Ecology & Environmental Science	3
II	вю	F214	Integrated Biology	3	BIO	F242	Introduction to Bioinformatics	3
			Humanities Elective	3	BIO	F243	Genetics	3
	BITS	F225	Environmental Studies	3	ВІО	F244	Instrumental Methods of Analysis	4
							Humanities Electives	5
				22				21
Summ	ner		BITS F221 Practice Scho	ool -1	(for PS	Option	Only) (5 Units)	
			First Semester	U		S	econd Semester	U
	вю	F311	Recombinant DNA Technology	3	ВІО	F341	Developmental Biology	3
	BIO	F312	Plant Physiology	3	BIO	F342	Immunology	3
	BIO	F313	Animal Physiology	3	BIO	F215	Biophysics	3
III	INSTR	F212	Electromagnetic Theory	3	INSTR	F241	Microprocessors & Interfacing	4
	INSTR	F215	Digital Design	4	INSTR	F242	Control Systems	3
	INSTR	F211	Electrical Machines	4	INSTR	F243	Signals & Systems	3
	INSTR	F214	Electronic Devices	3	INSTR	F244	Microelectronic Circuits	3
				23				22
			First Semester	U		S	econd Semester	U
	INSTR	F311	Electronic Instruments &		INSTR	F341	Analog Electronics	4
			Instrumentation Technology	4	INSTR	F342	Power Electronics	4
IV	INSTR	F312	Transducers and Measurement Systems	3	INSTR	F343	Industrial Instrumentation & Control	3
	INSTR	F313	Analog & Digital VLSI Design	3			First Discipline Electives	6
			First Discipline Electives	9			Second Discipline Electives	4
			Second Discipline Electives	3				
				22				21
	BIO F312 Plant Physiology BIO F313 Animal Physiology INSTR F212 Electromagnetic Theory INSTR F215 Digital Design INSTR F211 Electrical Machines INSTR F214 Electronic Devices  First Semester INSTR F311 Electronic Instruments & Instrumentation Technology Transducers and Measurement Systems INSTR F313 Analog & Digital VLSI Design First Discipline Electives		U		S	econd Semester	U	
V		•		5 9	BITS F	412 Pra	actice School - II	20

			Semester-wise pattern for o (M.Sc. Biological Scie			_	•	
Year		F	First Semester	U		,	Second Semester	U
I	Same a	s First o	degree Programme		Same a	Same as First degree Programme		
		F	First Semester	U		;	Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	BIO	F211	Biological Chemistry	3			or	
	BIO	F213	Cell Biology	3	MGTS	F211	Principles of Management	3
II	вю	F212	Microbiology	4	ВІО	F241	Ecology & Environmental Science	3
	BIO	F214	Integrated Biology	3	BIO	F242	Introduction to Bioinformatics	3
			Humanities Elective	3	BIO	F243	Genetics	3
	BITS	F225	Environmental Studies	3	вю	F244	Instrumental Methods of Analysis	4
							Humanities Electives	5
				22				21
Sumn	ner		BITS F221 Practice S	chool	-1 (for I	S Opti	ion Only) (5 Units)	
		F	First Semester	U		;	Second Semester	U
	вю	F311	Recombinant DNA Technology	3	ВЮ	F341	Developmental Biology	3
	BIO	F312	Plant Physiology	3	BIO	F342	Immunology	3
	BIO	F313	Animal Physiology	3	BIO	F215	Biophysics	3
	MF	F211	Mechanics of Solids	3	MF	F219	Operations Management	3
III	MF	F216	Materials Science & Engineering	3	MF	F220	Metrology and Quality Assurance	3
	MF	F217	Machine Drawing	2	MF	F221	Mechanisms and Machines	3
	MF	F218	Transport Phenomena in Manufacturing	4	MF	F222	Casting, Forming and Welding	4
				21				22
	First Se	meste	•	U	Secon	d Seme	ester	U
	MF	F314	Design of Machine Elements	3	MF	F317	Computer Aided Design and Manufacturing	3
	MF	F315	Automation and Control	4	MF	F318	Non Traditional Manufacturing Processes	3
IV	MF	F316	Machining and Machine Tools	4	MF	F319	Supply Chain Management	3
			First Discipline Electives	9	MF	F320	Engineering Optimization	3
			Second Discipline Elective	3			First Discipline Electives	6
							Second Discipline Elective	3
				23				21
	First Se	emeste	·	U	Secon	d Seme	ester	U
V	Second BITS F4		ine Electives Γhesis	6 9	BITS F	412 Pra	actice School - II	20

			Semester-wise pattern for o	ompo	site Du	al Degi	ree Programmes		
			(M.Sc. Biological Sc	•		_	•		
Year			First Semester	U	Second Semester				
I	Sa	me as	First degree Programme	degree Programme Same as First degree Programme					
			First Semester	U			Second Semester	U	
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3	
	BIO	F211	Biological Chemistry	3			or		
	BIO	F213	Cell Biology	3	MGTS	F211	Principles of Management	3	
	BIO	F212	Microbiology	4	BIO	F241	Ecology & Environmental		
п	BIO	F214	Integrated Biology	3			Science	3	
					BIO	F242	Introduction to Bioinformatics	3	
			Humanities Elective	3	BIO	F243	Genetics	3	
	BITS	F225	Environmental Studies	3	BIO	F244	Instrumental Methods of Analysis	4	
							Humanities Electives	5	
				22				21	
Sumn	ner		BITS F221 Practice Sch	ool -1	(for PS	Option	Only) (5 Units)		
			First Semester	U			Second Semester	U	
	BIO	F311	Recombinant DNA Technology	3	ВЮ	F341	Developmental Biology	3	
	BIO	F312	Plant Physiology	3	BIO	F342	Immunology	3	
	BIO	F313	Animal Physiology	3	BIO	F215	Biophysics	3	
III	ME	F211	Mechanics of Solids	3	ME	F218	Advanced Mechanics of Solids	2	
	ME	F212	Fluid Mechanics	3	ME	F219	Manufacturing Processes	4	
	ME	F216	Materials Science & Engineering	3	ME	F220	Heat Transfer	4	
	ME	F217	Applied Thermodynamics	4	ME	F221	Mechanisms and Machines	3	
				22				22	
			First Semester	U			Second Semester	U	
	ME	F314	Design of Machine Elements	3	ME	F318	Computer-Aided Design	3	
	ME	F315	Advanced Manufacturing Processes	3	ME	F319	Vibrations & Control	3	
IV	ME	F316	Manufacturing Management	2	ME	F320	Engineering Optimization	3	
	ME	F317	Engines, Motors, and Mobility	2	ME	F341	Prime Movers & Fluid Machines	3	
			First Discipline Electives	9			First Discipline Electives	6	
			Second Discipline Electives	3			Second Discipline Electives	3	
				22				21	
			First Semester	U			Second Semester	U	
V	Secono BITS F		oline Electives Thesis	6 9	BITS F	412 Pr	actice School - II	20	

		Sem	ester-wise pattern for con	•		_	•		
Year		E:	(M.Sc. Chemistry rst Semester	/ with U	n B.E. Ch		) econd Semester	U	
I	Sam				Sa	Same as First degree Programme			
'	Saiii	st degree Programme	U	Sal			U		
	MATH	F211	rst Semester Mathematics III	3	ECON	F211	Principles of Economics	3	
				3	ECON	FZII	•	3	
	CHEM	F211 F212	Physical Chemistry I	3	MGTS	F211	Or Dringiples of Management	3	
	_		Organic Chemistry I	3			Principles of Management		
Ш	CHEM	F213	Physical Chemistry II	_	CHEM	F241	Inorganic Chemistry II	3	
11	CHEM	F214	Inorganic Chemistry I	3	CHEM	F242	Chemical Experimentation I	3	
	PHY	F212	Electromagnetic Theory I	3	CHEM	F243	Organic Chemistry II	3	
			Humanities Elective	3	CHEM	F244	Physical Chemistry III	3	
							Humanities Electives	5	
					BITS	F225	Environmental Studies	3	
				21				23	
Summe	<u>r</u>		BITS F221 Practice Sch		1 (for PS			ı	
			rst Semester	υ			cond Semester	U	
	CHEM	F313	Instrumental Methods of	4	CHEM	F341	Chemical Experimentation II	4	
			Analysis		CHEM	F342	Organic Chemistry IV	3	
	CHEM	F311	Organic Chemistry III	3	CHEM	F343	Inorganic Chemistry III	3	
	CHEM	F312	Physical Chemistry IV	3	CHE	F241	Heat Transfer	3	
III	CHE	F211	Chemical Process Calculations	3	CHE	F242	Numerical Methods for Chemical Engineers	3	
	CHE	F212	Fluid Mechanics	3	CHE	F243	Material Science & Engineering	3	
	CHE	F213	Chemical Engineering Thermodynamics	3	CHE	F244	Separation Processes I	3	
				19				22	
		Fi	rst Semester	U		Se	cond Semester	U	
	CHE	F311	Kinetics & Reactor Design	3	CHE	F341	Chemical Engineering		
	CHE	F312	Chemical Engineering Laboratory I	3			Laboratory II	3	
IV	CHE	F313	Separation Processes II	3	CHE	F342	Process Dynamics & Control	3	
	CHE	F314	Process Design Principles I	3	CHE	F343	Process Design Principles II	3	
			First Discipline Electives	6			First Discipline Electives	6	
			Second Discipline Electives	3			Second Discipline Electives	6	
				21	<u> </u>			21	
		Fi	rst Semester	U		Se	cond Semester	U	
V		Discipli F423T	ne Electives Thesis	6 9	BITS F4	112 Pra	ctice School - II	20	

			Semester-wise pattern fo	r con	posite D	ual De	gree Programmes			
			(M.Sc. Ch	emis	ry with B	B.E. Civ	ril)			
Year		Fi	rst Semester	U			Second Semester	U		
ı	Same	as Fi	rst degree Programme		S	ame a	s First degree Programme			
		Fi	rst Semester	U			Second Semester	U		
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3		
	CHEM	F211	Physical Chemistry I	3			or			
	CHEM	F212	Organic Chemistry I	3	MGTS	F211	Principles of Management	3		
	CHEM	F213	Physical Chemistry II	3	CHEM	F241	Inorganic Chemistry II	3		
Ш	CHEM	F214	Inorganic Chemistry I	3	CHEM	F242	Chemical Experimentation I	3		
	PHY	F212	Electromagnetic Theory I	3	CHEM	F243	Organic Chemistry II	3		
			Humanities Elective	3	CHEM	F244	Physical Chemistry III	3		
							Humanities Electives	5		
					BITS	F225	Environmental Studies	3		
				21				23		
	Sı	ımmer	Bľ	TS F2	21 Practi	ce Sch	ool -1(for PS Option Only)			
		Fi	rst Semester	U			Second Semester	U		
	СНЕМ	F313	Instrumental Methods of Analysis	4	CHEM	F341	Chemical Experimentation II	4		
	CHEM	F311	Organic Chemistry III	3	CHEM	F342	Organic Chemistry IV	3		
	CHEM	F312	Physical Chemistry IV	3	CHEM	F343	Inorganic Chemistry III	3		
Ш	CE	F211	Mechanics of Solids	3	CE	F241	Analysis of structures	3		
	CE	F231	Fluid Mechanics	3	CE	F242	Construction Planning & Technology	3		
	CE	F230	Civil Engineering Materials	4	CE	F243	Soil Mechanics	4		
	CE	F213	Surveying	4	CE	F244	Highway Engineering	4		
				24				24		
		Fi	rst Semester	U			Second Semester	U		
	CE	F320	Design of Reinforced Concrete Structures	3	CE	F342	Water & Waste Water Treatment	4		
	CE	F312	Hydraulic Engineering	4	CE	E224	Engineering Hydrology	3		
IV	CE	F313	Foundation Engineering	3	CE	ГЭДІ	Engineering Hydrology	3		
			First Discipline Electives	6	CE	F343	Design of Steel Structures	3		
			Second Discipline Electives	3			First Discipline Electives	6		
							Second Discipline Electives	6		
				19	19					
		Fi	rst Semester	U	_		Second Semester	U		
V	Second Discipline Electives BITS F423T Thesis			3 9		BITS F412 Practice School - II				

 $\textbf{Note:} \ \ \textbf{This is operative pattern for the students who are admitted from } \textbf{August 2017} \ \ \textbf{onwards.}$ 

		;	Semester-wise pattern for co	ompo	site Du	al Degr	ee Programmes	
	1		(M.Sc. Chemistry wi		E. Com	puter S	cience)	,
Year			First Semester	U			Second Semester	U
ı	Saı	me as F	First degree Programme		S	ame as	First degree Programme	
		F	First Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	CHEM	F211	Physical Chemistry I	3			or	
	CHEM	F212	Organic Chemistry I	3	MGTS	F211	Principles of Management	3
	CHEM	F213	Physical Chemistry II	3	CHEM	F241	Inorganic Chemistry II	3
II	CHEM	F214	Inorganic Chemistry I	3	CHEM	F242	Chemical Experimentation I	3
	PHY	F212	Electromagnetic Theory I	3	CHEM	F243	Organic Chemistry II	3
			Humanities Elective	3	CHEM	F244	Physical Chemistry III	3
							Humanities Electives	5
					BITS	F225	Environmental Studies	3
				21				23
Summ	ner		BITS F221 Praction	e Sc	hool -1	(for PS	Option Only)	
	First Semester						Second Semester	U
	СНЕМ	F313	Instrumental Methods of Analysis	4	СНЕМ	F341	Chemical Experimentation II	4
	СНЕМ	F311	Organic Chemistry III	3	CHEM	F342	Organic Chemistry IV	3
	CHEM	F312	Physical Chemistry IV	3	CHEM	F343	Inorganic Chemistry III	3
Ш	CS	F215	Digital Design	4	CS	F241	Microprocessors & Interfacing	4
	CS	F214	Logic in Computer Science	3	cs	F212	Database Systems	4
	cs	F222	Discrete Structures For Computer Science	3	cs	F211	Data Structures & Algorithms	4
	cs	F213	Object Oriented Programming	4				
				24				22
		F	First Semester	U			Second Semester	U
	CS	F351	Theory of Computation	3	CS	F363	Compiler Construction	3
	CS	F372	Operating Systems	3	cs	F364	Design and Analysis of	
	CS	F342	Computer Architecture	4			Algorithms	3
IV	CS	F301	Principles of		CS	F303	Computer Networks	4
			Programming Languages	2			First Discipline Electives	6
			First Discipline Electives	6			Second Discipline Electives	3
			Second Discipline Electives	3				
				21				19
		F	First Semester	U			Second Semester	U
V	Second BITS F4		ine Electives Thesis	6 9	BITS F	412 Pra	actice School - II	20

			Semester-wise pattern for			_	•	
Year		Fi	(M.Sc. Chemistry wi	tn B.E.	. Electric		cond Semester	U
I	Sam		st degree Programme		Sa		irst degree Programme	<u> </u>
•	Cam		rst Semester	U			cond Semester	U
	MATH	F211	Mathematics III		ECON	F211	Principles of Economics	3
	CHEM	F211	Physical Chemistry I	3	20011	1211	or	
	CHEM	F212	•		MGTS	F211	Principles of Management	3
	CHEM		Physical Chemistry II	_	CHEM	F241	Inorganic Chemistry II	3
Ш	CHEM	F214	,	3	CHEM	F242	Chemical Experimentation I	3
	PHY	F212	,	3	·	F243	Organic Chemistry II	3
			Humanities Elective	_	CHEM	F244	Physical Chemistry III	3
				_	CHEM		Humanities Electives	5
					BITS	F225	Environmental Studies	3
				21		. ===		23
Sumn	T			School	-1 (for P	S Option	n Only)	
	First Semester			U		Se	econd Semester	U
	СНЕМ	F313	Instrumental Methods of Analysis	4	СНЕМ	F341	Chemical Experimentation II	4
	СНЕМ	F311	Organic Chemistry III	3	СНЕМ	F342	Organic Chemistry IV	3
	СНЕМ	F312	Physical Chemistry IV	3	СНЕМ	F343	Inorganic Chemistry III	3
Ш	EEE	F211	Electrical Machines	4	EEE	F243	Signals and Systems	3
	EEE	F214	Electronic Devices	3	EEE	F244	Microelectronic Circuits	3
	EEE	F215	Digital Design	4	EEE	F241	Microprocessors & Interfacing	4
					EEE	F242	Control Systems	3
				21				23
		Fi	rst Semester	U		Se	econd Semester	U
	EEE	F311	Communication	4	EEE	F341	Analog Electronics	4
			Systems		EEE	F342	Power Electronics	4
	MATH	F212	Optimization	3	EEE	F312	Power Systems	3
			or				First Discipline Elective	6
IV	ME	F344	<b>Engineering Optimization</b>	2			Second Discipline Elective	4
	EEE	F313	Analog & Digital VLSI Design	3				
			First Discipline Electives	6				
			Second Discipline Electives	5				
				20/21				21
		Fi	rst Semester	U		Se	econd Semester	U
V	Second Discipline Electives BITS F423T Thesis			3 9	BITS F	412 Pract	tice School - II	20

		;	Semester-wise pattern for co M.Sc. Chemistry with B.E	-		_	_	
Year		l	First Semester	U			Second Semester	U
I	Sa	me as F	First degree Programme		S	ame as	First degree Programme	
		I	First Semester	U		5	Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	CHEM	F211	Physical Chemistry I	3			or	
	CHEM	F212	Organic Chemistry I	3	MGTS	F211	Principles of Management	3
	CHEM	F213	Physical Chemistry II	3	CHEM	F241	Inorganic Chemistry II	3
Ш	CHEM	F214	Inorganic Chemistry I	3	CHEM	F242	Chemical Experimentation I	3
	PHY	F212	Electromagnetic Theory I	3	CHEM	F243	Organic Chemistry II	3
			Humanities Elective	3	CHEM	F244	Physical Chemistry III	3
							Humanities Electives	5
					BITS	F225	Environmental Studies	3
				21				23
Summ	ner		BITS F221 Praction	e Sc	hool -1	(for PS	Option Only)	
	First Semester			U			Second Semester	U
	СНЕМ	F313	Instrumental Methods of Analysis	4	СНЕМ	F341	Chemical Experimentation II	4
	CHEM	F311	Organic Chemistry III	3	CHEM	F342	Organic Chemistry IV	3
	CHEM	F312	Physical Chemistry IV	3	CHEM	F343	Inorganic Chemistry III	3
Ш	ECE	F215	Digital Design	4	ECE	F241	Microprocessors &	
	ECE	F211	Electrical Machines	4			Interfacing	4
	ECE	F214	Electronic Devices	3	ECE	F242	Control Systems	3
					ECE	F243	Signals and Systems	3
					ECE	F244	Microelectronic Circuits	3
				21				23
			First Semester	U		5	Second Semester	U
	ECE	F311	Communication Systems	4	ECE	F341	Analog Electronics	4
	ECE	F434	Digital Signal Processing	4	ECE	F344	Information Theory & Coding	3
IV	ECE	F314	Electromagnetic Fields & Microwave Engineering	3	ECE	F343	Communication Networks	3
			First Discipline Electives	6			First Discipline Electives	6
			Second Discipline Electives	4			Second Discipline Electives	5
				21				21
			First Semester	U			Second Semester	U
V	Second Discipline Electives BITS F423T Thesis			3 9	BITS F	412 Pra	actice School - II	20

			Semester-wise pattern for con	•		_	•	
	ı		(M.Sc. Chemistry with B.E.	Elect	ronics 8	Instru	imentation)	
Year			First Semester	U		S	econd Semester	U
ı	Sa	ame as	First degree Programme		Sa	me as	First degree Programme	
			First Semester	U		S	econd Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	CHEM	F211	Physical Chemistry I	3	MGTS	F211	or	
	CHEM	F212	Organic Chemistry I	3			Principles of Management	3
	CHEM	F213	Physical Chemistry II	3	CHEM	F241	Inorganic Chemistry II	3
П	CHEM	F214	Inorganic Chemistry I	3	CHEM	F242	Chemical Experimentation I	3
	PHY	F212	Electromagnetic Theory I	3	CHEM	F243	Organic Chemistry II	3
			Humanities Elective	3	CHEM	F244	Physical Chemistry III	3
							Humanities Electives	5
					BITS	F225	Environmental Studies	3
				21				23
Summ	ner		BITS F221 Pract	tice S	chool -1	(for P	6 Option Only)	
			First Semester	U		S	econd Semester	U
	СНЕМ	F313	Instrumental Methods of Analysis	4	СНЕМ	F341	Chemical Experimentation II	4
	CHEM	F311	Organic Chemistry III	3	CHEM	F342	Organic Chemistry IV	3
	CHEM	F312	Physical Chemistry IV	3	CHEM	F343	Inorganic Chemistry III	3
III	INSTR	F215	Digital Design	4	INSTR	F241	Microprocessors & Interfacing	4
	INSTR	F211	Electrical Machines	4	INSTR	F242	Control Systems	3
	INSTR	F214	Electronic Devices	3	INSTR	F243	Signals & Systems	3
					INSTR	F244	Microelectronic Circuits	3
				21				23
			First Semester	U		S	econd Semester	U
	INSTR	F311	Electronic Instruments &		INSTR	F341	Analog Electronics	4
			Instrumentation Technology	4	INSTR	F342	Power Electronics	4
IV	INSTR	F312	Transducers and Measurement Systems	3	INSTR	F343	Industrial Instrumentation & Control	3
	INSTR	F313	Analog & Digital VLSI Design	3			First Discipline Electives	6
			First Discipline Electives	6			Second Discipline Electives	4
			Second Discipline Electives	5				
				21				21
			First Semester	U		S	econd Semester	U
V	Second Discipline Electives BITS F423T Thesis				BITS F4	112 Pra	ctice School - II	20

		S	emester-wise pattern for co					
Year		F	(M.Sc. Chemistry	with I	B.E. Mai		ıring) Second Semester	U
1	San		irst degree Programme		S		First degree Programme	
•	Juli		rirst Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON		Principles of Economics	3
	CHEM	F211	Physical Chemistry I	3	20011		or	
	CHEM	F212	Organic Chemistry I	3	MGTS	F211	Principles of Management	3
	CHEM		Physical Chemistry II	3	CHEM		Inorganic Chemistry II	3
ш	СНЕМ	F214	Inorganic Chemistry I	3	СНЕМ		,	3
	PHY	F212	Electromagnetic Theory I	3	CHEM		Organic Chemistry II	3
			Humanities Elective	3	CHEM		Physical Chemistry III	3
						. =	Humanities Electives	5
					BITS	F225	Environmental Studies	3
				21				23
Summ	er		BITS F221 Practice S	Schoo	ol -1 (	for PS	Option Only)	
	First Semester			U	Ĭ ,		Second Semester	U
	СНЕМ	F313	Instrumental Methods of Analysis	4	СНЕМ	F341	Chemical Experimentation II	4
	СНЕМ	F311	Organic Chemistry III	3	СНЕМ	F342	Organic Chemistry IV	3
	СНЕМ	F312	Physical Chemistry IV	3	СНЕМ	F343	Inorganic Chemistry III	3
	MF	F211	Mechanics of Solids	3	MF	F219	Operations Management	3
III	MF	F216	Materials Science & Engineering	3	MF	F220	Metrology and Quality Assurance	3
	MF	F217	Machine Drawing	2	MF	F221	Mechanisms and Machines	3
	MF	F218	Transport Phenomena in Manufacturing	4	MF	F222	Casting, Forming and Welding	4
				22	_			23
		F	irst Semester	U		,	Second Semester	U
	MF	F314	Design of Machine Elements	3	MF	F317	Computer Aided Design and Manufacturing	3
	MF	F315	Automation and Control	4	MF	F318	Non Traditional Manufacturing Processes	3
IV	MF	F316	Machining and Machine Tools	4	MF	F319	Supply Chain Management	3
					MF	F320	Engineering Optimization	3
			First Discipline Electives	6			First Discipline Electives	6
			Second Discipline Elective	6			Second Discipline Elective	3
				23				21
		F	irst Semester	U		,	Second Semester	U
V	Second Discipline Electives BITS F423T Thesis			3	BITS F412 Practice School - II			20

			Semester-wise pattern for co	•		_	•	
Year			(M.Sc. Chemistry First Semester	U	B.E. IVIE		aı) econd Semester	U
I	Sa	me as	First degree Programme		Sa		First degree Programme	_
-			First Semester	U			econd Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	СНЕМ	F211	Physical Chemistry I	3			or	
	СНЕМ	F212	Organic Chemistry I	3	MGTS	F211	Principles of Management	3
	СНЕМ	F213	Physical Chemistry II	3	СНЕМ	F241	Inorganic Chemistry II	3
Ш	СНЕМ	F214	Inorganic Chemistry I	3	CHEM	F242	Chemical Experimentation I	3
	PHY	F212	Electromagnetic Theory I	3	CHEM	F243	Organic Chemistry II	3
			Humanities Elective	3	CHEM	F244	Physical Chemistry III	3
							Humanities Electives	5
					BITS	F225	<b>Environmental Studies</b>	3
				21				23
Sumn	ner		BITS F221 Practice	Sch	ool -1(fo	r PS Op	otion Only)	
			First Semester	U		S	econd Semester	U
	СНЕМ	F313	Instrumental Methods of Analysis	4	СНЕМ	F341	Chemical Experimentation II	4
	СНЕМ	F311	Organic Chemistry III	3	CHEM	F342	Organic Chemistry IV	3
	CHEM	F312	Physical Chemistry IV	3	CHEM	F343	Inorganic Chemistry III	3
III	ME	F211	Mechanics of Solids	3	ME	F218	Advanced Mechanics of Solids	2
	ME	F212	Fluid Mechanics	3	ME	F219	Manufacturing Processes	4
	ME	F216	Materials Science & Engineering	3	ME	F220	Heat Transfer	4
	ME	F217	Applied Thermodynamics	4	ME	F221	Mechanisms and Machines	3
				23				23
			First Semester	U		S	econd Semester	U
	ME	F314	Design of Machine Elements	3	ME	F318	Computer-Aided Design	3
	ME	F315	Advanced Manufacturing Processes	3	ME	F319	Vibrations & Control	3
	ME	F316	Manufacturing Management	2	ME	F320	Engineering Optimization	3
IV	ME	F317	Engines, Motors, and Mobility	2	ME	F341	Prime Movers & Fluid Machines	3
			First Discipline Electives	6				
			Second Discipline Electives	3			First Discipline Electives	6
							Second Discipline Electives	3
				19				21
			First Semester	U		S	econd Semester	U
V	Second BITS F		ine Electives Thesis	3 9	BITS F4	412 Pra	ctice School - II	20

			Semester-wise pattern for cor	npos	ite Dual	Degre	e Programmes	
	1		(M.Sc. Economic	s wit		hemic	al)	1
Year	_		First Semester	U	_		Second Semester	U
I	Sa		First degree Programme	L	Sa		First degree Programme	
			First Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3			Principles of Management	3
	ECON	F211	Principles of Economics	3	ECON	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance & Accounts	3	ECON	F242	Microeconomics	3
II	ECON	F213	Mathematical & Statistical Methods	3	ECON	F243	Macroeconomics	3
	ECON	F214	Economic Environment of Business	3	ECON	F244	Economics of Growth & Development	3
			Humanities Elective	3			Humanities Electives	5
	BITS	F225	Environmental Studies	3				
				21				20
Sumn	ner		BITS F221 Practice		ool -1(fc			
			First Semester	U		S	econd Semester	U
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	3
	ECON	F312	Money Banking & Financial Markets	3	ECON	F342	Applied Econometrics	3
	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3
			First Discipline Elective	3			First Discipline Elective	3
III	CHE	F211	Chemical Process Calculations	3	CHE	F241	Heat Transfer	3
	CHE	F212	Fluid Mechanics	3	CHE	F242	Numerical Methods for Chemical Engineers	3
	CHE	F214	Engineering Chemistry	3	CHE	F243	Material Science & Engineering	3
	CHE	F213	Chemical Engineering Thermodynamics	3	CHE	F244	Separation Processes I	3
				24				24
			First Semester	U		S	econd Semester	U
	CHE	F311	Kinetics & Reactor Design	3	CHE	F341	Chemical Engineering Laboratory II	3
IV	CHE	F312	Chemical Engineering Laboratory I	3	CHE	F342	Process Dynamics & Control	3
IV	CHE	F313	Separation Processes II	3	CHE	F343	Process Design Principles II	3
	CHE	F314	Process Design Principles I	3			First Discipline Electives	6
			First Discipline Electives	6			Second Discipline Electives	6
			Second Discipline Electives	3				
				21				21
l			First Semester	U		S	Second Semester	U
V	Second Discipline Electives BITS F423T Thesis			6 9	BITS F412 Practice School - II			20

		S	Semester-wise pattern for com	posit	te Dual I	Degree	Programmes	
			(M.Sc. Econom	ics w	ith B.E.	Civil)		
Year			First Semester	U		S	econd Semester	U
I	Sa	me as	First degree Programme		Sa	me as	First degree Programme	
			First Semester	U		S	econd Semester	U
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
	ECON	F211	Principles of Economics	3	ECON	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance & Accounts	3	ECON	F242	Microeconomics	3
II	ECON	F213	Mathematical & Statistical Methods	3	ECON	F243	Macroeconomics	3
	ECON	F214	Economic Environment of Business	3	ECON	F244	Economics of Growth & Development	3
			Humanities Elective	3			Humanities Electives	5
	BITS	F225	Environmental Studies	3				
				21				20
Summe	er		BITS F221 Practice	Scho	ol -1 (fo	r PS O	ption Only)	
			First Semester	U		S	econd Semester	U
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	3
	ECON	F312	Money Banking & Financial Markets	3	ECON	F342	Applied Econometrics	3
III	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3
	CE	F211	Mechanics of Solids	3	CE	F241	Analysis of Structures	3
	CE	F213	Surveying	4	CE	F242	Construction Planning & Technology	3
	CE	F230	Civil Engineering Materials	4	CE	F243	Soil Mechanics	4
	CE	F231	Fluid Mechanics	3	CE	F244	Highway Engineering	4
				23				23
			First Semester	U		S	econd Semester	U
	CE	F312	Hydraulic Engineering	4	CE	F321	Engineering Hydrology	3
	CE	F313	Foundation Engineering	3	CE	F342	Water & Waste Water	4
IV	CE	F320	Design of Reinforced Concrete Structures	3	CE	F343	Design of Steel Structures	3
							First Discipline Electives	6
			First Discipline Electives	6			Second Discipline Electives	6
			Second Discipline Electives	6				
				22				22
			First Semester	U		S	econd Semester	U
V	First Discipline Electives BITS F423T Thesis			6 9	BITS F	412 Pra	actice School - II	20

Note: This is operative pattern for the students who are admitted from August 2017 onwards.

		5	Semester-wise pattern for com	posi	te Dual I	Dearee	Programmes	
			(M.Sc. Economics with	•		_	•	
Year			First Semester	U		S	econd Semester	U
I	Sa	ame as	First degree Programme		Sa	me as	First degree Programme	
			First Semester	U		S	econd Semester	U
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
	ECON	F211	•	3	ECON	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance & Accounts	3	ECON	F242	Microeconomics	3
Ш	ECON	F213	Mathematical & Statistical Methods	3	ECON	F243	Macroeconomics	3
	ECON	F214	Economic Environment of Business	3	ECON	F244	Economics of Growth & Development	3
			Humanities Elective	3			Humanities Electives	5
	BITS	F225	Environmental Studies	3				
				21				20
Summ	er		BITS F221 Practice	_	ol -1 (fo		• • • • • • • • • • • • • • • • • • • •	
			First Semester	U		S	econd Semester	U
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	
	ECON	F312	Money Banking & Financial Markets	3	ECON	F342	Applied Econometrics	3
	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3
III	cs	F215	Digital Design	4	cs	F241	Microprocessors & Interfacing	4
	cs	F214	Logic in Computer Science	3	cs	F212	Database Systems	4
	cs	F222	Discrete Structures for Computer Science	3	cs	F211	Data Structures & Algorithms	4
	cs	F213	Object Oriented Programming	4				
				23				21
			First Semester	U		S	econd Semester	U
	CS	F351	Theory of Computation	3	CS	F363	Compiler Construction	3
	cs	F372	Operating Systems	3	cs	F364	Design and Analysis of Algorithms	3
IV	CS	F342	Computer Architecture	4	CS	F303	Computer Networks	4
"	cs	F301	Principles of Programming Languages	2			First Discipline Electives	6
			First Discipline Electives	6			Second Discipline Electives	6
			Second Discipline Electives	6				
				24				22
			First Semester	U		S	econd Semester	U
V	First Dis		Electives Thesis	6 9	BITS F	412 Pra	actice School - II	20

			Semester-wise pattern for of (M.Sc. Economics with	-		_	_	
Year			First Semester	U			econd Semester	U
ı	Sai	me as	First degree Programme		Sa	me as	First degree Programme	
			First Semester	U		S	econd Semester	U
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
	ECON	F211	Principles of Economics	3	ECON	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance & Accounts	3	ECON	F242	Microeconomics	3
II	ECON	F213	Mathematical & Statistical Methods	3	ECON	F243	Macroeconomics	3
	ECON	F214	Economic Environment of Business	3	ECON	F244	Economics of Growth & Development	3
			Humanities Electives	3			Humanities Electives	5
	BITS	F225	Environmental Studies	3				
				21				20
Sumn	ner		BITS F221 Prac		nool -1 (		• • • • • • • • • • • • • • • • • • • •	
			First Semester	U		S	econd Semester	U
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	3
	ECON	F312	Money Banking & Financial Markets	3	ECON	F342	Applied Econometrics	3
III	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3
	EEE	F212	Electromagnetic Theory	3	EEE	F243	Signals and Systems	3
	EEE	F211	Electrical Machines	4	EEE	F244	Microelectronic Circuits	3
	EEE	F214	Electronic Devices	3	EEE	F241	Microprocessors & Interfacing	4
	EEE	F215	Digital Design	4	EEE	F242	Control Systems	3
				23				22
			First Semester	U			econd Semester	U
	EEE	F311	Communication Systems	4	EEE	F341	Analog Electronics	4
	MATH	F212	Optimization	3	EEE	F342	Power Electronics	4
			or		EEE	F312	Power Systems	3
IV	ME	F344	Engineering Optimization	2			First Discipline Electives	6
	EEE	F313	Analog & Digital VLSI Design	3			Second Discipline Elective	4
			First Discipline Electives	6				
			Second Discipline Electives	8				
				23/24				21
l			First Semester	U		S	econd Semester	U
V	First Di BITS F		e Electives Thesis	6 9	BITS F	412 Pra	actice School - II	20

Semester-wise pattern for composite Dual Degree Programmes (M.Sc. Economics with B.E. Electronics & Communication)										
	ı		`	1	onics &		,			
Year			First Semester	U			econd Semester	U		
ı	S	ame as	First degree Programme		Same as First degree Programme					
			First Semester	U			econd Semester	U		
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3		
	ECON	F211	Principles of Economics	3	ECON	F241	Econometric Methods	3		
	ECON	F212	Fundamentals of Finance & Accounts	3	ECON	F242	Microeconomics	3		
II	ECON	F213	Mathematical & Statistical Methods	3	ECON	F243	Macroeconomics	3		
	ECON	F214	Economic Environment of Business	3	ECON	F244	Economics of Growth & Development	3		
			Humanities Elective	3			Humanities Electives	5		
	BITS	F225	Environmental Studies	3						
				21				20		
Sumn	ner		BITS F221 Practice	Sch	ool -1 (f	or PS (	Option Only)			
			First Semester	U		Se	econd Semester	U		
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	3		
	ECON	F312	Money Banking & Financial Markets	3	ECON	F342	Applied Econometrics	3		
III	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3		
	ECE	F212	Electromagnetic Theory	3	ECE	F241	Microprocessors & Interfacing	4		
	ECE	F215	Digital Design	4	ECE	F242	Control Systems	3		
	ECE	F211	Electrical Machines	4	ECE	F243	Signals and Systems	3		
	ECE	F214	Electronic Devices	3	ECE	F244	Microelectronic Circuits	3		
				23				22		
			First Semester	U		Se	econd Semester	U		
	ECE	F311	Communication Systems	4	ECE	F341	Analog Electronics	4		
	ECE	F434	Digital Signal Processing	4	ECE	F344	Information Theory & Coding	3		
IV	ECE	F314	Electromagnetic Fields &		ECE	F343	Communication Networks	3		
			Microwave Engineering	3			First Discipline Electives	6		
			First Discipline Electives	6			Second Discipline Electives	5		
			Second Discipline Electives	7						
				24				21		
			First Semester	U		Se	econd Semester	U		
V					BITS F	412 Pra	actice School - II	20		

		;	Semester-wise pattern for compo			_	•	
Year			First Semester	U		Se	econd Semester	U
ı	S	Same as	First degree Programme		San	ne as F	irst degree Programme	
			First Semester	U		Se	econd Semester	U
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
	ECON	F211	Principles of Economics	3	ECON	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance & Accounts	3	ECON	F242	Microeconomics	3
П	ECON	F213	Mathematical & Statistical Methods	3	ECON	F243	Macroeconomics	3
	ECON	F214	Economic Environment of Business	3	ECON	F244	Economics of Growth & Development	3
			Humanities Elective	3			Humanities Electives	5
	BITS	F225	Environmental Studies	3				
				21				20
Sumn	ner		BITS F221 Practice	e Sch	ool -1 (1	for PS	Option Only)	
			First Semester	U		Se	econd Semester	U
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	3
	ECON	F312	Money Banking & Financial Markets	3	ECON	F342	Applied Econometrics	3
Ш	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3
	INSTR	F212	Electromagnetic Theory	3	INSTR	F241	Microprocessors & Interfacing	4
	INSTR	F215	Digital Design	4	INSTR	F242	Control Systems	3
	INSTR	F211	Electrical Machines	4	INSTR	F243	Signals & Systems	3
	INSTR	F214	Electronic Devices	3	INSTR	F244	Microelectronic Circuits	3
				23				22
			First Semester	U		Se	cond Semester	U
	INSTR	F311	Electronic Instruments & Instrumentation Technology	4	INSTR	F341	Analog Electronics	4
	INSTR	F312	Transducers and Measurement Systems	3	INSTR	F342	Power Electronics	4
IV	INSTR	F313	Analog & Digital VLSI Design	3	INSTR	F343	Industrial Instrumentation & Control	3
			First Discipline Electives	6			First Discipline Electives	6
			Second Discipline Electives	8			Second Discipline Electives	4
				24				21
			First Semester	U		Se	econd Semester	U
V	First Discipline Electives BITS F423T Thesis			6 9	BITS F	412 Pra	actice School - II	20

		S	emester-wise pattern for co (M.Sc. Economics	mpos with	site Dua B.E. Maı	I Degre	e Programmes ring)	
Year		F	First Semester	U			Second Semester	U
ı	Sar	ne as F	irst degree Programme		S	ame as	First degree Programme	
		F	irst Semester	U		S	Second Semester	U
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
	<b>ECON</b>	F211	Principles of Economics	3	<b>ECON</b>	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance & Accounts	3	ECON	F242	Microeconomics	3
П	ECON	F213	Mathematical & Statistical Methods	3	ECON	F243	Macroeconomics	3
	ECON	F214	Economic Environment of Business	3	ECON	F244	Economics of Growth & Development	3
			Humanities Elective	3			Humanities Electives	5
	BITS	F225	Environmental Studies	3				
				21				20
Summ	er		BITS F221 Praction		<u>hool -1 (</u>			
		F	First Semester	U			Second Semester	U
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	3
	ECON	F312	Money Banking & Financial Markets	3	ECON	F342	Applied Econometrics	3
	ECON	F313	Issues in Economic Development	3	ECON	F343	Economic Analysis of Public Policy	3
l III	MF	F211	Mechanics of Solids	3	MF	F219	Operations Management	3
	MF	F216	Materials Science & Engineering	3	MF	F220	Metrology and Quality Assurance	3
	MF	F217	Machine Drawing	2	MF	F221	Mechanisms and Machines	3
	MF	F218	Transport Phenomena in Manufacturing	4	MF	F222	Casting, Forming and Welding	4
			· ·				First Discipline Elective	3
				21				25
		F	First Semester	U		S	Second Semester	U
	MF	F314	Design of Machine Elements	3	MF	F317	Computer Aided Design and Manufacturing	3
	MF	F315	Automation and Control	4	MF	F318	Non Traditional Manufacturing Processes	3
IV	MF	F316	Machining and Machine Tools	4	MF	F319	Supply Chain Management	3
					MF	F320	Engineering Optimization	3
			First Discipline Electives	6			First Discipline Elective	3
			Second Discipline Electives	6			Second Discipline Electives	6
				23				21
.,	=: . =:		irst Semester	U		S	Second Semester	U
V	First Dis		Electives Fhesis	6 9	BITS F4	412 Pra	ctice School - II	20

		5	Semester-wise pattern for com (M.Sc. Economics)	•		_	•	
Year			First Semester	U	J.L. IVICO		econd Semester	U
1	Si	ame as		_	Sa			_
			First Semester	U				U
	MATH	F211	Mathematics III	3	MGTS	F211	Principles of Management	3
	ECON	F211	Principles of Economics	3	ECON	F241	Econometric Methods	3
	ECON	F212	Fundamentals of Finance &	3	ECON	F242	Microeconomics	3
			Accounts		ECON	F243	Macroeconomics	3
II	ECON	F213	Mathematical & Statistical Methods	3	ECON	F244	Economics of Growth & Development	3
	ECON	F214	Economic Environment of Business	3			Humanities Electives	5
			Humanities Electives	3				
	BITS	F225	Environmental Studies	3				
				21				20
Summe	Same as First degree Programme   Same as First degree Programme   First Semester   U   Second Semester							
			First Semester	U		S	econd Semester	U
	ECON	F311	International Economics	3	ECON	F341	Public Finance Theory & Policy	3
	ECON	F312		3	ECON	F342	Applied Econometrics	3
	ECON	F313		3	ECON	F343	Economic Analysis of Public Policy	3
III	ME	F211	Mechanics of Solids	3	ME	F218	Advanced Mechanics of Solids	2
	ME	F212	Fluid Mechanics	3	ME	F219	Manufacturing Processes	4
	ME	F216		3	ME	F220	Heat Transfer	4
	ME	F217	Applied Thermodynamics	4	ME	F221	Mechanisms and Machines	3
				22				22
			First Semester	U		S	econd Semester	U
	ME	F314	Design of Machine Elements	3	ME	F318	Computer-Aided Design	3
	ME	F315	Advanced Manufacturing Processes	3	ME	F319	Vibrations & Control	3
IV	ME	F316	Manufacturing Management	2	ME	F320	Engineering Optimization	3
IV	ME	F317	Engines, Motors, and Mobility	2	ME	F341	Prime Movers & Fluid Machines	3
			First Discipline Electives	6			First Discipline Electives	6
			Second Discipline Electives	6			Second Discipline Electives	6
				22				24
			First Semester	U		S	econd Semester	U
V	First Dis		Electives Thesis	6 9	BITS F	412 I	Practice School - II	20

		S	emester-wise pattern for con (M.Sc. Mathematic	•		_	•	
Year			First Semester	U		5	Second Semester	U
ı	Sa	me as I	First degree Programme		Sa	ame as	First degree Programme	
			First Semester	U		5	Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	MATH	F212	Optimization	3			or	
	MATH	F213	Discrete Mathematics	3	MGTS	F211	Principles of Management	3
ш	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3
"	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3
			Humanities Elective	3	MATH	F243	Graphs & Networks	3
	BITS	F225	Environmental Studies	3	MATH	F244	Measure & Integration	3
							Humanities Electives	5
				21				20
Summ	er		BITS F221 Practice Sc	choo	l -1 (for	PS Opt	ion Only)	
	First Semester					5	Second Semester	U
	MATH	F311	Introduction to Topology	3	MATH	F341	Introduction to Functional Analysis	3
	MATH	F312	Ordinary Differential Equations	3	MATH	F342	Differential Geometry	3
	MATH	F313	Numerical Analysis	3	MATH	F343	Partial Differential Equations	3
III	CHE	F211	Chemical Process Calculations	3	CHE	F241	Heat Transfer	3
	CHE	F212	Fluid Mechanics	3	CHE	F242	Numerical Methods for Chemical Engineers	3
	CHE	F214	Engineering Chemistry	3	CHE	F243	Material Science & Engineering	3
	CHE	F213	Chemical Engineering Thermodynamics	3	CHE	F244	Separation Processes I	3
				21				21
			First Semester	U		5	Second Semester	U
	CHE	F311	Kinetics & Reactor Design	3	CHE	F341	Chemical Engineering Laboratory II	3
	CHE	F312	Chemical Engineering Laboratory I	3	CHE	F342	Process Dynamics & Control	3
IV	CHE	F313	Separation Processes II	3	CHE	F343	Process Design Principles II	3
	CHE	F314	Process Design Principles I	3			First Discipline Electives	9
			First Discipline Electives	6			Second Discipline Electives	6
			Second Discipline Electives	3				
				21				24
			First Semester	U		5	Second Semester	U
V	Second BITS F4		ine Electives Γhesis	6 9	BITS F	412 Pra	actice School - II	20

			Semester-wise pattern for	com	posite D	ual De	gree Programmes	
			(M.Sc. Mathematic	s wi	th B.E. C	ivil En	gineering)	
Year		F	irst Semester	U			Second Semester	U
ı	Sam	e as F	irst degree Programme			Same a	s First degree Programme	
		F	irst Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	MATH	F212	Optimization	3			or	
	MATH	F213	Discrete Mathematics	3	MGTS	F211	Principles of Management	3
ш	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3
"	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3
			Humanities Elective	3	MATH	F243	Graphs & Networks	3
	BITS	F225	Environmental Studies	3	MATH	F244	Measure & Integration	3
							Humanities Electives	5
				21				20
		Summ	er BITS F	-221	Practice	Schoo	ol -1 (for PS Option Only)	
		F	irst Semester	J			Second Semester	U
	MATH	F311	Introduction to Topology	3	MATH	F341	Introduction to Functional Analysis	3
	MATH	F312	Ordinary Differential Equations	3	MATH	F342	Differential Geometry	3
	MATH	F313	Numerical Analysis	3	MATH	F343	Partial Differential Equations	3
	CE	F211	Mechanics of Solids	3	CE	F241	Analysis of structures	3
III	CE	F231	Fluid Mechanics	3	CE	F242	Construction Planning & Technology	3
	CE	F230	Civil Engineering Materials	4	CE	F243	Soil Mechanics	4
	CE	F213	Surveying	4	CE	F244	Highway Engineering	4
				23				23
		F	irst Semester	כ			Second Semester	כ
	CE	F320	Design of Reinforced Concrete Structures	3	CE	F342	Water & Waste Water Treatment	4
	CE	F312	Hydraulic Engineering	4	CE	F321	Engineering Hydrology	3
IV	CE	F313	Foundation Engineering	3	CE	F343	Design of Steel Structures	3
			First Discipline Electives	6			First Discipline Electives	9
			Second Discipline Electives	3			Second Discipline Electives	3
				19				22
		F	irst Semester	כ			Second Semester	כ
V	,		d Discipline Electives S F423T Thesis	6 9		BITS	F412 Practice School - II	20

Note: This is operative pattern for the students who are admitted from August 2017 onwards.

		;	Semester-wise pattern for c	ompo	site Du	al Degr	ee Programmes	
			(M.Sc. Mathematics		B.E. Con	•	<u> </u>	
Year			First Semester	U			Second Semester	U
ı	Sa		First degree Programme		S		First degree Programme	
			First Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	MATH	F212	Optimization	3			or	
	MATH	F213	Discrete Mathematics	3	MGTS	F211	Principles of Management	3
П	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3
	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3
			Humanities Elective	3	MATH	F243	Graphs & Networks	3
	BITS	F225	Environmental Studies	3	MATH	F244	Measure & Integration	3
							Humanities Electives	5
				21				20
Summe	er		BITS F221 Practice	Scho	ol -1 (fo	r PS Op	otion Only)	
			First Semester	U			Second Semester	U
	MATH	F311	Introduction to Topology	3	MATH	F341	Introduction to Functional	
	MATH	F312	Ordinary Differential Equations	3			Analysis	3
					MATH	F342	Differential Geometry	3
Ш	MATH	F313	Numerical Analysis	3	MATH	F343	Partial Differential Equations	3
	CS	F215	Digital Design	4	cs	F241	Microprocessors & Interfacing	4
	CS	F214	Logic in Computer Science	3	cs	F212	Database Systems	4
	cs	F213	Object Oriented Programming	4	cs	F211	Data Structures & Algorithms	4
l				20				21
			First Semester	U			Second Semester	U
	CS	F351	Theory of Computation	3	CS	F363	Compiler Construction	3
	cs	F372	Operating Systems	3	cs	F364	Design and Analysis of Algorithms	3
	CS	F342	Computer Architecture	4	cs	F303	Computer Networks	4
IV	cs	F301	Principles of Programming Languages	2			Fist Discipline Elective	6
			First Discipline Electives	3			Second Discipline Electives	6
			Second Discipline Electives	6				
				21	1			22
			First Semester	U			Second Semester	U
V	First D	iscipline	e Electives Thesis	6	BITS F		ctice School - II	20

		(	Semester-wise pattern for o	-		_	_	
Year		F	First Semester	U			econd Semester	U
ı	Sar	ne as F	irst degree Programme		Sa	me as	First degree Programme	
		F	First Semester	U			econd Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	MATH	F212	Optimization	3			or	
	MATH	F213	Discrete Mathematics	3	MGTS	F211	Principles of Management	3
	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3
II	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3
					MATH	F243	Graphs & Networks	3
			Humanities Elective	3	MATH	F244	Measure & Integration	3
	BITS	F225	Environmental Studies	3			_	
							Humanities Electives	5
				21				20
Summ	er		BITS F221 Practice S	chool	-1 (for I	S Opti	on Only)	•
		F	First Semester	U		S	econd Semester	U
	MATH	F311	Introduction to Topology	3	MATH	F341	Introduction to Functional	
	MATH	F312	Ordinary Differential Equations	3			Analysis	3
	MATH	F313	Numerical Analysis	3	MATH	F342	Differential Geometry	3
	EEE	F212	Electromagnetic Theory	3	MATH	F343	Partial Differential Equations	3
Ш	EEE	F211	Electrical Machines	4	EEE	F243	Signals and Systems	3
	EEE	F214	Electronic Devices	3	EEE	F244	Microelectronic Circuits	3
	EEE	F215	Digital Design	4	EEE	F241	Microprocessors &	
							Interfacing	4
					EEE	F242	Control Systems	3
				23				22
		F	First Semester	U		S	econd Semester	U
	EEE	F311	Communication Systems	4	EEE	F341	Analog Electronics	4
	EEE	F313	Analog & Digital VLSI Design	3	EEE	F342	Power Electronics	4
					EEE	F312	Power Systems	3
IV			First Discipline Electives	6			Fist Discipline Elective	6
			Second Discipline Electives	8			Second Discipline Elective	4
				21				21
		F	First Semester	U		S	econd Semester	U
V		Humanities Elective  BITS F225 Environmental Studie  BITS F221 Pract  First Semester  IATH F311 Introduction to Topolo Ordinary Differential Equations  IATH F313 Numerical Analysis EE F212 Electromagnetic Theo EE F211 Electrical Machines EE F214 Electronic Devices EE F215 Digital Design  First Semester  EE F311 Communication System  Analog & Digital VLSI Design  First Discipline Elective Second Discipline		3 9	BITS F	412 Pra	actice School - II	20

			mester-wise pattern for con M.Sc. Mathematics with B.E	-		_	_	
Year			First Semester	U			econd Semester	U
I	Sar		First degree Programme	Ť	Sa		First degree Programme	
-	-		First Semester	U			econd Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	MATH	F212	Optimization	3			or	
	MATH	F213	Discrete Mathematics	3	MGTS	F211	Principles of Management	3
	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3
Ш	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3
					MATH	F243	Graphs & Networks	3
			Humanities Elective	3	MATH	F244	Measure & Integration	3
	BITS	F225	<b>Environmental Studies</b>	3			Humanities Electives	5
				21				20
Summe	r		BITS F221 Practice Sci	hool	-1 (for P	S Optio	n Only)	
		F	First Semester	U		Se	econd Semester	U
	МАТН	F311	Introduction to Topology	3	MATH	F341	Introduction to Functional Analysis	3
	МАТН	F312	Ordinary Differential Equations	3	MATH	F342	Differential Geometry	3
Ш	MATH	F313	Numerical Analysis	3	MATH	F343	Partial Differential Equations	3
1111	ECE	F212	Electromagnetic Theory	3	ECE	F241	Microprocessors & Interfacing	4
	ECE	F215	Digital Design	4	ECE	F242	Control Systems	3
	ECE	F211	Electrical Machines	4	ECE	F243	Signals and Systems	3
	ECE	F214	Electronic Devices	3	ECE	F244	Microelectronic Circuits	3
				23				22
		F	First Semester	U		Se	econd Semester	U
	ECE	F311	Communication Systems	4	ECE	F341	Analog Electronics	4
	ECE	F434	Digital Signal Processing	4	ECE	F344	Information Theory & Coding	3
V	ECE	F314	Electromagnetic Fields & Microwave Engineering	3	ECE	F343	Communication Networks	3
			First Discipline Electives	3			First Discipline Electives	6
			Second Discipline Electives	7			Second Discipline Electives	5
				21	-			21
	1	F	First Semester	U		Se	econd Semester	U
V	First Dis	scipline	Electives Thesis	6	BITS F		ctice School - II	20
	<u> </u>	1201	1110010		l			

		S	semester-wise pattern for com (M.Sc. Mathematics with B.E.	•	•	•		
Year			First Semester	U		Second Semester	U	
I	Sa	me as	First degree Programme		Same as	First degree Programme		
			First Semester	U		Second Semester	U	
	MATH	F211	Mathematics III	3	ECON F211	Principles of Economics	3	
	MATH	F212	Optimization	3		or		
	MATH	F213	Discrete Mathematics	3	MGTS F211	Principles of Management	3	
	MATH	F214	Elementary Real Analysis	3	MATH F241	Mathematical Methods	3	
II	MATH	F215	Algebra I	3	MATH F242	Operations Research	3	
			Humanities Elective	3	MATH F243	Graphs & Networks	3	
	BITS	F225	Environmental Studies	3	MATH F244	Measure & Integration	3	
						Humanities Electives	5	
				21			20	
Summ	0.							
			First Semester	U	;	Second Semester	U	
	MATH	F311	Introduction to Topology	3	MATH F341	Introduction to Functional Analysis	3	
	матн	F312	Ordinary Differential Equations	3	MATH F342	Differential Geometry	3	
	MATH	F313	Numerical Analysis	3	MATH F343	Partial Differential Equations	3	
III	INSTR	F212	Electromagnetic Theory	3	INSTR F241	Microprocessors & Interfacing	4	
	INSTR	F215	Digital Design	4	INSTR F242	Control Systems	3	
	INSTR	F211	Electrical Machines	4	INSTR F243	Signals & Systems	3	
	INSTR	F214	Electronic Devices	3	INSTR F244	Microelectronic Circuits	3	
				23	-		22	
			First Semester	U		Second Semester	U	
	INSTR	F311	Electronic Instruments & Instrumentation Technology	4	INSTR F341	Analog Electronics	4	
	INSTR	F312	Transducers and Measurement Systems	3	INSTR F342	Power Electronics	4	
IV	INSTR	F313	Analog & Digital VLSI Design	3	INSTR F343	Industrial Instrumentation & Control	3	
			First Discipline Electives	3		Fist Discipline Elective	6	
			Second Discipline Electives	8		Second Discipline Electives	4	
				21	-		21	
			First Semester	U		Second Semester	U	
V	First Dis		Electives Thesis	6 9	BITS F412 Pr	actice School - II	20	

		;	Semester-wise pattern for c	ompo	osite Du	ıal Deg	ree Programmes	
	T		(M.Sc. Mathematic		h B.E. N	/lanufa		
Year			First Semester	U			Second Semester	U
ı	Saı		First degree Programme			Same a	s First degree Programme	
			First Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	MATH	F212	Optimization	3			or	
	MATH	F213	Discrete Mathematics	3	MGTS	F211	Principles of Management	3
	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3
Ш	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3
			Humanities Elective	3	MATH	F243	Graphs & Networks	3
	BITS	F225	Environmental Studies	3	MATH	F244	Measure & Integration	3
							Humanities Electives	5
				21	<u> </u>			20
Summe	or Or		RITS F221 Prac		School .	1 (for	PS Option Only)	20
Summ	<u> </u>		First Semester	U	1	1 (101	Second Semester	U
			i ii st deiliestei				Introduction to Functional	<del>                                     </del>
	MATH	F311	Introduction to Topology	3	MATH	F341	Analysis	3
	MATH	-	Ordinary Differential Equations	3	MATH		Differential Geometry	3
	MATH		Numerical Analysis	3	MATH		Partial Differential Equations	3
	MF	F211	Mechanics of Solids	3	MF	F219	Operations Management	3
III	MF	F216	Materials Science & Engineering	3	MF	F220	Metrology and Quality Assurance	3
	MF	F217	Machine Drawing	2	MF	F221	Mechanisms and Machines	3
	MF	F218	Transport Phenomena in Manufacturing	4	MF	F222	Casting, Forming and Welding	4
				21				22
			First Semester	U			Second Semester	U
	MF	F314	Design of Machine Elements	3	MF	F317	Computer Aided Design and Manufacturing	3
	MF	F315	Automation and Control	4	MF	F318	Non Traditional Manufacturing Processes	3
IV	MF	F316	Machining and Machine Tools	4	MF	F319	Supply Chain Management	3
			First Discipline Electives	6	MF	F320	Engineering Optimization	3
			Second Discipline Elective	6			First Discipline Electives	3
			•				Second Discipline Elective	6
				22			-	21
			First Semester	U			Second Semester	U
V	First D	iscipline	e Electives	6	DITO	440 D	actics Cabool II	20
	BITS F		Thesis	9	BIISE	412 Pr	actice School - II	20

BITS F423T Thesis 9 BITS F412 Practice School - II 20

Note: This is operative pattern for the students who are admitted from August 2019 onwards as approved by the Senate-appointed committee, subject to change if the situation warrants.

		S	Semester-wise pattern for c			_	•		
Year		F	(M.Sc. Mathemat	ICS W	ith B.E.		nical) Second Semester	U	
I	San		irst degree Programme	_			s First degree Programme	_	
•	Juli		irst Semester	U			Second Semester	U	
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3	
	MATH	F212	Optimization	3			or		
	MATH	F213	Discrete Mathematics	3	MGTS	F211	Principles of Management	3	
	MATH	F214	Elementary Real Analysis	3	MATH	F241	Mathematical Methods	3	
Ш	MATH	F215	Algebra I	3	MATH	F242	Operations Research	3	
			Humanities Elective	3	MATH	F243	Graphs & Networks	3	
	BITS	F225	Environmental Studies	3	MATH	F244	Measure & Integration	3	
							Humanities Electives	5	
				21				20	
Summe	er	BITS F221 Practice School -1 (for PS Option Only)  First Semester  U  Second Semester  U  MATH F311 Introduction to Topology  3 MATH F341 Introduction to Functional Analysis  Ordinary Differential							
		F	irst Semester	U			Second Semester	U	
	MATH	F311	Introduction to Topology	3	MATH	F341		3	
	MATH	F312	Ordinary Differential Equations	3	MATH	F342	Differential Geometry	3	
	MATH	F313	Numerical Analysis	3	MATH	F343	Partial Differential Equations	3	
Ш	ME	F211	Mechanics of Solids	3	ME	F218	Advanced Mechanics of Solids	2	
	ME	F212	Fluid Mechanics	3	ME	F219	Manufacturing Processes	4	
	ME	F216	Materials Science & Engineering	3	ME	F220	Heat Transfer	4	
	ME	F217	Applied Thermodynamics	4	ME	F221	Mechanisms and Machines	3	
				22				22	
	First Se	emeste	r	U	Second	d Seme	ster	U	
	ME	F314	Design of Machine Elements	3	ME	F318	Computer-Aided Design	3	
	ME	F315	Advanced Manufacturing Processes	3	ME	F319	Vibrations & Control	3	
IV	ME	F316	Manufacturing Management	2	ME	F320	Engineering Optimization	3	
	ME	F317	Engines, Motors, and Mobility	2	ME	F341	Prime Movers & Fluid Machines	3	
			First Discipline Electives	6			First Discipline Electives	9	
			Second Discipline Electives	3			Second Discipline Electives	3	
				19	<u></u>			24	
		F	irst Semester	U		,	Second Semester	U	
V	Second BITS F4		line Electives Thesis	6 9	BITS F	412 Pra	ctice School - II	20	

			Semester-wise pattern for co (M.Sc. Physic	•		_	•	
Year			First Semester	U		S	econd Semester	U
ı	Sa	me as	First degree Programme		Sa	ame as	First degree Programme	
			First Semester	U		S	econd Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
II	PHY	F214	Electricity, Magnetism & Optics Laboratory	2	PHY	F242	Quantum Mechanics I	3
			Humanities Elective	3	PHY	F243	Mathematical Methods of Physics	3
	BITS	F225	Environmental Studies	3	PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
Sumn	ner		BITS F221 Practice	Scho	ool -1(fo	r PS Op	otion Only)	
			First Semester	U		S	econd Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY	F343	Nuclear & Particle Physics	3
	CHE	F211	Chemical Process Calculations	3	PHY	F344	Advanced Physics Laboratory	3
III	CHE	F212	Fluid Mechanics	3	CHE	F241	Heat Transfer	3
	CHE	F214	Engineering Chemistry	3	CHE	F242	Numerical Methods for Chemical Engineers	3
	CHE	F213	Chemical Engineering Thermodynamics	3	CHE	F243	Material Science & Engineering	3
					CHE	F244	Separation Processes I	3
				21				24
			First Semester	U		S	econd Semester	U
	CHE	F311	Kinetics & Reactor Design	3	CHE	F341	Chemical Engineering Laboratory II	3
	CHE	F312	Chemical Engineering Laboratory I	3	CHE	F342	Process Dynamics & Control	3
IV	CHE	F313	Separation Processes II	3	CHE	F343	Process Design Principles II	3
	CHE	F314	Process Design Principles I	3			First Discipline Electives	9
			First Discipline Electives	6			Second Discipline Electives	6
			Second Discipline Electives	3				
				21				24
			First Semester	U		S	econd Semester	U
V	Secono BITS F		oline Electives Thesis	6 9	BITS F	412 Pra	ctice School - II	20

		;	Semester-wise pattern for co	•		_	ee Programmes	
	1		(M.Sc. Phys		vith B.E.			
Year			First Semester	U		,	Second Semester	U
ı	Saı	me as	First degree Programme		S	ame as	First degree Programme	
			First Semester	U		,	Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
II	PHY	F214	Electricity, Magnetism & Optics Laboratory	2	PHY	F242	Quantum Mechanics I	3
			Humanities Elective	3	PHY	F243	Mathematical Methods of Physics	3
	BITS	F225	Environmental Studies	3	PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
	Sur	nmer	BITS	F221	Practic	e Scho	ool -1(for PS Option Only)	
			First Semester	U		,	Second Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY	F343	Nuclear & Particle Physics	3
Ш	CE	F211	Mechanics of Solids	3	CE	F241	Analysis of structures	3
	CE	F231	Fluid Mechanics	3	CE	F242	Construction Planning & Technology	3
	CE	F230	Civil Engineering Materials	4	CE	F243	Soil Mechanics	4
	CE	F213	Surveying	4	CE	F244	Highway Engineering	4
				23				23
			First Semester	U		,	Second Semester	U
	CE	F320	Design of Reinforced Concrete Structures	3	CE	F342	Water & Waste Water Treatment	4
	CE	F312	Hydraulic Engineering	4	CE	E321	Engineering Hydrology	3
	CE	F313	Foundation Engineering	3		1 321	Engineering riyarology	
IV			First Discipline Electives	9	CE	F343	Design of Steel Structures	3
			Second Discipline Electives	3	PHY	F344	Advanced Physics Laboratory	3
							First Discipline Electives	6
					]		Second Discipline Electives	3
				22				22
			First Semester	U		;	Second Semester	U
V			d Discipline Electives S F423T Thesis	6 9		BITS	F412 Practice School - II	20

 $\textbf{Note:} \ \ \textbf{This is operative pattern for the students who are admitted from } \ \textbf{August 2017} \ \ \textbf{onwards.}$ 

			Semester-wise pattern for co (M.Sc. Physics with					
Year			First Semester	U			Second Semester	U
I	Sa	me as	First degree Programme		5	Same a	s First degree Programme	
			First Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
Ш	PHY	F214	Electricity, Magnetism &		PHY	F242	Quantum Mechanics I	3
			Optics Laboratory	2	PHY	F243	Mathematical Methods of	
			Humanities Elective	3			Physics	3
	BITS	F225	Environmental Studies	3	PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
Summ	er		BITS F221 Practice Sc	hool	-1 (for	PS Opt	ion Only)	
			First Semester	υ			Second Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY	F343	Nuclear & Particle Physics	3
	CS	F215	Digital Design	4	PHY	F344	Advanced Physics	
Ш	CS	F214	Logic in Computer				Laboratory	3
""			Science	3	CS	F241	Microprocessors &	
	cs	F222	Discrete Structures For				Interfacing	4
			Computer Science	3	CS	F212	Database Systems	4
	cs	F213	Object Oriented		CS	F211	Data Structures & Algorithms	4
			Programming	4				
				23				24
			First Semester	U			Second Semester	U
	CS	F351	Theory of Computation	3	CS	F363	Compiler Construction	3
	CS	F372	Operating Systems	3	CS	F364	Design and Analysis of	
	cs	F342	Computer Architecture	4			Algorithms	3
IV	cs	F301	Principles of		CS	F303	Computer Networks	4
			Programming Languages	2			First Discipline Electives	9
			First Discipline Electives	6			Second Discipline Electives	3
			Second Discipline Electives	3				
				21				22
			First Semester	U			Second Semester	U
V	Secono BITS F		pline Electives Thesis	6 9	BITS F	-412 Pr	actice School - II	20

		:	Semester-wise pattern for co	ompos	ite Dual	Degre	ee Programmes	
			(M.Sc. Physics with E	B.E. El€	ectrical	& Elec	etronics)	
Year			First Semester	U		;	Second Semester	U
I	Sa	me as	First degree Programme		Sa	me as	First degree Programme	
			First Semester	U		;	Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
II	PHY	F214	Electricity, Magnetism &Optics Laboratory	2	PHY	F242	Quantum Mechanics I	3
			Humanities Elective	3	PHY	F243	Mathematical Methods of Physics	3
	BITS	F225	<b>Environmental Studies</b>	3	PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
Summe	er		BITS F221 Pra	actice S	School -	1(for	PS Option Only)	
			First Semester	U		;	Second Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY	F343	Nuclear & Particle Physics	3
III	EEE	F211	Electrical Machines	4	EEE	F243	Signals and Systems	3
	EEE	F214	Electronic Devices	3	EEE	F244	Microelectronic Circuits	3
	EEE	F215	Digital Design	4	EEE	F241	Microprocessors & Interfacing	4
					EEE	F242	Control Systems	3
				20				22
			First Semester	U			Second Semester	U
	EEE	F311	Communication Systems	4	EEE	F341	Analog Electronics	4
	MATH	F212	Optimization	3	EEE	F342	Power Electronics	4
			or		EEE	F312	Power Systems	3
	ME	F344	Engineering Optimization	2	PHY	F344	Advanced Physics Laboratory	3
IV	EEE	F313	Analog & Digital VLSI Design	3			First Discipline Electives	6
			First Discipline Electives	9			Second Discipline Electives	4
			Second Discipline Electives	5				
				23/24				24
			First Semester	U		;	Second Semester	U
V	Second BITS F		pline Electives Thesis	3 9	BITS F	412 Pr	actice School - II	20

			Semester-wise pattern for co	ompo	site Dua	al Deg	ree Programmes	
			(M.Sc. Physics with B.E.			_	_	
Year			First Semester	U			Second Semester	U
ı	Sa	ame as	First degree Programme		S	ame as	s First degree Programme	
			First Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
II	PHY	F214	Electricity, Magnetism & Optics Laboratory	2	PHY	F242	Quantum Mechanics I	3
			Humanities Elective	3	PHY	F243	Mathematical Methods of Physics	3
	BITS	F225	Environmental Studies	3	PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
Sumn	mer BITS F221 Prac				hool -1	(for P	S Option Only)	
			First Semester	U			Second Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY		Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY		Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY		Nuclear & Particle Physics	3
Ш	ECE	F215	Digital Design	4	ECE		Microprocessors & Interfacing	4
	ECE	F211	Electrical Machines	4	ECE		Control Systems	3
	ECE	F214	Electronic Devices	3	ECE		Signals and Systems	3
					ECE	F244	Microelectronic Circuits	3
				20				22
			First Semester	U			Second Semester	U
	ECE	F311	Communication Systems	4	ECE	F341	Analog Electronics	4
	ECE	F434	Digital Signal Processing	4	ECE	F344	Information Theory & Coding	3
IV	ECE	F314	Electromagnetic Fields & Microwave Engineering	3	ECE	F343	Communication Networks	3
			First Discipline Electives	9	PHY	F344	Advanced Physics Laboratory	3
			Second Discipline Electives	3			First Discipline Electives	6
							Second Discipline Electives	5
				23	1			24
			First Semester	U			Second Semester	U
V	Secon BITS F		pline Electives Thesis	4 9	BITS F	412 Pr	actice School - II	20

		Se	mester-wise pattern for	compo	site Dua	I Degree	Programmes	
			(M.Sc. Physics with B.E	1	tronics 8		,	
Year			rst Semester	U			cond Semester	U
l	Sam		st degree Programme		Sa		irst degree Programme	
			rst Semester	U			cond Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
II	PHY	F214	Electricity, Magnetism &Optics Laboratory	2	PHY	F242	Quantum Mechanics I	3
			Humanities Elective	3	PHY	F243	Mathematical Methods of	
	BITS	F225	<b>Environmental Studies</b>	3			Physics	3
					PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
Summe	er	BITS F221 Practic			I -1(for P	S Optio	n Only)	
		Fi	rst Semester	U		Se	cond Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY	F343	Nuclear & Particle Physics	3
III	INSTR	F215	Digital Design	4	INSTR	F241	Microprocessors & Interfacing	4
	INSTR	F211	Electrical Machines	4	INSTR	F242	Control Systems	3
	INSTR	F214	Electronic Devices	3	INSTR	F243	Signals & Systems	3
					INSTR	F244	Microelectronic Circuits	3
				20				22
		Fi	rst Semester	U		Se	cond Semester	כ
	INSTR	F311	Electronic Instruments & Instrumentation Technology	4	INSTR	F341	Analog Electronics	4
	INSTR	F312	Transducers and Measurement Systems	3	INSTR	F342	Power Electronics	4
IV	INSTR	F313	Analog & Digital VLSI Design	3	INSTR	F343	Industrial Instrumentation & Control	3
			First Discipline Electives	9	PHY	F344	Advanced Physics Laboratory	3
			Second Discipline Electives	3			First Discipline Electives	6
					_		Second Discipline Electives	4
				22				24
		Fi	rst Semester	U		Se	cond Semester	U
V	Second BITS F		line Electives Thesis	5 9	BITS F4	412 Prac	tice School - II	20

			Semester-wise pattern for co			_	•	
Year			First Semester	U		;	Second Semester	U
I	Sa	me as	First degree Programme		S	ame as	First degree Programme	
			First Semester	U		;	Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
II	PHY	F214	Electricity, Magnetism &Optics Laboratory	2	PHY	F242	Quantum Mechanics I	3
			Humanities Elective	3	PHY	F243	Mathematical Methods of Physics	3
	BITS	F225	<b>Environmental Studies</b>	3	PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
Summ	er		BITS F221 Praction	e Sc	hool -1	(for PS	Option Only)	
			First Semester	U		:	Second Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY	F343	Nuclear & Particle Physics	3
	MF	F211	Mechanics of Solids	3	PHY	F344	Advanced Physics Laboratory	3
Ш	MF	F216	Materials Science & Engineering	3	MF	F219	Operations Management	3
	MF	F217	Machine Drawing	2	MF	F220	Metrology and Quality Assurance	3
	MF	F218	Transport Phenomena in Manufacturing	4	MF	F221	Mechanisms and Machines	3
					MF	F222	Casting, Forming and Welding	4
				21				25
			First Semester	U			Second Semester	U
	MF	F314	Design of Machine Elements	3	MF	F317	Computer Aided Design and Manufacturing	3
	MF	F315	Automation and Control	4	MF	F318	Non Traditional Manufacturing Processes	3
IV	MF	F316	Machining and Machine Tools	4	MF	F319	Supply Chain Management	3
			First Discipline Electives	9	MF	F320	Engineering Optimization	3
			Second Discipline Electives	3			First Discipline Electives	6
					_		Second Discipline Electives	4
				23				22
			First Semester	U			Second Semester	U
V	Secon BITS F		pline Electives Thesis	5 9	BITS F	412 Pra	ctice School - II	20

			Semester-wise pattern for co	•		_	•	
Year			(M.Sc. Physics	With	B.E. ME		aı) Second Semester	U
ī	Sa	ame as	First degree Programme		5	Same as	s First degree Programme	
			First Semester	U			Second Semester	U
	MATH	F211	Mathematics III	3	ECON	F211	Principles of Economics	3
	PHY	F211	Classical Mechanics	4			or	
	PHY	F212	Electromagnetic Theory I	3	MGTS	F211	Principles of Management	3
	PHY	F213	Optics	3	PHY	F241	Electromagnetic Theory II	4
II	PHY	F214	Electricity, Magnetism & Optics Laboratory	2	PHY	F242	Quantum Mechanics I	3
			Humanities Elective	3	PHY	F243	Mathematical Methods of Physics	3
	BITS	F225	Environmental Studies	3	PHY	F244	Modern Physics Laboratory	2
							Humanities Electives	5
				21				20
Summ	er		BITS F221 Prac	tice S	School	-1 (for F	PS Option Only)	
			First Semester	U			Second Semester	U
	PHY	F311	Quantum Mechanics II	3	PHY	F341	Solid State Physics	3
	PHY	F312	Statistical Mechanics	3	PHY	F342	Atomic & Molecular Physics	3
	PHY	F313	Computational Physics	3	PHY	F343	Nuclear & Particle Physics	3
	ME	F211	Mechanics of Solids	3	PHY	F344	Advanced Physics Laboratory	3
III	ME	F212	Fluid Mechanics	3	ME	F218	Advanced Mechanics of Solids	2
	ME	F216	Materials Science & Engineering	3	ME	F219	Manufacturing Processes	4
	ME	F217	Applied Thermodynamics	4	ME	F220	Heat Transfer	4
					ME	F221	Mechanisms and Machines	3
				22				25
			First Semester	U			Second Semester	U
	ME	F314	Design of Machine Elements	3	ME	F318	Computer-Aided Design	3
	ME	F315	Advanced Manufacturing Processes	3	ME	F319	Vibrations & Control	3
IV	ME	F316	Manufacturing Management	2	ME	F320	Engineering Optimization	3
	ME	F317	Engines, Motors, and Mobility	2	ME	F341	Prime Movers & Fluid Machines	3
			First Discipline Electives	9			First Discipline Electives	6
			Second Discipline Electives	3			Second Discipline Electives	3
				22				21
			First Semester	U			Second Semester	U
V	Secon BITS I		oline Electives Thesis	6 9	BITS F	-412 Pra	actice School - II	20

## List of Courses for B.E. / M.Sc. / B.Pharm. Programmes:

The list of Discipline Core Courses and Discipline Electives for all the first degree programmes is given below. To complete the requirements of Humanities electives, a student can take courses which are normally listed under Languages and Literature, History and Philosophy, Political and social Sciences, Fine arts and Professional Arts which have also been mentioned in subsequent paragraphs.

	Course Title	L	P	U
BIOTECH	NOLOGY			
CORE CO	URSES			
BIOT F211	Biological Chemistry	3	0	3
BIOT F212	Microbiology	3	1	4
BIOT F213	Cell biology	3	0	3
BIOT F215	Biophysics	3	0	3
BIOT F241	Genetic Engineering Techniques	1	3	4
BIOT F243	Genetics	3	0	3
BIOT F244	Instrumental Methods of Analysis	1	3	4
BIOT F245	Intro to Environmental Biotechnology	3	0	3
BIOT F311	Recombinant DNA Technology	3	0	3
BIOT F314	Industrial Microbiology and Bioprocess Engineering	2	2	4
BIOT F342	Immunology	3	0	3
BIOT F343	Experiments in Biotechnology	0	3	3
BIOT F344	Downstream Processing	2	1	3
DISCIPLIN	NE ELECTIVE COURSES			
BIOT F242	Introduction to Bioinformatics	3	0	3
BIOT F345	Proteomics	3	0	3
BIOT F346	Genomics	3	0	3
BIOT F347	Immunotechnology	3	0	3
BIOT F352	Cell and Tissue Culture Technology	3	0	3
BIOT F413	Molecular Biology of the Cell	3	0	3
BIOT F416	Introduction to Pharmaceutical Biotechnology	3	0	3
BIOT F417	Biomolecular Modeling	3	0	3

Course No	Course Title	L	P	U
BIOT F420	Introduction to Plant Biotechnology	3	0	3
BIOT F422	Nanobiotechnology	3	0	3
BIOT F423	Drug design and delivery	3	0	3
BIOT F424	Food Biotechnology	3	0	3
BITS F467	Bioethics and Biosafety	3	0	3

CHEMICA	L ENGINEERING			
CORE CO		L	P	U
CHE F211	Chemical Process Calculations	3	0	3
CHE F212	Fluid Mechanics	3	0	3
CHE F213	Chemical Engineering Thermodynamics	3	0	3
CHE F214	Engineering Chemistry	3	0	3
CHE F241	Heat Transfer	3	0	3
CHE F242	Numerical Methods for Chemical Engineers	3	0	3
CHE F243	Material Science and Engg.	3	0	3
CHE F244	Separation Processes I	3	0	3
CHE F311	Kinetics and Reactor Design	3	0	3
CHE F312	Chemical Engineering Lab I	0	3	3
CHE F313	Separation Processes II	3	0	3
CHE F314	Process Design Principles I	3	0	3
CHE F341	Chemical Engineering Lab II	0	3	3
CHE F342	Process Dynamics and Control	3	0	3
CHE F343	Process Design Principles II	3	0	3
DISCIPLIN	NE ELECTIVE COURSES			
BIO G671	Bioconversion Technology	3	2	5
BIOT F245	Introduction to Environmental Biotechnology	3	0	3
BIOT F344	Downstream processing	2	1	3
BITS F415	Introduction to MEMS	3	1	4
BITS F416	Introduction to Nanoscience	3	0	3
BITS F417	Microfluidics and its application			4
BITS F418	Introduction to Biomedical Engineering	3	1	4
BITS F429	Nanotechnology for Renewable Energy and Environment	3	1	4
CHE F411	Environmental Pollution	3	0	3

	Control					Engineering			
CHE F412	Process Equipment Design	3	0	3	CHE G557	Energy Systems			4
CHE F413	Process Plant Safety	3	0	3	CHE GOOT	Engineering			•
CHE F414	Transport Phenomena	3	0	3	CHE G558	Chemical Process			4
CHE F415	Molecular and Statistical Thermodynamics	3	0	3	CHE G568	Optimization  Modeling and Simulation in			4
CHE F416	Process Plant Design	_	_	3		Petroleum Refining	_	0	
	Project I			3	CHE G613	Advanced Mass Transfer	3	2	5
U.HF. F417	Process Plant Design Project	-	-	3	CHE G614	Advanced Heat Transfer Petroleum Reservoir	3	2	5
	Modelling and Simulation				CHE G616	Engineering			5
CHE F418	in Chemical Engineering	3	0	3	CHE G617	Petroleum Refinery Engg.	3	2	5
CHE F419	Chemical Process Technology	3	0	3	CHE G618	Petroleum Downstream Processing	3	2	5
CHE F421	Bio-chemical Engineering	3	0	3	CHE G619	Process Intensification	3	2	5
CHE F422	Petroleum Refining	3	0	3	CHE G620	Energy Integration Analysis	3	1	4
	Technology	Ü	Ü	Ü		Advanced Chemical			_
CHE F423	Membrane Science and Engineering	3	0	3		Engineering Thermodynamics			5
CHE F424	Rheology of Complex	3	0	3		Reaction Engineering			5
	Fluids				CHEM	Polymer Chemistry	3	0	3
CHE F433	Corrosion Engineering	3	0	3	F325				
CHE F471	Advanced Process Control	3	0	3	ME F323	Energy Storage Technologies	3	0	3
CHE F497	Atomic and Molecular Simulations			3	MST G521	Material Characterization Techniques	3	2	5
CHE F498	Colloids and Interface			3		reciniques			
CHE I 150	Engineering								
CHE G511	Engineering Fluidization Engineering	3	1	4	CIVIL ENG	GINEERING			
CHE G511	Fluidization Engineering Petroleum Refining and			-	CIVIL ENG		L	P	U
	Fluidization Engineering Petroleum Refining and Petrochemicals	3	1	4			3	<b>P</b>	3
CHE G511	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental			-	CORE CO CE F211 CE F213	URSES  Mechanics of Solids  Surveying			3
CHE G511 CHE G512 CHE G513	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems	3	1	4	CORE CO CE F211 CE F213 CE F230	URSES  Mechanics of Solids  Surveying  Civil Engineering Materials	3	0	3 4 4
CHE G511 CHE G512 CHE G513 CHE G522	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology	3	1	4 5 4	CORE CO CE F211 CE F213 CE F230 CE F231	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics	3	0	3 4 4 3
CHE G511 CHE G512 CHE G513	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems	3	1	4	CORE CO CE F211 CE F213 CE F230	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures	3	0	3 4 4
CHE G511 CHE G512 CHE G513 CHE G522	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase	3	1	4 5 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology	3 3 3	0 1 0 0	3 4 4 3 3
CHE G511 CHE G512 CHE G513 CHE G522 CHE G523 CHE G524	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow	3 3 3	1 2 1	4 5 4 5 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics	3 3 3 3	0 1 0 0	3 4 4 3 3 3 4
CHE G511 CHE G512 CHE G513 CHE G522 CHE G523 CHE G524 CHE G526	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering	3 3 3 3	1 2 1 1	4 5 4 5 4 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering	3 3 3 3 3	0 1 0 0 1 1	3 4 4 3 3 3 4 4
CHE G511 CHE G512 CHE G513 CHE G522 CHE G523 CHE G524	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow	3 3 3	1 2 1	4 5 4 5 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering	3 3 3 3 3 3	0 1 0 0 1 1 1	3 4 4 3 3 3 4 4 4
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to	3 3 3 3 3	1 2 1 1 1 1	4 5 4 5 4 4 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering	3 3 3 3 3	0 1 0 0 1 1	3 4 4 3 3 3 4 4
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology	3 3 3 3 3 3	1 2 1 1 1 1	4 5 4 5 4 4 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced	3 3 3 3 3 3	0 1 0 0 1 1 1	3 4 4 3 3 3 4 4 4
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G528	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology	3 3 3 3 3 3 3	1 2 1 1 1 1 1	4 5 4 5 4 4 4 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures	3 3 3 3 3 3	0 1 0 0 1 1 1	3 4 4 3 3 3 4 4 4 3 3
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G528	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology Alternate Energy Resources	3 3 3 3 3 3	1 2 1 1 1 1	4 5 4 5 4 4 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320 CE F321	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures Engineering Hydrology	3 3 3 3 3 3 3	0 1 0 0 1 1 1 0	3 4 4 3 3 3 4 4 4 3 3 3
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G528	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology	3 3 3 3 3 3 3	1 2 1 1 1 1 1	4 5 4 5 4 4 4 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320 CE F321 CE F342	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures Engineering Hydrology Water & Waste Water Treatment	3 3 3 3 3 3 3 3	0 1 0 0 1 1 1 0	3 4 4 3 3 3 4 4 4 3 3 3 4 4 4 4 3 3 3 4
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G528 CHE G529 CHE G532	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology Alternate Energy Resources Petroleum Product	3 3 3 3 3 3 3 3	1 2 1 1 1 1 1 1	4 5 4 5 4 4 4 4 4	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320 CE F321 CE F342 CE F343	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures Engineering Hydrology Water & Waste Water	3 3 3 3 3 3 3	0 1 0 0 1 1 1 0	3 4 4 3 3 3 4 4 4 3 3 3
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G529 CHE G532 CHE G533 CHE G533	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology Alternate Energy Resources Petroleum Product Characterization Advanced Separation	3 3 3 3 3 3 3 3 3	1 2 1 1 1 1 1 1 1 2	4 5 4 5 4 4 4 4 5 5	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320 CE F321 CE F342 CE F343 DISCIPLIE	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures Engineering Hydrology Water & Waste Water Treatment Design of Steel Structures WE ELECTIVE COURSES Multicriterion Decision	3 3 3 3 3 3 3 3	0 1 0 0 1 1 1 0	3 4 4 3 3 3 4 4 4 3 3 3 4 4 4 4 3 3 3 4
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G529 CHE G532 CHE G533	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology Alternate Energy Resources Petroleum Product Characterization Advanced Separation Technology Advanced Transport Phenomena	3 3 3 3 3 3 3 3 3	1 2 1 1 1 1 1 1 1 2	4 5 4 5 4 4 4 4 4 5	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320 CE F321 CE F342 CE F343 DISCIPLIE	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures Engineering Hydrology Water & Waste Water Treatment Design of Steel Structures WE ELECTIVE COURSES Multicriterion Decision Making in Engg. and	3 3 3 3 3 3 3 3	0 1 0 0 1 1 1 0	3 4 4 3 3 3 4 4 4 3 3 3 4 4 4 4 3 3 3 4
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G529 CHE G532 CHE G533 CHE G533	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology Alternate Energy Resources Petroleum Product Characterization Advanced Separation Technology Advanced Transport Phenomena Computational Fluid	3 3 3 3 3 3 3 3 3	1 2 1 1 1 1 1 1 1 2	4 5 4 5 4 4 4 4 5 5	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320 CE F321 CE F342 CE F343 DISCIPLIE	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures Engineering Hydrology Water & Waste Water Treatment Design of Steel Structures WE ELECTIVE COURSES Multicriterion Decision Making in Engg. and Management	3 3 3 3 3 3 3 3 3	0 1 0 0 1 1 1 0	3 4 4 3 3 3 4 4 4 4 3 3 3 4 4 4 3 3 3 4 4 3 3 4 4 3 3 4 4 4 3 3 4 4 4 3 4 4 4 3 4 4 3 4 4 3 4 4 4 3 4 4 4 3 4 4 4 3 4 4 3 4 4 3 4 3 4 3 4 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 3 3 4 3 4 3 3 4 3 4 3 4 3 3 4 3 4 3 4 3 3 3 4 3 4 3 3 3 4 3 3 3 4 3 3 4 3 3 3 3 4 3 3 3 4 3 3 3 4 3 3 3 3 4 3 3 3 3 3 4 3
CHE G511 CHE G512 CHE G522 CHE G523 CHE G524 CHE G526 CHE G527 CHE G528 CHE G529 CHE G532 CHE G533 CHE G551 CHE G552	Fluidization Engineering Petroleum Refining and Petrochemicals Environmental Management Systems Polymer Technology Mathematical Methods in Chemical Engineering Introduction to Multiphase flow Nuclear Engineering Energy Conservation and Management Introduction to Nanoscience & Technology Pulp & Paper Technology Alternate Energy Resources Petroleum Product Characterization Advanced Separation Technology Advanced Transport Phenomena Computational Fluid Dynamics	3 3 3 3 3 3 3 3 3	1 2 1 1 1 1 1 1 1 2	4 5 4 5 4 4 4 4 5 5 5 5	CORE CO CE F211 CE F213 CE F230 CE F231 CE F241 CE F242 CE F243 CE F244 CE F312 CE F313 CE F320 CE F321 CE F342 CE F343 DISCIPLIE	Mechanics of Solids Surveying Civil Engineering Materials Fluid Mechanics Analysis of Structures Construction Planning and Technology Soil Mechanics Highway Engineering Hydraulics Engineering Foundation Engineering Design of Reinforced Concrete Structures Engineering Hydrology Water & Waste Water Treatment Design of Steel Structures WE ELECTIVE COURSES Multicriterion Decision Making in Engg. and	3 3 3 3 3 3 3 3 3	0 1 0 0 1 1 1 0	3 4 4 3 3 3 4 4 4 4 3 3 3 4 4 4 3 3 3 4 4 3 3 4 4 3 3 4 4 4 3 3 4 4 4 3 4 4 4 3 4 4 3 4 4 3 4 4 4 3 4 4 4 3 4 4 4 3 4 4 3 4 4 3 4 3 4 3 4 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 3 3 4 3 4 3 3 4 3 4 3 4 3 3 4 3 4 3 4 3 3 3 4 3 4 3 3 3 4 3 3 3 4 3 3 4 3 3 3 3 4 3 3 3 4 3 3 3 4 3 3 3 3 4 3 3 3 3 3 4 3

OF F004	NT ' 1 A 1 '	_	0	_		O	-	_	
CE F324	Numerical Analysis	3	0	3	Course No	Course Title	L	P	U
CE F325	Fundamentals of Rock Mechanics	3	0	3	CS F213	Object Oriented Programming	3	1	4
CE F345	Computational	3	0	3	CS F214	Logic in Computer Science	3	0	3
CE F345	Geomechanics	3	U	3	CS F215	Digital Design	3	1	4
CE F411	Operation Research for Engineers	3	0	3	CS F222	Discrete Structures for Computer Science	3	0	3
CE F412	Disaster Management	3	0	3	00 D041	Microprocessors &	0		4
CE F413	Advanced Structural Design	3	0	3	CS F241	Interfacing	3	1	4
CE F415	Design of Prestressed Concrete Structure	3	0	3	CS F301	Principles of Programming Languages	2	0	2
CE F416	Computer Applications in	2	1	4	CS F303	Computer Networks	3	1	4
CE F416	Civil Engineering	3	1	4	CS F342	Computer Architecture	3	1	4
CE F417	Applications of Artificial	3	0	3	CS F351	Theory of Computation	3	0	3
CETTI	Intelligence in Civil Engg.	Ü	Ü	Ü	CS F363	Compiler Construction	2	1	3
CE F419	Geotechnical Earthquake Engg. and Machine	3	0	3	CS F364	Design & Analysis of Algorithms	3	0	3
	Foundation				CS F372	Operating Systems	3	0	3
CE F420	Introduction to Bridge Engineering	3	0	3	DISCIPLIN	NE ELECTIVE COURSES			
	Analysis and Design of FRP				BITS F311	Image Processing	3	0	3
CE F421	Reinforced Concrete	3	0	3	BITS F312	Neural Networks and Fuzzy	3	0	3
	Structures				DI10 1012	Logic	J	U	3
CE F422	Urban Hydrology	2	1	3	BITS F343	Fuzzy Logic and Applications	3	0	3
CE F423	Green Buildings and Energy Conservation	3	0	3	BITS F364	Human – Computer	3	0	3
CE F425	Airport, Railways and	3	0	3	21101001	Interaction	Ü		Ü
	Waterways Geosynthetics and				BITS F386	Quantum Information and Computation	3	0	3
CE F426	Reinforced Soil Structure	3	0	3	BITS F452	Blockchain Technology	3	0	3
					BITS F453	Computational Learning	3	0	3
Course No	Course Title	L	P	U		Theory	J	O	J
CE F427	System Modeling and Analysis	3	0	3	BITS F454	Bio-Inspired Intelligence: Algorithms and	3	0	3
CE F428	Earthquake Resistant	3	0	3	DIMO D460	Applications	_	^	2
CD 1 120	Design and Construction	J	O	J	BITS F463	Cryptography	3	0	3
CE F429	Design of Foundation Systems	3	0	3	BITS F464 BITS F465	Machine Learning Enterprise Computing	3	0	3 4
	Design of Advanced					Service Oriented			-
CE F430	Concrete Structures	3	0	3	BITS F466	Computing	3	1	4
CE F431	Principles of Geographical Information Systems	3	1	4	CS F314	Software Development for Portable Devices	2	1	3
CE F432	Structural Dynamics	3	0	3	CS F315	Information and			
CE F433	Remote Sensing and Image Processing	3	1	4		Communication Technologies and	3	0	3
CE F434	Environmental Impact Assessment	3	0	3	CS F316	Development Quantum Architecture and	3	0	3
CE F435	Introduction to Finite	3	0	3	CS F317	Programming Reinforcement Learning	3	0	3
	Element Methods	_		_	CS F317 CS F320	Foundations of Data	3		
	ER SCIENCE				301020	Science	_	0	3
CORE CO		L	P	U	CS F401	Multimedia Computing	3	0	3
CS F211	Data Structures &	3	1	4	CS F402	Computational Geometry	3	0	3
	Algorithms			4	CS F407	Artificial Intelligence	3	0	3
CS F212	Database Systems	3	1	4		S			

Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
CS F413	Internetworking	3	0	3	EEE F244	Microelectronic Circuits	3	0	3
C5 F+15	Technologies	3	U	3	EEE F311	Communication Systems	3	1	4
CS F415	Data Mining	3	0	3	EEE F312	Power Systems	3	0	3
CS F422	Parallel Computing	3	0	3	EEE F313	Analog & Digital VLSI	3	0	3
CS F424	Software for Embedded Systems	3	1	4	EEE F341	Design Analog Electronics	3	1	4
CS F425	Deep Learning	3	0	3	EEE F342	Power Electronics	3	1	4
CS F426	Graph Mining	3	1	4	MATH				-
CS F427	Performance Analysis of Computer Networks	3	0	3	F212 OR	Optimization OR	3	0	3
CS F428	Special topic in Computer Science	1	0	1	ME F344	Engineering Optimization	2	0	2
	Natural Language					NE ELECTIVE COURSES			
CS F429	Processing	3	0	3	BITS F312	Neural Networks and Fuzzy Logic	3	0	3
CS F430	Approximation Algorithms	3	0	3	BITS F415	Introduction To MEMS	3	1	4
CS F431	Combinatorial Optimization	3	0	3	CS F213	Object Oriented	3	1	4
CS F432	Brain-inspired Deep Learning	3	0	3		Programming		_	-
	Computational				CS F342	Computer Architecture	3	1	4
CS F433	Neuroscience	3	0	3	CS F372	Operating Systems	3	0	3
GG P441	Selected Topics from			0	CS F451	Combinatorial Mathematics	3	0	3
CS F441	Computer Science	-	-	3	CS G553	Reconfigurable Computing			5
CS F444	Real Time Systems	3	0	3	ECE F312	EM Fields and Microwave Engineering Laboratory	0	1	1
CS F446	Data Storage Technologies and Networks	3	0	3	ECE F343	Communication Networks	3	0	3
CS F468	Information Security Project	0	3	3	EEE F216	Electronic Devices Simulation Laboratory	0	2	2
CS F469	Information Retrieval	3	0	3	EEE F245	Control System Laboratory	0	1	1
CS G513	Network Security	3	1	4		Electrical and Electronic			
CS G519	Social Media Analytics	3	1	4	EEE F246	Circuits Laboratory	0	2	2
CS G520	Advanced Data Mining	3	1	4	EEE F312	EM Fields and Microwave	3	0	3
CS G527	Cloud Computing			5	EEE F312	Engineering	3	U	3
IS F311	Computer Graphics	3	0	3	EEE F345	Power Apparatus &	3	0	3
IS F341	Software Engineering	3	1	4	22210.0	Networks		Ü	Ü
IS F462 MATH	Network Programming	3	0	3	EEE F346	Data Communication Networks	2	0	2
F231	Number Theory	3	0	3	EEE F348	FPGA Based System Design Laboratory	0	2	2
MATH F421	Combinatorial Mathematics	3	0	3	EEE F411	Internet of Things	3	1	4
MATH	Discrete Mathematical			_		Telecommunication			
F441	Structures	3	0	3	EEE F414	Switching Systems &	3	0	3
ELECTRICAL AND ELECTRONICS					EEE F416	Networks Digital Communication	3	0	3
ENGINEERING					EEE 1410	0	J	U	3
CORE CO					EEE F417	Computer Based Control System	3	0	3
EEE F211	Electrical Machines	3	1	4	DDD D410	Modern Communication	2	0	2
EEE F212	Electromagnetic Theory	3	0	3	EEE F418	Technologies	3	0	3
EEE F214	Electronic Devices	3	0	3	EEE F419	Flexible and Stretchable	3	1	4
EEE F215	Digital Design	3	1	4	DDD PT19	Electronics	J	1	r
EEE F241	Microprocessors and interfacing	3	1	4	EEE F420	Biomedical Signal Processing	3	1	4
EEE F242	Control Systems	3	0	3	EEE F422	Modern Control Systems	3	0	3
EEE F243	Signals & Systems	3	0	3	EEE F424	Smart Grid for Sustainable	3	0	3

Course No	Course Title Energy	L	P	U	Course No	Course Title Coding	L	P	U
EEE E405	Power System Analysis and	3	0	2	ECE F434	Digital Signal Processing	3	1	4
EEE F425	control	3	0	3	DISCIPLIN	NE ELECTIVE COURSES	L	P	U
EEE F426	Fiber Optics & Optoelectronics	3	0	3		Introduction to MEMS	3	1 0	4
EEE F427	Electric Power Utilization and Illumination	3	0	3	CS F213	Cryptography Object Oriented	3	1	4
EEE F428	Energy Storage Systems	3	0	3	CS F342	Programming Computer Architecture	3	1	4
EEE F429	Smart Materials and Applications	3	1	4	CS F372	Computer Architecture Operating Systems	3	0	3
EEE F430	Green Communications and Networks	3	0	3	CS F451 CS G553	Combinatorial Mathematics Reconfigurable Computing	3	0	3 5
EEE F431	Mobile Telecommunication Networks	3	0	3	ECE F216	Electronic Devices Simulation Laboratory	0	2	2
EEE F432	Medical Instrumentation	3	0	3	ECE F312	EM Fields and Microwave	0	1	1
EEE F433	Electromagnetic Fields & Waves	3	0	3		Engineering Laboratory Telecommunication			
EEE F434	Digital Signal Processing	3	1	4	ECE F414	Switching Systems & Networks	3	0	3
EEE F435	Digital Image Processing	3	0	3	ECE F416	Digital Communication	3	0	3
EEE F436	Electromagnetic Compatibility	3	1	4	ECE F418	Modern Communication Technologies	3	0	3
EEE F462	Advanced Power Systems	3	0	3		Smart Grid for Sustainable			
EEE F472	Satellite Communication	3	0	3	ECE F424	Energy	3	0	3
EEE F473	Wind Electrical Systems	3	0	3	ECE F428	Energy Storage Systems	3	0	3
EEE F474	Antenna Theory and Design		1	4	ECE F429	Smart Materials and	3	1	4
EEE F475 EEE F476	Special Electrical Machines	3	1 1	4 4	BCB 1 123	Applications	Ü	-	•
	Switchgear and Protection Modelling of Field-Effect	3	0	-	ECE F430	Green Communications and Networks	3	0	3
EEE F477 EEE F478	NanoDevices Power Systems Laboratory	0	2	3 2	ECE F431	Mobile Telecommunication Networks	3	0	3
EEE G512	Embedded System Design	3	1	4	ECE F472	Satellite Communication	3	0	3
	Hardware Software Co-	Ŭ	-		EEE F245	Control System Laboratory	0	1	1
EEE G626	Design			4	EEE F246	Electrical and Electronic	0	2	2
ELECTRONICS AND COMMUNICATION ENGINEERING						Circuits Laboratory Analog & Digital VLSI			
CORE CO		L	P	U	EEE F313	Design	3	0	3
	Electrical Machines	3	1	4	EEE F345	Power Apparatus &	3	0	3
ECE F212	Electromagnetic Theory	3	0	3	EEE TOTO	Networks	Ü	Ü	Ü
ECE F214	Electronic Devices	3	0	3	EEE F346	Data Communication Networks	2	0	2
ECE F215	Digital Design	3	1	4		FPGA Based System Design	_		
ECE F241	Microprocessors and interfacing	3	1	4	EEE F348 EEE F411	Laboratory Internet of Things	0	2	2
ECE F242	Control Systems	3	0	3		Computer Based Control			
ECE F243	Signals & Systems	3	0	3	EEE F417	System	3	0	3
ECE F244	Microelectronic Circuits	3	0	3	FFF F//10	Flexible and Stretchable	3	1	4
ECE F311	Communication Systems	3	1	4	EEE F419	Electronics	3	1	4
ECE F314	Electromagnetic Fields & Microwave Engineering	3	0	3	EEE F420	Biomedical Signal Processing	3	1	4
ECE F341	Analog Electronics	3	1	4	EEE F422	Modern Control Systems	3	0	3
ECE F343	Communication Networks	3	0	3	EEE F426	Fiber Optics and	3	0	3
ECE F344	Information Theory &	3	0	3		Optoelectronics			

Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
EEE F429	Smart Materials and	3	1	4	DISCIPLIN	NE ELECTIVE COURSES	L	P	U
	Applications Green Communications			-	BITS F312	Neural Network & Fuzzy Logic	3	0	3
EEE F430	and Networks	3	0	3	BITS F415	Introduction To MEMS	3	1	4
EEE F432 EEE F435	Medical Instrumentation	3	0	3	CS F213	Object Oriented	3	1	4
	Digital Image Processing Electromagnetic		-		CS E240	Programming Commuter Applituations	2	1	4
EEE F436	Compatibility	3	1	4	CS F342 CS F372	Computer Architecture Operating Systems	3	0	4 3
EEE F474	Antenna Theory and Design	3	1	4	CS F451	Combinatorial Mathematics	3	0	3
EEE F475	Special Electrical Machines	3	1	4	CS G553	Reconfigurable Computing	-	-	5
EEE F476	Switchgear and Protection	3	1	4	ECE F312	EM Fields and Microwave	0	1	1
EEE F477	Modelling of Field-Effect Nano Devices	3	0	3	ECE F312	Engineering Laboratory	U	1	1
EEE F478	Power Systems Laboratory	0	2	2	ECE F314	Electromagnetic Fields & Microwave Engineering	3	0	3
EEE G512	Embedded System Design	3	1	4	EEE F245	Control System Laboratory	0	1	1
EEE G626	Hardware Software Co- Design			4	EEE F246	Electrical and Electronic Circuits Laboratory	0	2	2
INSTR	Analysis Instrumentation	3	0	3	EEE F311	Communication Systems	3	1	4
F412 ELECTRO	NICS AND				EEE F345	Power Apparatus & Networks	3	0	3
INSTRUM ENGINEE:	ENTATION RING				EEE F346	Data Communication Networks	2	0	2
CORE CO	URSES	L	P	U	EEE F348	FPGA Based System Design Laboratory	0	2	2
INSTR F211	Electrical Machines	3	1	4	EEE F411	Internet of Things	3	1	4
INSTR F212	Electromagnetic Theory	3	0	3	EEE F417	Computer Based Control System	3	0	3
INSTR F214	Electronic Devices	3	0	3	EEE F419	Flexible and Stretchable Electronics	3	1	4
INSTR F215	Digital Design	3	1	4	EEE F420	Biomedical Signal Processing	3	1	4
INSTR	Microprocessors and	3	1	4	EEE F422	Modern Control Systems	3	0	3
F241 INSTR	interfacing	-	_	-	EEE F426	Fiber optics & Optoelectronics	3	0	3
F242 INSTR	Control Systems	3	0	3	EEE F427	Electric Power Utilization and Illumination	3	0	3
F243 INSTR	Signals & Systems	3	0	3	EEE F429	Smart Materials and Applications	3	1	4
F244	Microelectronic Circuits  Electronic Instrumentation	3	0	3	EEE F430	Green Communications and Networks	3	0	3
INSTR F311	& Instrumentation Technology	3	1	4	EEE F431	Mobile Telecommunication Networks	3	0	3
INSTR F312	Transducers and Measurement Systems	3	0	3	EEE F433	Electromagnetic Fields & Waves	3	0	3
INSTR	Analog & Digital VLSI	3	0	3	EEE F434	Digital Signal Processing	3	1	4
F313	Design	3	9	9		Digital Image Processing			
INSTR F341	Analog Electronics	3	1	4	EEE F435	(check number and description with BITS	3	0	3
INSTR F342	Power Electronics	3	1	4	EEE F436	Image Processing) Electromagnetic	3	1	4
INSTR F343	Industrial Instrumentation & Control	3	0	3	EEE F472	Compatibility Satellite Communication	3	0	3

Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
EEE F474	Antenna Theory and Design	3	1	4	MF F315	Automation and Control	3	1	4
EEE F475	Special Electrical Machines	3	1	4	MF F316	Machining and Machine	3	1	4
EEE F476	Switchgear and Protection	3	1	4		Tools			
EEE F477	Modelling of Field-Effect Nano Devices	3	0	3	MF F317	Computer Aided Design and Manufacturing	2	1	3
EEE F478	Power Systems Laboratory	0	2	2	MF F318	Non Traditional	3	0	3
EEE G512	Embedded System Design	3	1	4	MF F319	Manufacturing Processes Supply Chain Management	3	0	3
EEE G626	Hardware Software Co-			4	MF F319 MF F320	Engineering Optimization	3	0	3
INCTD	Design					NE ELECTIVE COURSES	J	U	3
INSTR F216	Electronic Devices Simulation Laboratory	0	2	2	BITS F415	Introduction To MEMS	3	1	4
INSTR F413	Advanced Process Control	3	0	3	ECON F411	Project Appraisal	3	0	3
INSTR F414	Telecommunication Switching Systems & Networks	3	0	3	ME F321	Data Mining in Mechanical Sciences	2	1	3
INSTR	Digital Control	3	0	3	ME F323	Energy Storage Technologies	3	0	3
F415 INSTR	Virtual Instrumentation	3	1	4	ME F340	Introduction to Sports Engg.	3	0	3
F419 INSTR	Design of Instrumentation	3	0	3	ME F416	Reverse Engineering and Rapid Prototyping	3	0	3
F420	Systems	J	U	0	ME F417	Advanced Metal Forming	3	0	3
INSTR F422	Instrumentation for Petrochemical Industry	3	0	3	ME F419	Total Product Integration Engineering	3	0	3
INSTR F424	Smart Grid for Sustainable Energy	3	0	3	ME F424	Energy Management	3	0	3
INSTR					ME F425	Additive Manufacturing	3	0	3
F428 INSTR	Energy Storage Systems Smart Materials and	3	0	3	ME F426	Industry 4.0 in Manufacturing	3	0	3
F429	Applications	3	1	4	ME F428	Smart Materials	3	1	4
INSTR F430	Green Communications and Networks	3	0	3	ME F432	Computer Aided Manufacturing	2	1	3
INSTR F432	Medical Instrumentation	3	0	3	ME F443	Quality Control Assurance and Reliability	3	0	3
INSTR	W. 151 ( 10 )	_	0	2	ME F484	Automotive Technology	3	0	3
F473	Wind Electrical Systems	3	0	3	MF F321	Procurement Management	3	0	3
<b>MANUFA</b>	CTURING ENGINEERING				MF F411	Fluid Power Systems	3	1	4
CORE CO	URSES	L	P	U	MF F412	Automotive Systems	3	0	3
MF F211 MF F216	Mechanics of Solids Materials Science and	3	0 1	3 3	MF F413	Mechanical Vibrations and Acoustics	3	0	3
1210	Engineering	-	•	Ü	MF F414	Manufacturing Excellence	3	0	3
MF F217	Machine Drawing	0	2	2	MF F418	Lean Manufacturing	3	0	3
MF F218	Transport Phenomena in Manufacturing	3	1	4	MF F422	Supply Chain Modelling and Empirical Analysis	3	1	4
MF F219	Operations Management	3	0	3	MF F442	Advances in Materials Science	3	0	3
MF F220	Metrology and Quality	2	1	3	MF F453	Industrial Relations	3	0	3
ME EOO1	Assurance Mechanisms and Machines	3	0	3	MF F463	Maintenance and Safety	3	0	3
MF F221 MF F222	Casting, Forming and Welding	3	1	4	MF F471	Instrumentation and Control	3	0	3
MF F314	Weiding Design of Machine	3	0	3	MF F472	Precision Engineering	3	0	3
1411. 1.014	Elements	J	U	3	MF F473	Product Design and Development	3	0	3

MF F476	Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
New Feal     New Feal   New F	MF F474		0	0	3	ME F323		3	0	3
MECHANICAL ENGINEERING   CORE COURSES   L P U   ME F411   Fluid Power Systems   3 0 3   ME F413   Nonlinear Vibrations   3 0 3   ME F414   Nonlinear Vibrations   3 0 3   ME F415   Regineering   ME F216   Materials Science and rechanged   2 1 3 3   ME F415   Gas Dynamics   Engineering and Rapid Prototyping   Materials Science and rechanged   Technology   Technology   Materials Science and rechanged   Technology   Technology   Technology   Technology   Technology   Me F417   Advanced Metal Forming   3 0 3   ME F418   Reverse Engineering and Repide Production Solids   Me F419   Manufacturing Processes   Technology   Me F418   Reverse Engineering and Repide Production Solids   Me F419   Manufacturing Processes   Technology   Me F419   Total Product Integration   Total Produc		1 3				1412 1 020	O .	Ü	Ü	Ü
CORE COURSES         L         P         U         ME F411 Mechanics of Solidis         3         0         3 ME F411 Fluid Mechanics of Solidis         3         0         3 ME F413 ME F413 Nonlinear Vibrations         3         0         3 ME F414 Fluid Mechanics of Pluid Mechanics of Engineering         3         0         3 ME F415 Fluid Mechanics of Engineering Methods         3         0         3 ME F416 Fluid Mechanics of Engineering and Prechnology         3         0         3         ME F416 Gas Dynamics         Reverse Engineering and Rapid Prototyping         3         0         3         0         3         ME F417 Manufacturing and Rapid Prototyping         Reverse Engineering and Rapid Prototyping         3         0         3         <			3	O	3	ME F340		3	0	3
ME F211			т.	P	TT	ME F411	Fluid Power Systems	3	1	4
ME F212						ME F413	Nonlinear Vibrations	3	0	3
Me F216						ME F414				3*
ME F217						MD D415		•	0	•
ME F217 Applied Intermodynamics         3   1   4   ME F416 Solids         Rapid Prototyping         3   0   3   3   3   3   3   3   3   3		Engineering				ME F415		3	Ü	3
ME F218	ME F217	Applied Thermodynamics	3	1	4	ME F416		3	0	3
ME F219         Manufacturing Processes         3 I 4         ME F210 Mechanisms and Machines         7 Inches of Mechanisms and Machines         8 Inches of Mechanisms and Machines         9 Inches of Mechanisms and Mechanisms         9 Inches of Mechanisms and Mechanisms         9 Inches of Mechanisms and Mechanisms         9 Inches of Mechani	ME F218		2	0	2	ME F417	Advanced Metal Forming	3	0	3
ME F220         Heat Transfer         3         1         4         Frogusinal Product Integration Engs.         3         0         3         0         3         ME F419         Froat Product Integration Engs.         3         0         3           ME F214         Design of Machine Elements         3         0         3         ME F420         Power Plant Engineering Part Engineering Part Processes         3         0         3           ME F315         Advanced Manufacturing Processes         WE F423         Microfluidics and Applications Processes         Amanufacturing Applications Applications Applications Processes         Amanufacturing Applications Processes         Amanufacturing Applications Applications Applications Applications Processes	ME F219	Manufacturing Processes	3	1	4	ME F418	-	3	0	3
ME F221         Mechanisms and Machines         3         0         3         ME F420         Power Plant Engineering         3         0         3           ME F314         Design of Machine Elements         3         0         3         ME F420         Power Plant Engineering         3         0         3           ME F315         Advanced Manufacturing Processes         Processes         ME F424         Microfluidics and Applications         4*           ME F316         Manufacturing Management         ME F425         ME F425         Additive Manufacturing and Control Manufacturing         0         3           ME F317         Engines, Motors, and Mobility         1         2         0         2         ME F426         Industry 4.0 in Manufacturing Manufacturing         3         0         3           ME F318         Computer-Aided Design         1         2         3         ME F427         Continuum Mechanics         3         1         4           ME F319         Vibrations and Control         3         0         3         ME F428         Smart Materials         3         1         4           ME F341         Prime Movers & Fluid Machines         2         1         3         ME F429         Micro-Nanoscale Heat Transport         3	ME F220	•	3	1	4		•			
ME F314	ME F221	Mechanisms and Machines	3	0	3	ME F419	_	3	0	3
ME F315	ME F314		3	0	3	ME F420	Power Plant Engineering	3	0	3
ME F316	ME F315		2	1	3	ME F423				4*
Manufacturing   Manufacturing   Manufacturing   Manufacturing   Manufacturing   Manufacturing   Manufacturing   Me F317   Engines, Motors, and Mobility   Me F318   Computer-Aided Design   1   2   3   Me F427   Continuum Mechanics   3   1   4   Me F320   Engineering Optimization   3   0   3   Me F428   Smart Materials   3   1   4   Me F320   Engineering Optimization   3   0   3   Me F429   Micro-Nanoscale Heat   Transport   Transport   Transport   Transport   Transport   Transport   Transport   Machines   Me F432   Solar Thermal Process   AN F311   Principles of Aerodynamics   3   0   3   Me F432   Solar Thermal Process   AN F312   Aircraft Propulsion   3   0   3   Me F441   Automotive Vehicles   3   0   3   Me F431   An F313   Flight Mechanics and Controls   AN F314   Introduction to Flight   3   0   3   Me F441   Automotive Vehicles   3   0   3   Me F445   Additive Manufacturing   3   0   3   Me F441   Automotive Vehicles   3   0   3   Me F442   Automotive Vehicles   3   0   3   Me F441   Automotive Vehicles   3   0	ME 1010	9	-	-	Ü	ME E404	• •	2	Λ	2
ME F317 Engines, Motors, and Mobility  ME F318 Computer-Aided Design 1 2 3 3 ME F427 Continuum Mechanics 3 1 4 4 ME F319 Vibrations and Control 3 0 3 ME F428 Smart Materials Micro-Nanoscale Heat Transport Micro-Nanoscale Heat Transport Manufacturing Micro-Nanoscale Heat Transport Micro-Nanoscale Heat Nator-Nanoscale Heat Transport Micro-Nanoscale Heat Transport Micro-Na	ME F316	9	2	0	2					
ME F317   Hobility   Mobility   Mobility   Met F318   Computer-Aided Design   1   2   3   ME F427   Continuum Mechanics   3   1   4   4   ME F319   Vibrations and Control   3   0   3   ME F428   Smart Materials   3   1   4   4   Micro-Nanoscale Heat   Transport   Transp		-			_		J			
ME F318 Computer-Aided Design I 2 3 3 ME F428 Smart Materials 3 1 4 4 ME F319 Vibrations and Control 3 0 3 ME F429 Micro-Nanoscale Heat Transport Computer Aided Machines Prime Movers & Fluid Flow and Heat Transport Prime Movers & Fluid Flow and Heat Transfer Prime Movers & Fluid Fluid Machines Prime Movers & Fluid Flow and Heat Transfer Prime Movers & Fluid F	ME F317	0 ,	2	0	2		Manufacturing			
ME F319 Vibrations and Control 3 0 3 ME F429 Micro-Nanoscale Heat Transport Transport Prime Movers & Fluid Machines ME F341 Prime Movers & Fluid Machines ME F432 Computer Aided manufacturing Solar Thermal Process Engineering Solar Thermal Process Engineering Solar Thermal Process Engineering Solar Thermal Process Engineering ME F433 Solar Thermal Process Engineering ME F443 Automotive Vehicles 3 0 3 ME F441 Automotive Vehicles 3 0 3 ME F441 Automotive Vehicles 3 0 3 ME F443 Quality Control, Assurance and Reliability Control, Assurance and Reliability Control, Assurance and Reliability Design ME F451 Design Silar Structures ME F451 Mechanical Equipment Design ME F451 Design Silar Structures Mechanical Equipment Design ME F451 Design ME F451 Mechanical Equipment Conditioning Silar Structures Mechanics ME F461 Refrigeration and Air conditioning ME F461 Product Design ME F461 Refrigeration Engineering ME F461 Composite Materials & Design ME F461 Refrigeration Engineering ME F461 Product Design ME F461 Refrigeration Engineering ME F461 Combustion ME MS 3 0 3 ME F472 Precision Engineering ME F461 Product Design ME F472 Precision Engineering ME F473 ME F474 Automotive Technology ME F474 Met Methanical ME F474 Automotive Members ME F474 Methanical ME F474	ME F318	Computer-Aided Design	1	2	3					
ME F321 Prime Movers & Fluid Machines  ME F432 Computer Aided manufacturing  Solar Thermal Process Engineering  Automotive Vehicles	ME F319	Vibrations and Control	3	0	3	ME F428		3	1	4
Machines 2 1 3  Machines Selective Courses  AN F311 Principles of Aerodynamics 3 0 3 ME F432 Engineering Solar Thermal Process Engineering ME F443 Quality Control, Assurance and Reliability Solar Thermal Process Engineering Solar Thermal Process Engineering ME F443 Quality Control, Assurance and Reliability Solar Thermal Process Engineering Solar Thermal Process Engineering ME F443 Quality Control, Assurance and Reliability Solar Thermal Process Engineering Solar Thermal Process Engineering ME F443 Quality Control, Assurance and Reliability Solar Thermal Process Engineering ME F443 Quality Control, Assurance and Reliability Solar Thermal Process Engineering ME F443 Quality Control, Assurance and Reliability Solar Thermal Process Engineering Solar Thermal Process Engineering Solar Thermal Process Engineering ME F443 Quality Control, Assurance and Reliability Solar Thermal Process Engineering ME F443 Quality Cont	ME F320		3	0	3	ME F429		3	1	4
AN F311 Principles of Aerodynamics 3 0 3 ME F441 Automotive Vehicles 3 0 3 NE F443 Plight Mechanics and Controls Controls  AN F312 Introduction to Flight 3 0 3 ME F443 Quality Control, Assurance and Reliability Nechanical Equipment Design 3 0 3 NE F451 National Mechanics Mechanics Mechanics Mechanical Equipment Design 3 0 3 Nechanical Equipment Nechanical Equipment Nechanical S	ME F341		2	1	3	ME F432		2	1	3
AN F311 Principles of Aerodynamics 3 0 3 ME F433 Engineering 3 1 4 AN F312 Aircraft Propulsion 3 0 3 ME F441 Automotive Vehicles 3 0 3 AN F313 Flight Mechanics and Controls ME F443 Quality Control, Assurance and Reliability Mechanical Equipment Design 3 0 3 BITS F327 Artificial Intelligence for Robotics Introduction to MEMS 3 1 4 ME F451 Design Composite Materials & Design 3 0 3 BITS F415 Introduction to MEMS 3 1 4 ME F452 Design 3 0 3 DE G513 Tribology 3 2 5 ME F472 Precision Engineering 3 0 3 DE G531 Product Design 3 2 5 ME F482 Combustion 3 0 3 ECE F242 Control Systems 3 0 3 ME F483 Wind Energy 3 0 3 ECON F411 Project Appraisal 3 0 3 ME F485 Pluid Flow and Heat Transfer Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5 MATH S313 Data Mining in Mechanical 2 1 2 ME G515 Computational Fluid 3 2 5	DISCIPLII	NE ELECTIVE COURSES					· ·			
AN F313 Flight Mechanics and Controls  AN F314 Introduction to Flight AN F315 Aircraft Structures 3 0 3 0 3	AN F311	Principles of Aerodynamics	3	0	3	ME F433		3	1	4
Controls  AN F314 Introduction to Flight AN F315 Aircraft Structures 3 0 3 0 3 ME F451 Design  BITS F327 Artificial Intelligence for Robotics  BITS F415 Introduction to MEMS 3 1 4 DE G515 Project Appraisal SECON F411 Project Appraisal SECE F242 Control Systems 3 0 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 Project Appraisal SECE F242 Control Systems 3 0 3 ME F485 SECE F10	AN F312	_	3	0	3	ME F441	Automotive Vehicles	3	0	3
AN F314 Introduction to Flight AN F315 Aircraft Structures 3 0 3 0 3 ME F451 Design 3 0 3 0 3 ME F451 Design 3 0 3 0 3 ME F451 Design 3 0 3 0 3 0 3 0 3 0 3 0 3 0 3 0 3 0 3	AN F313		3	0	3	ME F443		3	0	3
AN F315 Aircraft Structures 3 0 3 ME F451 Design  BITS F327 Artificial Intelligence for Robotics  BITS F415 Introduction to MEMS 3 1 4 DE G513 Tribology 3 2 5 ME F461 Refrigeration and Air conditioning 3 0 3 DE G514 Fracture Mechanics 3 2 5 ME F472 Precision Engineering 3 0 3 DE G531 Product Design 3 2 5 ME F482 Combustion 3 0 3 DE G531 Product Design 3 2 5 ME F482 Combustion 3 0 3 DE G531 Project Appraisal 3 0 3 ME F483 Wind Energy 3 0 3 DE GEE F242 Control Systems 3 0 3 ME F484 Automotive Technology 3 0 3 DE GEE F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat Transfer Transfer  EXEMPLY F231 Data Mining in Mechanical 2 1 3 ME G515 Computational Fluid 3 2 5 DE G515 DE G515 Computational Fluid 3 2 5 DE G515	AN F314	Introduction to Flight	3	0	3	MD D451	•	_	0	2
BITS F327 Robotics  BITS F415 Introduction to MEMS 3 1 4 ME F461 Refrigeration and Air conditioning  DE G513 Tribology 3 2 5 ME F472 Precision Engineering 3 0 3  DE G514 Fracture Mechanics 3 2 5 ME F472 Precision Engineering 3 0 3  DE G531 Product Design 3 2 5 ME F482 Combustion 3 0 3  ECE F242 Control Systems 3 0 3 ME F483 Wind Energy 3 0 3  ECON F411 Project Appraisal 3 0 3 ME F484 Automotive Technology 3 0 3  EEE F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat 3 0 3  INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5  MATH F313 Data Mining in Mechanical 2 1 3 ME G514 Turbomachinery 3 2 5	AN F315	Aircraft Structures	3	0	3	ME F451		3	U	3
DE G513 Tribology 3 2 5 ME F472 Precision Engineering 3 0 3 DE G514 Fracture Mechanics 3 2 5 ME F472 Precision Engineering 3 0 3 DE G531 Product Design 3 2 5 ME F482 Combustion 3 0 3 ECE F242 Control Systems 3 0 3 ME F483 Wind Energy 3 0 3 ECON F411 Project Appraisal 3 0 3 ME F484 Automotive Technology 3 0 3 EEE F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat 3 0 3 INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5 MATH F313 Data Mining in Mechanical 2 1 3 ME G514 Turbomachinery 3 2 5	BITS F327		2	1	3	ME F452	-	3	0	3
DE G513 Tribology 3 2 5 Conditioning  DE G514 Fracture Mechanics 3 2 5 ME F472 Precision Engineering 3 0 3  DE G531 Product Design 3 2 5 ME F482 Combustion 3 0 3  ECE F242 Control Systems 3 0 3 ME F483 Wind Energy 3 0 3  ECON F411 Project Appraisal 3 0 3 ME F484 Automotive Technology Numerical Techniques for F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat 3 0 3  INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5  MATH Numerical Analysis 3 0 3 ME G514 Turbomachinery 3 2 5  ME F231 Data Mining in Mechanical 3 1 3 ME G515 Computational Fluid 3 2 5	BITS F415	Introduction to MEMS	3	1	4	MF F461		3	Λ	3
DE G531 Product Design 3 2 5 ME F482 Combustion 3 0 3 ECE F242 Control Systems 3 0 3 ME F483 Wind Energy 3 0 3 ECON Project Appraisal 3 0 3 ME F484 Automotive Technology 3 0 3 EEE F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat 7 Transfer  INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5 MATH Numerical Analysis 3 0 3 ME G514 Turbomachinery 3 2 5  ME F231 Data Mining in Mechanical 3 1 3 ME G515 Computational Fluid 3 2 5	DE G513	Tribology	3	2	5		-			
ECE F242 Control Systems 3 0 3 ME F483 Wind Energy 3 0 3 ECON F411 Project Appraisal 3 0 3 ME F484 Automotive Technology 3 0 3 F411 Project Appraisal 3 0 3 ME F484 Automotive Technology 3 0 3 Numerical Techniques for Fluid Flow and Heat 3 0 3 INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5 MATH Numerical Analysis 3 0 3 ME G512 Finite Element Methods 3 2 5 ME F331 Data Mining in Mechanical 2 1 3 ME G515 Computational Fluid 3 2 5	DE G514	Fracture Mechanics	3	2	5		0 0			
ECON F411 Project Appraisal 3 0 3 ME F484 Automotive Technology 3 0 3 Numerical Techniques for EEE F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat 3 0 3 INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5 MATH F313 Numerical Analysis 3 0 3 ME G514 Turbomachinery 3 2 5  ME F221 Data Mining in Mechanical 2 1 3 ME G515 Computational Fluid 3 2 5	DE G531	Product Design	3	2	5					
F411 Project Appraisal 3 0 3 Numerical Techniques for EEE F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat 3 0 3 INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5 MATH F313 Numerical Analysis 3 0 3 ME G514 Turbomachinery 3 2 5 ME F221 Data Mining in Mechanical 2 1 3 ME G515 Computational Fluid 3 2 5	ECE F242	Control Systems	3	0	3					
EEE F242 Control Systems 3 0 3 ME F485 Fluid Flow and Heat 3 0 3 INSTR F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5 MATH F313 Data Mining in Mechanical 2 1 3 ME G515 Computational Fluid 3 2 5		Project Appraisal	3	0	3	ME F484	ω	3	0	3
F242 Control Systems 3 0 3 ME G511 Mechanism and Robotics 3 2 5  MATH F313 Numerical Analysis 3 0 3 ME G512 Finite Element Methods 3 2 5  ME G514 Turbomachinery 3 2 5  ME G515 Computational Fluid 3 2 5	EEE F242	Control Systems	3	0	3	ME F485	Fluid Flow and Heat	3	0	3
MATH F313  Numerical Analysis  3 0 3  ME G512  Finite Element Methods 3 2 5  ME G514  Turbomachinery 3 2 5  ME G514  Computational Fluid 3 2 5		Control Systems	3	0	3	ME G511		3	2	5
F313 Numerical Analysis 3 0 3 ME G514 Turbomachinery 3 2 5  ME F321 Data Mining in Mechanical 2 1 3 ME G515 Computational Fluid 3 2 5										
ME F221 Data Mining in Mechanical 2 1 2 ME G515 Computational Fluid 3 2 5		Numerical Analysis	3	0	3	ME G514	Turbomachinery	3	2	5
		0	2	1	3	ME G515		3	2	5

Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
ME G533	Conduction and Radiation	3	2	5		Control			
	Heat Transfer	-	_	-	PHA F414	Biopharmaceutics	3	0	3
ME G534	Convective Heat and Mass Transfer	3	2	5	PHA F415	Pathophysiology	3	0	3
MF F311	Mechatronics and	2	1	3	PHA F416	Chemistry of Synthetic Drugs	3	0	3
MF F321	Automation	2	0	3	PHA F417	Pharmacoeconomics	3	0	3
MF F418	Procurement Management Lean Manufacturing	3	0	3	PHA F418	Biopharmaceutics and	3	0	3
MF F421	Supply chain management	3	U	4	DIIA E410	Pharmacokinetics	2	0	2
WIF F421	Supply Chain Modelling			4	PHA F419	Herbal Drug Technology	3	1	3 3
MF F422	and Empirical Analysis	3	1	4	PHA F422 PHA F432	Cosmetic Science	2	0	3
MF F485	Sustainable Manufacturing	3	0	3	PHA F432	Hospital Pharmacy Biochemical Engineering	3	0	3
MST G522	Advanced Composites	3	2	5	FIIA F441	Applied Pharmaceutical	3	U	3
PHARMAC	CY .				PHA F442	Chemistry	3	0	3
CORE CO	URSES	L	P	U	PHA F461	Phytochemistry	2	1	3
	Process Engineering	2	1	3	DIIA OF 46	Pharmaceutical	_	^	0
PHA F211	Pharmaceutical Analysis	2	1	3	PHA G546	Biostatistics	3	0	3
	Anatomy, Physiology &		_		BIOLOGIC	CAL SCIENCES			
PHA F214	Hygiene	2	1	3	CORE CO	URSES	L	P	U
PHA F215*	Introduction to Molecular	3	0	3	BIO F211	Biological Chemistry	3	0	3
111111210	Biology and Immunology	J	U	J	BIO F212	Microbiology	3	1	4
PHA F216	Pharmaceutical Formulations I	2	1	3	BIO F213	Cell Biology	3	0	3
	Pharmaceutical				BIO F214	Integrated Biology	3	0	3
PHA F217	Microbiology	2	1	3	BIO F215	Biophysics	3	0	3
PHA F241	Pharmaceutical Chemistry	2	1	3	BIO F241	Ecology & Environmental Science	3	0	3
PHA F242	Biological Chemistry	2	1	3		Introduction to			
PHA F243	Industrial Pharmacy	2	1	3	BIO F242	Bioinformatics	3	0	3
PHA F244	Physical Pharmacy	2	1	3	BIO F243	Genetics	3	0	3
PHA F311	Pharmacology I	2	1	3	DIO E044	Instrumental Methods of	1	3	4
PHA F312	Medicinal Chemistry I	2	1	3	BIO F244	Analysis	1	3	4
PHA F313	Instrumental Methods of Analysis	2	1	4	BIO F311	Recombinant DNA Technology	3	0	3
	Pharmaceutical	2	1	3	BIO F312	Plant Physiology	3	0	3
	Formulations II	_	_		BIO F313	Animal Physiology	3	0	3
PHA F341	Pharmacology II	2	1	3	BIO F341	Developmental Biology	3	0	3
PHA F342	Medicinal Chemistry II	2	1	3	BIO F342	Immunology	3	0	3
PHA F343	Forensic Pharmacy	2	-	2	DISCIPLIN	NE ELECTIVE COURSES	L	P	U
PHA F344	Natural Drugs	2	1	3	BIO F216	Water, Sanitation and Solid	3	0	3
	ered to B.Pharm. students wards in place of PHA F243	adn	iitte	ed	DIO F210	Waste Management	3	U	3
	WE ELECTIVE COURSES	т	P	U	DIO 5017	Laboratory for Water,		0	0
BITS F467	Bioethics and Biosafety	3	0	3	BIO F217	Sanitation and Solid waste Management	1	2	3
MATH	Bloethics and Blosalety	3	U	3	BIO F231	Biology Project Laboratory			3
F212	Optimization	3	0	3	BIO F314	Conservation Biology	2	1	3
PHA F316	Pharmaceutical Regulatory Science	3	0	3	BIO F315	Applied Nutrition and Nutraceuticals	2	0	2
PHA F317	Safety Pharmacology and Toxicology	3	0	3	BIO F352	Cell and Tissue Culture Technology	3	1	4
PHA F413	Pharmaceutical	3	0	3	BIO F411	Laboratory	0	3	3
-1111 110	Management and Quality	9	,	,	BIO F413	Molecular Biology of Cell	3	0	3

Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
BIO F417	Biomolecular Modelling	3	0	3	F212				
BIO F418	Genetic Engineering Techniques	1	3	4	CHEM F213	Physical Chemistry II	3	0	3
BIO F419	Molecular Evolution	3	0	3	MATH	Optimization	3	0	3
BIO F421	Enzymology	3	0	3	F212	- DV			
BIO F431	Reproductive Physiology	3	0	3	CHEMIST			_	
BIO F441	Biochemical Engineering	3	0	3	CORE CO	URSES	L	P	U
BIO F451	Bioprocess Technology	3	0	3	CHEM	Physical Chemistry I	3	0	3
BIO G512	Molecular Mechanism of Gene Expression	3	2	5	F211 CHEM	Organic Chemistry I	3	0	3
BIO G513	Microbial and Fermentation Technology	3	2	5	F212 CHEM	Physical Chemistry II	3	0	3
BIO G515	Stem Cell and Regenerative Biology	3	1	4	F213 CHEM	Inorganic Chemistry I	3	0	3
BIO G522	Interferon Technology	3	1	4	F214	morgame enemetry r	Ü	Ü	Ü
BIO G523	Advanced and Applied Microbiology	3	2	5	CHEM F241	Inorganic Chemistry II	3	0	3
BIO G524	Animal Cell Technology Environmental	3	2	5	CHEM F242	Chemical Experimentation I	0	3	3
BIO G525	Biotechnology & Waste Mgnt	3	2	5	CHEM F243	Organic Chemistry II	3	0	3
BIO G526	Cancer Biology	3	2	5	CHEM F244	Physical Chemistry III	3	0	3
BIO G544	Bioremediation and biometallurgy	5	0	5	CHEM	Organic Chemistry III	3	0	3
BIO G545	Molecular Parasitology and Vector Biology			5	F311 CHEM F312	Physical Chemistry IV	3	0	3
BIO G561	Advances in Recombinant DNA Technology	3	2	5	CHEM	Instrumental Methods of	3	1	4
BIO G570	Recent Developments in Biology	1	0	1	F313 CHEM	Analysis Chemical Experimentation	0	4	4
BIO G612	Human Genetics	3	2	5	F341	II			
BIO G631	Membrane and Liposome Technology	3	1	4	CHEM F342	Organic Chemistry IV	3	0	3
BIO G632	Transgenic Technology	3	2	5	CHEM F343	Inorganic Chemistry III	3	0	3
BIO G642	Experimental Techniques		4	4		Electromagnetic Theory I	3	0	3
BIO G643	Plant Biotechnology	3	2	5		NE ELECTIVE COURSES	L	P	U
BIO G651	Protein and Enzyme Bioengineering	3	2	5	CHEM F223	Colloid and Surface Chemistry	3	0	3
BIO G661	Gene Toxicology	3	1	4	CHEM	Introductory Computational			
BIO G671	Bioconversion Technology	3	2	5	F320	Chemistry Laboratory	0	4	2
BIOT F345	Proteomics	3	0	3	CHEM		_	_	0
BIOT F346	Genomics	3	0	3	F323	Biophysical Chemistry	3	0	3
BIOT F347	Immunotechnology	3	0	3	CHEM	Numerical Methods in	3	3	4
BIOT F416	Introduction to Pharmaceutical	3	0	3	F324 CHEM	Chemistry Polymer Chemistry	3	0	3
BIOT E400	Biotechnology Nanobiotechnology	2	0	3	F325				
	Food Biotechnology	3	0	3	CHEM F326	Solid State Chemistry	3	0	3
BIO1 F424 BITS F418	Introduction to Biomedical	3	1	4	CHEM	Electrochemistry: Fundamentals and	3	0	3
DITO DACE	Engineering Bioethics and Biosafety	3	0	2	F327	Applications	J	J	J
BITS F467 CHEM	Organic Chemistry I	3	0	3 3	CHEM	Supramolecular Chemistry	3	0	3

Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
F328 CHEM					ECON F312	Money, Banking and Financial Markets	3	0	3
F329	Analytical Chemistry	3	1	4	ECON	Issues in Economic	3	0	3
CHEM F330	Photophysical Chemistry	3	1	4	F313 ECON	Development Public Finance Theory and		0	
CHEM F333	Chemistry of Materials	3	0	3	F341 ECON	Policy	3		3
CHEM F334	Magnetic Resonance	3	0	3	F342 ECON	Applied Econometrics  Economic Analysis of Public	3	0	3
CHEM	Organic Chemistry and	3	0	3	F343	Policy	3	0	3
F335	Drug Design		Ü	Ü		IE ELECTIVE COURSES	L	P	U
CHEM F336	Nanochemistry	3	1	4	ECON F215	Computational Methods for Economics	3	0	3
CHEM F337	Green Chemistry and Catalysis	3	0	3	BITS F314	Game Theory and It's Applications	3	0	3
CHEM F412	Photochemistry and Laser Spectroscopy	3	0	3	ECON F315	Financial Management	3	0	3
CHEM F413	Electron Correlation In Atoms And Molecules	3	1	4	ECON F314	Industrial Economics	3	0	3
CHEM F414	Bio and Chemical Sensors	3	0	3	ECON F345	Behavioral Economics	3	0	3
CHEM F415	Frontiers in Organic Synthesis	3	0	3	ECON F351	Indian Economic Development	3	0	3
CHEM F422	Statistical Thermodynamics	3	0	3	ECON F352	Management of Banks and Financial Institutions	3	0	3
CHEM F423	Astrochemistry	3	0	3	ECON F353	Energy Economics and Policy	3	0	3
CHEM F430	Atmospheric Chemistry	3	0	3	ECON F354	Derivatives and Risk Management	3	0	3
CHEM F431	Sustainable Chemistry using Renewables	3	0	3	ECON F355	Business Analysis and Valuation	3	0	3
CHEM G521	Environmental Chemistry			5	ECON F356	Strategic Financial Management	3	0	3
ECONOMI	ics				ECON	Management Control	3	0	3
CORE CO	URSES	L	P	U	F357	System	3	U	3
ECON F211	Principles of Economics	3	0	3	ECON F411	Project Appraisal	3	0	3
ECON F212	Fundamentals of Finance and Accounts	3	0	3	ECON F412	Security Analysis and Portfolio Management	3	0	3
ECON F213	Mathematical and Statistical Methods	3	0	3	ECON F413	Financial Engineering	3	0	3
ECON F214	Economic Environment of Business	3	0	3	ECON E414	Creating and Leading Entrepreneurial	3	0	3
ECON		_	•		F414	Organizations			
F241 ECON	Econometric Methods	3	0	3	ECON F415	New Venture Creation	3	0	3
F242	Microeconomics	3	0	3	ECON F417	Risk Management and Insurance	3	0	3
ECON F243	Macroeconomics	3	0	3	ECON F418	Quantitative Analysis of International Trade	3	0	3
ECON F244	Economics of Growth and Development	3	0	3	ECON F419	Advanced Microeconomics	3	0	3
ECON F311	International Economics	3	0	3	ECON	Applied Macroeconometrics	3	0	3

Course No F420	Course Title	L	P	U	Course No	Course Title Applications	L	P	U
ECON	Functions and Working of	3	0	3	BITS F463	Cryptography	3	0	3
F422 ECON	Stock Exchanges				CS F211	Data Structures and Algorithms	3	1	4
F434	International Business	3	0	3	CS F364	Design and Analysis of	3	0	3
ECON F435	Marketing Research	3	0	3	MATH	Algorithms	2	^	2
ECON F471	Resources and Environmental Economics	3	0	3	F231	Number Theory	3	0	3
FIN F314	Investment Banking and	3	0	3	MATH F314	Algebra II	3	0	3
	Financial Services Financial Risk Analytics				MATH F353	Statistical Inference and Applications	3	0	3
FIN F414	and Management	3	0	3	MATH	Complex Analysis	3	0	3
MATH F212	Optimization	3	0	3	F354 MATH	Advanced Probability			
MATH	Operations Research	3	0	3	F378	Theory	3	0	3
F242 MATH	Amuliad Stachastic Ducces	3	1	4	MATH F420	Mathematical Modeling	3	0	4
F424 MATHEM	Applied Stochastic Process	3	1	4	MATH F421	Combinatorial Mathematics	3	0	3
CORE CO		L	P	U		Numerical Methodology			
MATH	Optimization	3	0	3	MATH F422	for Partial Differential Equations	3	1	4
F212 MATH	•		0		MATH	Introduction to Algebraic	3	0	3
F213	Discrete Mathematics	3	U	3	F423 MATH	Topology	_		
MATH F214	Elementary Real Analysis	3	0	3	F424	Applied Stochastic Process	3	1	4
MATH F215	Algebra I	3	0	3	MATH F425	Numerical Linear Algebra	3	1	4
MATH F241	Mathematical Methods	3	0	3	MATH F426	Mathematical Theory of Finite Element Methods	3	1	4
MATH F242	Operations Research	3	0	3	MATH F431	Distribution Theory	3	0	3
MATH F243	Graphs and Networks	3	0	3	MATH F432	Applied Statistical Methods	3	0	3
MATH	Measure & Integration	3	0	3	MATH F441	Discrete Mathematical Structures	3	0	3
F244 MATH	Introduction to Topology	3	0	3	MATH	Numerical Solutions of Ordinary Differential	3	0	3
F311 MATH		J	Ü	J	F444	Equations	J	Ü	J
F312	Ordinary Differential Equations	3	0	3	MATH F445	Mathematical Fluid Dynamics	3	0	3
MATH F313	Numerical Analysis	3	0	3	MATH F456	Cosmology	3	0	3
MATH F341	Introduction to Functional Analysis	3	0	3	MATH F471	Nonlinear Optimization	3	0	3
MATH F342	Differential Geometry	3	0	3	MATH	Commutative Algebra	3	0	3
MATH F343	Partial Differential Equations	3	0	3	F481 MATH	Wavelet analysis and	3	1	4
	NE ELECTIVE COURSES	L	P	U	F492 PHYSICS	applications			
BITS F314	Game Theory and Its Applications	3	0	3	CORE CO	URSES	L	P	U
BITS F343	Fuzzy Logic and	3	0	3	PHY F211	Classical Mechanics	3	1	4

Course No	Course Title	L	P	U	Course No	Course Title	L	P	U
PHY F212	Electromagnetic Theory I	3	0	3		General Theory of Relativity	3	1	4
PHY F213	Optics	3	0	3	PHY F415	and Cosmology	3	1	4
PHY F214	Electricity, Magnetism & Optics Laboratory	0	2	2	PHY F416	Soft Condensed Matter Physics	3	1	4
PHY F241	Electromagnetic Theory II	3	1	4	PHY F417	Experimental Methods of	3	1	4
PHY F242	Quantum Mechanics I	3	0	3	DIIV E410	Physics	2	1	4
PHY F243	Mathematical Methods of Physics	3	0	3	PHY F418 PHY F419	Lasers and Applications Advanced Solid State	3	1	4
PHY F244	Modern Physics Laboratory	0	2	2	DIIV E400	Physics	3	1	4
PHY F311	Quantum Mechanics II	3	0	3	PHY F420	Quantum Optics Advanced Quantum	3	1	4
PHY F312	Statistical Mechanics	3	0	3	PHY F421	Mechanics	3	1	4
PHY F313	Computational Physics	3	0	3	DIIV E400	Group Theory and	3	1	4
PHY F341	Solid State Physics	3	0	3	PHY F422	Applications	3	1	4
PHY F342	Atomic & Molecular Physics	3	0	3	PHY F423	Special Topics in Statistical	3	1	4
PHY F343	Nuclear & Particle Physics	3	0	3		Mechanics	-		-
PHY F344	Advanced Physics Laboratory	0	3	3	PHY F424	Advanced Electrodynamics Advanced Mathematical	3	1	4
DISCIPLI	NE ELECTIVE COURSES	L	P	U	PHY F425	Methods of Physics	3	1	4
BIO F215	Biophysics Nonlinear Dynamics and	3	0	3	PHY F426	Physics of Semiconductor Devices	3	1	4
BITS F316	Chaos	3	0	3	PHY F427	Atmospheric Physics	3	0	3
BITS F317	Theoretical Neuroscience	3	0	3	PHY F428	Quantum Information Theory	3	0	3
PHY F346	Laser Science and Technology	3	0	3	PHY F431	Geometrical Methods in	3	0	3
BITS F386	Quantum Information and Computation	3	0	3	PHY F432	Physics Classical Theory of Fields: A			4*
DITO E416	Introduction to	2	0	2	PHY F432	Symmetry Perspective			4"
BITS F416	Nanoscience	3	0	3	PHY F433	Topics in Nonlinear Optics	3	0	3
BITS F417	Microfluidics & its Applications			4	PHY G512	Advanced Quantum Field Theory	3	0	3
BITS F446	Pattern Recognition			3		STUDIES - COMMUNICA	TI	ON	
EEE F426	Fibre Optics & Optoelectronics	3	0	3	AND MED	IA STUDIES STREAM	L	P	U
MATH	Applied Stochastic	3	1	4	GS F221	Business Communication	3	0	3
F424	Processess	J	1	'	GS F222	Language Lab Practice	0	3	3
MATH F456	Cosmology	3	0	3	GS F223	Introduction to Mass Communication	3	0	3
PHY F215	Introduction to Astronomy & Astrophysics	3	0	3	GS F224	Print and Audio Visual Advertising	2	1	3
PHY F315	Theory of Relativity	3	0	3	GS F241	Creative Writing	2	1	3
PHY F316	Musical Acoustics	3	0	3	GS F243	Current Affairs	3	0	3
PHY F317	Introduction to Radio Astronomy	3	0	3	GS F244	Reporting and Writing for Media	3	0	3
PHY F378	Plasma Physics and its Applications	3	0	3	GS F245	Effective Public Speaking	2	1	3
PHY F379	Thin Film Technology	3	0	3	GS F321	Mass Media Content and Design	2	1	3
PHY F412	Introduction To Quantum Field Theory	3	1	4	GS F322	Critical Analysis of Literature and Cinema	3	0	3
PHY F413	Particle Physics	3	1	4		Computer Mediated			
PHY F414	Physics of Advanced Materials	3	1	4	GS F342	Communication	3	0	3
	Materials				GS F343	Short Film and Video	2	1	3

Course No	Course Title Production	L	P	U	Course No	Course Title Research	L	P	U
DISCIPLIN	NE ELECTIVE COURSES	L	P	U	GS F332	Contemporary India	3	0	3
BITS F385	Introduction to Gender Studies	3	0	3	GS F333	Public Administration Global Business Technology	3	0	3
GS F211	Modern Political Concepts	3	0	3	GS F334	& Knowledge Sharing	3	0	3
GS F212	Environment, Development & Climate Change	3	0	3	DISCIPLIN	NE ELECTIVE COURSES	L	P	U
GS F231	Dynamics of Social Change	3	0	3	BITS F214	Science, Technology and Modernity	3	0	3
GS F232	Introductory Psychology	3	0	3	BITS F385	Introduction to Gender Studies	3	0	3
GS F242	Cultural Studies	3	0	3		Humanistic Theories of			
GS F311	Introduction to Conflict Management	3	0	3	BITS F399	Science and Technology	3	0	3
GS F325	Journalism	3	0	3	GS F212	Environment, Development and Climate Change	3	0	3
GS F326	Creative Thinking	2	1	3	GS F213	Development Theories	3	0	3
GS F327	Selected Reading	3	0	3		Main Trends in Indian			
GS F333	Public Administration	3	0	3	HSS F233	History	3	0	3
GS F334	Global Business Technology & Knowledge Sharing	3	0	3	DISCIPLIN	NE ELECTIVE COURSES	L	P	U
GS F344	Copywriting	2	0	2	HSS F234	Main Currents of Modern	3	0	3
HSS F227	Cross Cultural Skills	3	0	3	HSS F235	History Introductory Philosophy	3	0	3
HSS F232	Introduction to	3	0	3	HSS F236	Symbolic Logic	3	0	3
	Development Studies	-	-	-	HSS F312	Bureaucracy	3	0	3
HSS F315	Society, Business, and Politics	3	0	3	HSS F315	Society, Business, and	3	0	3
HSS F317	Introduction to Globalization	3	0	3	HSS F343	Politics Professional Ethics	3	0	3
HSS F319	Lighting for Theatre and			2	HSS F344	Heritage of India	3	0	3
	Films	_	0		HSS F345	Gandhian Thoughts	3	0	3
HSS F323	Organizational Psychology Human Resource	3	0	3	HSS F346	International Relations	3	0	3
HSS F328	Development	3	U		Project T	ype Courses			
HSS F341	Performance Design	1	2	3	In addition	n to discipline electives m	ent	ion	ed
HSS F343	Professional Ethics	3	0	3		following project type co			
HSS F346	International Relations	3	0	3		g offered by the departm			
GENERAL	STUDIES - DEVELOPME	:NT	١			eir respective programme			
STUDIES	STREAM					nay be taken by the stu			
CORE CO	URSES	L	P	U	meet the d	discipline elective require	me	nts	•
ECON F211	Principles of Economics	3	0	3	XXX F266	Study Project			3
GS F211	Modern Political Concepts	3	0	3	XXX F366	Laboratory Project			3
GS F212	Environment, Development & Climate Change	3	0	3	XXX F367	Laboratory Project			3
GS F213	Development Theories	3	0	3	XXX F376	Design Project			3
GS F231	Dynamics of Social Change	3	0	3	XXX F377	Design Project			3
GS F232	Introductory Psychology	3	0	3	XXX F491	Special Project			3
GS F233	Public Policy	3	0	3					
GS F234	Development Economics	3	0	3		XXX indicates the		egr	
GS F311	Introduction to Conflict	3	0	3		ie. For example, CHE F20 intended for a student			
GS F312	Management Applied Philosophy	3	0	3		Engineering.			•
GS F312 GS F331		3	0	3		5 5			
G9 L991	Techniques in Social	J	U						
				81					

A student may avail a maximum of 3 Project courses to meet the Discipline Electives Requirement under the head of (Discipline) Electives with the following limitations:

- (a) All of these Project courses should be
  - (i) within the Discipline (for which the degree is being awarded) or
  - (ii) from an allied Discipline if so specified by the Department offering the degree
- (b) The projects may be chosen from under these sub-heads.
  - (i) Study Projects (maximum of 1)
  - (ii) Laboratory (maximum of 2)
  - (iii) Design Projects (maximum of 2)
  - (iv) Special Projects (maximum of 1)

A student may avail a maximum of 3 Project courses (under any of the heads mentioned above offered by any discipline as an Open Elective. However, in total a student may avail at most 5 Project courses against Electives slots in any category.

# Pool of Humanities courses for first degree programmes:

The following is the list of courses from which Humanities Electives can be taken by the students in different first degree programs to meet the general institutional requirement of eight units under the Humanities elective category:

Course No.	Course Title	L	P	U
BITS F214	Science, Technology and Modernity	3	0	3
BITS F226	Soft Skills for Professionals	3	0	3
BITS F385	Introduction to Gender Studies	3	0	3
BITS F399	Humanistic Theories of Science and Technology	3	0	3
BITS F419	Management of Cross Cultural Engineering Teams	3	0	3
GS F211	Modern Political Concepts	3	0	3
GS F212	Environment, Development & Climate Change	3	0	3

Course No.	Course Title	L	P	U
GS F213	Development Theories	3	0	3
GS F221	Business Communication	3	0	3
GS F222	Language Lab Practice	0	3	3
GS F223	Introduction to Mass Communication	3	0	3
GS F224	Print and Audio-Visual Advertisement	2	1	3
GS F231	Dynamics of Social Change	3	0	3
GS F232	Introductory Psychology	3	0	3
GS F233	Public Policy	3	0	3
GS F234	Development Economics	3	0	3
GS F241	Creative Writing			3*
GS F242	Cultural Studies	3	0	3
GS F243	Current Affairs	3	0	3
GS F244	Reporting and Writing for Media	2	1	3
GS F245	Effective Public Speaking	2	1	3
GS F311	Introduction to Conflict Management	3	0	3
GS F312	Applied Philosophy	3	0	3
GS F313	Marxian Thoughts	3	0	3
GS F321	Mass Media Content and Design	2	1	3
GS F322	Critical Analysis of Literature and Cinema	3	0	3
GS F325	Journalism	3	0	3
GS F326	Creative Thinking	2	1	3
GS F327	Selected Reading	3	0	3
GS F331	Techniques in Social Research	3	0	3
GS F332	Contemporary India	3	0	3
GS F333	Public Administration	3	0	3
GS F343	Short Film and Video Production	2	1	3
GS F344	Copywriting	2	0	2
HSS F211	Introduction to Arabic	3	0	3
HSS F221	Readings from Drama	3	0	3
HSS F222	Linguistics	3	0	3
HSS F223	Appreciation of Indian Music	3	0	3
HSS F224	English Skills for Academic	3	0	3

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Course No.	Course Title	L	P	U	Course Title I	,	P	U
HSS F226	Postmodernism	3	0	3	HSS F326 Humanities and Design 2	?	1	3
HSS F227	Cross Cultural Skills	3	0	3	HSS F327 Contemporary Drama	;	0	3
	Phonetics & Spoken English	3	0	3	HSS F328 Human Resource Development	;	0	3
	Introduction to Western Music	3	0	3	HSS F329 Musicology – An – Introduction	:	0	3
HSS F232	Introduction to Development Studies	3	0	3	HSS F330 Appreciation of Art	;	0	3
HSS F233	Main Trends in Indian History	3	0	3	HSS F331 Sankara's Thoughts	;	0	3
HSS F234	Main Currents of Modern	3	0	3	HSS F332 Cinematic Art			3*
	History	3	0	3	HSS F333 Comparative Religion 3	3	0	3
	Introductory Philosophy				HSS F334 Srimad Bhagavad Gita	;	0	3
	Symbolic Logic Contemporary Indian English	3	0	3	HSS F335 Literary Criticism	3	0	3
HSS F237	Contemporary Indian English Fiction	3	0	3	HSS F336 Modern Fiction	3	0	3
HSS F238	Sports and Society	3	0	3	HSS F337 English Literary Forms and Movements	;	0	3
	Crime and New Media Gender, Science and	3	0	3	HSS F338 Comparative Indian Literature	;	0	3
	Gender, Science and Technology	3	0	3	HSS F339 Theatre Art Acting and Production	;	0	3
	Philosophy of Nāgārjuna	3	0	3	HSS F340 Post Colonial Literatures 3	ł	0	3
	Social Informatics	3	0	3	HSS F341 Performance Design 1		2	3
HSS F248	Introduction to Disability Studies	3	0	3	HSS F342 Advanced Communicative English		0	3
HSS F249	Politics in India	3	0	3				
HSS F250	Comics and Visual Culture	3	0	3	HSS F343 Professional Ethics 3		0	3
HSS F251	Introduction to Discourse and Conversational Analysis	2	1	3	HSS F344 Heritage of India 3 HSS F345 Gandhian Thoughts 3		0	3
HSS F252	International Law	3	0	3				
HSS F266	Study Project			3	HSS F346 International Relations 3	•	0	3
HSS F311	Introduction to Videogame	3	0	3	HSS F347 Introduction to Carnatic Music	3	0	3
	Introduction to				HSS F348 Introduction to Hindustani Music	;	0	3
HSS F313	Contemporary Arts	3	0	3	HSS F349 Ecocriticism 3	;	0	3
HSS F315	Folitics	3	0	3	HSS F350 Human Rights: History, Theory & Practice	;	0	3
HSS F316	Popular Literature and Culture of South Asia	3	0	3		;	0	3
HSS F317	Introduction to Globalization	3	0	3	HSS F352 Technology, Work and Society	;	0	3
	Introduction to Anthropology	3	0	3	HSS F353 Philosophy of Aesthetics 3	3	0	3
HSS F319	Lighting for Theatre and Films			2*	HSS F354 Introduction to Islamic Economy	;	0	3
HSS F323	Organizational Psychology	3	0	3	HSS F355 Dictatorship, Democracy & Development	!	0	3
HSS F325	Cinematic Adaptation	3	0	3				
					HSS F356 Social Movements and	1	0	3

	Course	Course Title	L	P	U			Environment of Business	
	No.	Protest Politics	_	_		BITS F3	33	Project on Organisational Aspects	3
	HSS F364	Political Economy of Gulf Cooperation Council States	3	0	3	BITS F3	34	Project on Organisational Aspects	3
	HSS F365	Science of Sustainable Happiness	3	0	3	BITS F3	72	Data Communications and Networks	3 0 3
	HSS F368	Asian Cinemas and Cultures	3	0	3	BITS F3	81 '	TIC Projects	3
	HSS F369	Caste and Gender in India	3	0	3	BITS F3	82	Reading Course	3
	HSS F371	Cities-Life, Issues and	3	0	3	BITS F3	83	TIC Projects	3
	1100 1071	Conflicts Introduction to Social	0	Ü	Ü	BITS F3	98	Creative Multimedia	223
	HSS F372	Psychology	3	0	3	BITS F4	14	Introduction to Bioinformatics	3 0 3
	HSS F373	Shakespeare and Popular	3	0	3			Introduction to Nanoscience	3 0 3
	HSS F374	Culture Urban Modernity and the	3	0	3			Micro Fluidics and its Application	4*
		Business and Politics in				BITS F4	28	Essentials of Strategic Management	303
	HSS F375	Colonial and Post Colonial	3	0	3			Flexible Manufacturing Systems	3 2 3
		India: a historical approach Introduction to American	_					Robotics	3
	SANS F11	Literature	3	0	3	BITS F4	42	Remote Sensing and Image Processing	3
1	t mov be	noted that a student canno	ot d	2011	nt			Artificial Intelligence	3
ć	a course	(or its equivalent) of his/1 (s) as a humanities election	her	ov.	vn	BITS F4	45	Neural Networks and Applications	3 0 3
		sted in this pool of hur				BITS F4	46	Pattern Recognition	3
(	electives.	-				BITS F4	47	Multimedia Computing	303
(	Other Co	urses				BITS F4	48	Retail Management Systems	303
	BIO F231	Biology Project Laboratory		3		BITS F4	49	Financial Engineering	3 0 3
	BITS C483	Indian Wisdom for Modern Management		3 0	3	BITS F4	61	Software Engineering	3
		Introduction to IPR		1		BITS F4	62	Renewable Energy	3 0 3
		Introduction to Human Rights		1				New Venture Creation	3 0 3
		Introduction to Environmental studies		1		BITS F4	69	Financing Infrastructure Projects	3 0 3
		Applications of Bio-Medical						Services Management Systems	3 0 3
	BITS F215	Instrumentation Techniques in	ı	2 0	2			Project Management	4
	DIMO DO17	Healthcare Environment, Development and	d	2.0	2	BITS F4	93	Business Analysis and Valuation	303
	*BITS	Environment, Development and Climate Change Environmental Studies		3 0 3 0		BITS F4	.94	Environmental Impact Assessment	3 1 4
	F225	Environmental Studies		50	3	BITS G516		Introduction to Business Sustainability	3 0 3
	BITS F311	Image Processing		3 0	3	BITS G517		Cross Cultural Management	3 0 3
	BITS F319	Negotiation Skills and Techniques		2 0	2	MGTS		Organisational Behaviour	303
	BITS F320	Managerial Skills		2*		F351		_	303
	BITS F321	Legal and Economic		4*		MGTS		Advertising and Sales	5 5 5
					0.4				

F433	Promotion		N105T		
PHY F221	Modern Physics	3 0 3	MUSIC	WESTERN CLASS MUSIC II	3*
	Quantum Mechanics for	3 0 3	N106T	WESTERN CLASS MOSIC II	J
*[Students	Engineers  completing this course w		MUSIC N111T	HIND CLASS MUSIC (INST)I	3*
awarded a	non-letter grade (GOOD or PC	OOR)]	MUSIC N112T	HIND CLASS MUSIC(INST)II	3*
List of Au	idit Type Courses		MUSIC N113T	INDIA CLASS MUSIC(INST)I	3*
BITS N101T	PHY FITNESS HEALTH & WEL	1*	MUSIC N114T	INDIA CLASS MUSIC(INST)II	3*
CHI N101T	BEGINNING CHINESE	3 0 3	MUSIC	INDIA CLASS MUSIC(VOC)	
FRE	BEGINNING FRENCH	3*	N203T	III	3*
N101T			MUSIC	IND CLASS MUSIC(VOC) IV	3*
FRE N102T	TECHNICAL FRENCH	3 0 3	N204T	me om to the control of the	Ü
GER		2.0.0	MUSIC N205T	WESTERN CLASS MUSIC III	3*
N101T	BEGINNING GERMAN	3 0 3	MUSIC		
GER	TECHNICAL GERMAN	303	N206T	WESTERN CLASS MUSIC IV	3*
N102T			MUSIC	IND CLASS MUSIC (INST) III	3*
HSS N201T	INTRO TO PHOTOGRAPHY	3 0 3	N213T	()	
HSS	IND C DANCE	2.0.2	MUSIC N214T	IND CLASS MUSIC(INST)IV	3*
N202T	BHARATNATYAM	3 0 3	MUSIC	ADV IND MUSIC	
HSS	Basic Arabic	303	N303T	PRA(VOCAL)	-
N203T			MUSIC	ADV IND MUSIC PRA (INST)	_
HSS N301T	ELEMENTS OF DANCE	1 1 2	N313T	,	
JAP N101T	BEGINNING JAPANESE	303	RUS N101T	BEGINNING RUSSIAN	3 0 3
MUSIC			RUS N102T	TECHNICAL RUSSIAN	3 0 3
N103T	INDIAN CLASS MUSIC VOC I	3*			
MUSIC N104T	INDIA CLASS MUSIC VOC II	3*			
MUSIC	WESTERN CLASS MUSIC I	3*			

## MINOR PROGRAMMES FOR FIRST DEGREE STUDENTS

"Minor programs" are offered as options for first degree students with the intent of encouraging them to add focus to their supplemental learning (outside a major area) as well as recognizing and certifying the knowledge obtained in an area that is outside of their major area.

#### **General Guidelines**

- A minor would allow a Department (or multiple Departments) to offer a package of courses in an area/sub-area to students for whom this area/sub-area would not be part of their (major) program.
- A minor option would allow a student to pursue the study of an area or a sub-area through a set of courses but not as exhaustively as required to obtain a degree (i.e. a major) in that area.
- A minor may be inter-disciplinary (e.g. a minor in Computational Science may include courses in Numerical Analysis, Computational Physics, Computational Chemistry, and Bioinformatics among others).
- A minor will be recognized by means of a separate certificate.

### Requirements for a minor

• Courses and Units Requirement:

Each minor would be defined by coursework requirement with the following conditions:

Category	Courses	Units
Minor – Core	4 (max)	12 (max)
Minor - Electives	2 (min)	6 (min)
Minor – Total	5 (min)	15 (min)

- Elective Pool:
- The pool of electives specific to a minor may include courses from one or more disciplines and may include project / seminar type courses.
- A student may use at most one project / seminar type course to meet the requirements of a minor.
- Overlap in requirements:
- At most 2 courses (and at most 6 units) out of the above requirement (of 5 courses and 15 units) may be met by mandatory courses of the student's degree i.e. major (or degrees i.e. majors):
  - i.e. from the general institutional requirement (excluding Humanities requirement) or the (Major) discipline Core(s).
- o There is no restriction of overlap requirement on electives (i.e. discipline elective or open elective or humanities elective).
- o No course may be used to meet the requirements of two different minors nor may a course be used to the meet the requirements of two majors and a minor.

- GPA requirement:
- o A student on completion of the requirements for a minor must have maintained a cumulative GPA of 4.5 or above (out of 10) in the courses applied to the minor.

## Process for declaring / obtaining a minor

- A student if he/she chooses to pursue a minor must declare at the end of the 2<sup>nd</sup> year that he/she will pursue a specific minor. The student will charged a small fee for logistics.
- If and when he/she completes the requirements for the minor as stipulated above and as stipulated for the specific minor, then he/she may apply for a "minor" certificate.
- If it is verified that the requirements are met then he/she will be awarded a "minor certificate" (separate from a degree i.e. major certificate).
- A minor certificate will be issued only on completion of a degree (i.e. a major).

At present Sixteen minor programs viz. Minor in Aeronautics, Computational Economics, Computing and Intelligence, Data Science, English Studies, Entrepreneurship, Film and Media, Finance, Management, Materials Science and Engineering, Philosophy, Economics and Politics (PEP), Physics, Public Policy, Robotics and Automation, Supply Chain Analytics and Water and Sanitation have been designed. The details of which are given below:

	Minor in Aeronautics								
Description	Aeronautics is an exhilarating field encompassing the fundamentals of aerodynamics (interaction of air with objects in motion), propulsion (power systems responsible for the generation of thrust for providing motion), structures (design of airframes and material characteristics), and flight mechanics (trajectory study and optimization), as applied to air-borne vehicles within the Earth's atmosphere, and to rockets and spacecrafts outside.								
Courses &	06 courses (min) 1	8 units (min)							
Units Req.									
	Course Number	Course Title	L	P	U				
	AN F311	Principles of Aerodynamics	3	0	3				
Core Courses	AN F312	Aircraft Propulsion	3	0	3				
	AN F313	Flight Mechanics and Controls	3	0	3				
	AN F314	Introduction to Flight	3	0	3				
	AN F315	Aircraft Structures	3	0	3				
	ME F415	Gas Dynamics	3	0	3				
	ME F418	Rocket and Spacecraft Propulsion	3	0	3				
	ME F452	Composite Materials and Design	3	0	3				
Electives	ME F482	Combustion	3	0	3				
	ME F485	Numerical Techniques for Fluid Flow & Heat Transfer	3	0	3				
	EEE F242	Control Systems	3	0	3				
	EEE F417	Computer Based Control Systems	3	0	3				
	ME F376	Design Project			3				

	Minor in Computa	tional Economics								
Description	converging intellectual needs for interdisciplinary teaching and research. The contemporary tools and techniques used by computer scientists have become increasingly important for economists working with data to address complex business problems. Students interested in learning about computational mechanism design with applications to economics and especially those whose interest is more generally focused on data analytics will be highly benefitted from this programme. This programme is designed to cater to the needs of the cutting-edge industry thereby combining advanced computational tools with economic reasoning. It would help students to develop a deep background in advanced tools for analysis of economic data, which is essential for making sound economic decisions. The programme combines the strengths of multiple departments to educate students in these important computational skills linked to economics, and to prepare them for careers in economics, finance, and business. Reflecting on this strong interdisciplinary relationship, this programme will also be excellent preparation for graduate study in economics or decision sciences.									
Courses & Units Req.	05 courses (min) 15 units (min)									
	Course Number	Course Title	L	P	U					
	ECON F215	Computational Methods for Economics	3	0	3					
<b>Core Courses</b>	ECON F241	Econometric Methods	3	0	3					
	ECON F242	Microeconomics	3	0	3					
	BITS F314	Game Theory and its Applications	3	0	3					
Electives	BITS F464	Machine Learning	3	0	3					
	CS F320	Foundations of Data Science	3	0	3					
	ECON F342	Applied Econometrics	3	0	3					
	ECON F419	Advanced Microeconomics	3	0	3					
	ECON F420	Applied Macroeconometrics	3	0	3					
	MATH F424	Applied Stochastic Process	3	1	4					

	Minor in Computing and Intelligence										
Description	The Minor in Computing and Intelligence aims to enable the students majoring in disciplines other than Computer Science to gain a deeper understanding of computing and artificial intelligence and apply the same in solving problems in diverse domains. While courses like Foundations of Data Structures and Algorithms would help the students with abstract thinking and problem solving, courses like Operating Systems, Artificial Intelligence etc., will give them exposure to the fundamental aspects of computing and intelligent systems. This minor programme is exclusively designed for first-degree students of non-Computer Science disciplines.										
Courses & Units Required	06 courses (min 18 units (min)	1)									
	Course Number	Course Title	L	P	U						
Core Courses	BITS F232	Foundations of Data Structures and Algorithms	3	1	4						
Core Courses	CS F372	Operating Systems	3	0	3						
	CS F407	Artificial intelligence	3	0	3						

	Minor in Computing and Intelligence										
	BITS F311	Image Processing	3	0	3						
Electives	BITS F452	Blockchain Technology	3	0	3						
	BITS F463 Cryptography	3	0	3							
	BITS F464	Machine Learning	3	0	3						
	CS F212	Database Systems	3	1	4						
	CS F213	Object Oriented Programming		1	4						
	CS F301	Principles of Programming Languages		0	2						
	CS F303	Computer Networks	3	1	4						
	CS F314	Software Development for Portable Devices	2	1	3						
	CS F315	Information and Communication Technologies and Development	3	0	3						
	CS F415	Data Mining	3	0	3						
	IS F311	Computer Graphics	3	0	3						
	IS F341	Software Engineering	3	1	4						

Minor in Data Science											
Description	required by Data to all kinds of in help students to for analyzing da	The minor in Data Science aims to enable students to learn the basic skills required by Data Scientist for today's world. Data Science is becoming ubiquitous to all kinds of industry and opening up new avenues of business. This minor will help students to apply knowledge from Mathematics, Statistics and Computing for analyzing data collected from different kinds of sources in their respective engineering applications and make meaningful and actionable insights.									
Courses & Units Required	5 courses (min)	5 courses (min) 15 units (min)									
	Course Number	Course Title	L	P	U						
Core Courses	BITS F464	Machine Learning	3	0	3						
	CS F320	Foundations of Data Science	3	0	3						
	MATH F432	Applied statistical Methods	3	0	3						
	BITS F453	Computational Learning Theory	3	0	3						
	BITS F454	Bio-Inspired Intelligence: Algorithms and Applications	3	0	3						
	CS F317	Reinforcement Learning	3	0	3						
	CS F407	Artificial Intelligence	3	0	3						
	CS F415	Data Mining	3	0	3						
	CS F425	Deep Learning	3	0	3						
Electives	CS F426	Graph Mining	3	1	4						
	CS F429	Natural Language Processing	3	0	3						
	CS F432	Brain-inspired Deep Learning	3	0	3						
	CS F433	Computational Neuroscience	3	0	3						
	CS F469	Information Retrieval	3	0	3						
	CS G519	Social Media Analytics	3	1	4						
	MATH F212	Optimization	3	0	3						
	MATH F353	Statistical Inference and applications	3	0	3						

Minor in Data Science										
	MATH F424	Applied Stochastic Processes	3	1	4					
	MATH F471	Nonlinear Optimization	3	0	3					

Minor in English Studies										
English has a rich linguistic, literary and cultural heritage. The classic literary masterpieces of English are still widely read and appreciated. English has also evolved over centuries and is now considered as the pre-eminent means of communication in the various sectors such as business, diplomacy, mass media, education, etc., across the globe. The Minor in English Studies introduces students to the language and literary canons, and renders them with adequate exposure not only to the cultural and linguistic aspects but also to practical applications of English language and literature. In particular, the core and elective courses included in the Minor would encourage students to acquire a critical understanding of literary and linguistic analyses, and the capacity to engage meaningfully in analysis, interpretation, and explanation. The Minor also gives an opportunity for students to choose modules and develop their own interests in language or literature. Students who follow the Minor will have an enhanced understanding of the nature of the English language and literature and also of the tools needed for further independent exploration of literary and linguistic phenomena.										
Courses & Units Required	5 courses (min) 1	5 units (min)								
noquiou	Course Number Course Title									
Core Courses	GS F241	Creative Writing	2	1	3					
	HSS F337	English Literary Forms and Movements	3	0	3					
	GS F221	Business Communication	3	0	3					
	GS F244	Reporting and Writing for Media	3	0	3					
Electives Pool – I	GS F245	Effective Public Speaking	3	0	3					
(Language)	HSS F222	Linguistics	3	0	3					
	HSS F227	Cross Cultural Skills	3	0	3					
	HSS F228	Phonetics and Spoken English	3	0	3					
	HSS F342	Advanced Communicative English	3	0	3					
	GS F242	Cultural Studies	3	0	3					
	GS F322	Critical Analysis of Literature and Cinema	3	0	3					
	HSS F221	Readings from Drama	3	0	3					
	HSS F226	Postmodernism	3	0	3					
	HSS F237	Contemporary Indian English Fiction	3	0	3					
Elective Pool-II	HSS F316	Popular Literature and Culture of South Asia	3	0	3					
(Literature)	HSS F327	Contemporary Drama	3	0	3					
,	HSS F330	Appreciation of Art	3	0	3					
	HSS F332	Cinematic Arts	3	0	3					
	HSS F335	Literary Criticism	3	0	3					
	HSS F336	Modern Fiction	3	0	3					
	HSS F338	Comparative Indian Literature	3	0	3					
	HSS F340	Postcolonial Literatures	3	0	3					

Minor in English Studies										
HSS F349	Ecocriticism	3	0	3						
HSS F373	Shakespeare and Popular Culture	3	0	3						
HSS F399	Introduction to American Literature	3	0	3						

	Minor	in Entrepreneurship							
Description	Entrepreneurship has tremendous impact on development of economy as well as society addressing various market & societal problems through continuous value creation in terms of innovations and job creation. The minor in entrepreneurship aims to equip students from different disciplines with better understanding of entrepreneurial process, necessary skills and experience to translate ideas into real innovative products/services to new entrepreneurial ventures. In this programme, hands-on experiential learning is emphasized giving students an opportunity to learn in a team environment, design innovative products/services and create their own businesses. This will motivate students to pursue entrepreneurship as their career choice.								
Courses & Units Required	5 courses (min) 15 units (min)	5 courses (min)							
	Course Number	Course Title	L	P	U				
	BITS F468	New Venture Creation	3	0	3				
Core Courses	BITS F482 or ECON F414	Creating and Leading Entrepreneurial Organizations	3	0	3				
	ECON F212	Fundamentals of Finance and Accounting	3	0	3				
	BITS F322	Venture Team Development and Organization	3	0	3				
Electives	BITS F323	Venture Finance	3	0	3				
(minimum of 2 courses	BITS F324	Strategy for Entrepreneurs	3	0	3				
and additional units	BITS F325	New Product and Service Design	3	0	3				
required to make the total to 15)	BITS F326	Design Thinking for Innovation & Entrepreneurship	3	0	3				
	BITS F427	Digital Marketing	3	0	3				

	Min	or in Film and Media	•	•	·		
	dominant cultu	Film and its derivative forms of media such as television and advertising are dominant cultural forces in the contemporary world. The minor in Film and Media aims to provide:					
Description	i. An introduct	ion to media studies with a specific focus on	film s	studie	es		
-	ii. A basic introduction to Print and Digital Media including film making and film appreciation						
	iii. Hands-on training in writing for media and film production						
Courses & Units Required	6 courses (min)	18 units (min)					
	Course number	Course Title	L	P	U		
Core Courses	GS F223	Introduction to Mass Communication	3	0	3		
	GS F244	Reporting and Writing for Media	3	0	3		
	GS F322	Critical Analysis of Literature and Cinema	3	0	3		
Elective Courses	GS F224	Print and Audio Visual Advertising	3	0	3		
Elective Courses	GS F242	Cultural Studies	3	0	3		

Minor in Film and Media							
GS F321	Mass Media Content and Design	3	0	3			
GS F343	Short Film and Video Production	3	0	3			
HSS F332	Cinematic Arts	3	0	3			

	Minor in Finance							
Description	concepts of accou knowledge, enrice financial decisions	he minor in Finance aims at providing the student a grounding in the basic oncepts of accounting and finance so as to complement their existing disciplinary nowledge, enrich their educational experience, enable them to make better nancial decisions, and expand their career opportunities. It will also give students n opportunity to learn more about investments and quantitative applications in nance.						
Courses & Units Required	5 courses (min) 15	5 courses (min) 15 units (min)						
	Course Number	Course Title	L	P	U			
Core Courses	ECON F212	Fundamentals of Finance and Accounting	3	0	3			
	FIN F315	Financial Management	3	0	3			
	ECON F241	Econometric methods	3	0	3			
	ECON F312	Money banking and Financial markets	3	0	3			
	ECON F355	Business Analysis & Valuation	3	0	3			
	ECON F411	Project Appraisal	3	0	3			
	ECON F413	Financial Engineering	3	0	3			
Elective Courses	FIN F242	Introduction to Financial Mathematics	3	0	3			
Elective Courses	FIN F243	Functions & Working of Stock Exchanges	3	0	3			
	FIN F311	Derivatives & Risk Management	3	0	3			
	FIN F312	Fundamentals of Taxation and Audit	3	0	3			
	FIN F313	Security Analysis & Portfolio Management	3	0	3			
	FIN F314	Investment Banking & Financial Services	3	0	3			
	FIN F414	Financial Risk Analytics and Management	3	0	3			

		Minor in Management			
Description	"Minor in Management" is designed for the student who wants a general introduction to the functioning of a business and develops a business acumen. By gaining an understanding of the areas of management, the student will have a competitive advantage in the marketplace and throughout their career. The student shall be better equipped to handle their projects in practice school by understanding organizational and managerial issues. It would also enable him/her to combine their technical and managerial skills and explore the field of business consulting, role of management trainees, etc. Those interested in pursuing an MBA would get an opportunity to explore the management field and assess its fit with their career interest.				
Courses & Units Required	05 courses (min) 15 units (min)				
	Course Number	Course Title	L	P	U
Core Courses	BITS F428	Essentials of Strategic Management	3	0	3
	MGTS F211	Principles of Management	3	0	3
	MGTS F314	Essentials of Financial Management	3	0	3

		Minor in Management			
	BITS F326	Design Thinking for Innovation and Entrepreneurship	3	0	3
Electives	ECON F415	New Venture Creation	3	0	3
	ECON F434	International Business	3	0	3
	ECON F435	Marketing Research	3	0	3
	HSS F328	Human Resources Development	3	0	3
	MF F219	Operations Management	3	0	3
	MF F319	Supply Chain Management	3	0	3
	ME F443	Quality Control, Assurance and Reliability	3	0	3
	MGTS F311	Marketing	3	0	3
	MGTS F313	Product and Brand Management	3	0	3
	MGTS F315	Foundations of Business Analytics	3	0	3
	MGTS F316	Managerial and Leadership Skills	3	0	3
	MGTS F351	Organizational Behaviour	3	0	3

Minor in Materials Science and Engineering							
Description	of knowledge from Biotechnology, by new and exciting lightweight mate engineering are of	Materials Science and Engineering is an interdisciplinary subject that makes use of knowledge from Physics, Chemistry, Engineering, Mathematics, Biology and Biotechnology, but which has its own special character. It is always evolving – new and exciting materials such as nanomaterials, high-temperature and lightweight materials, green materials and sustainable biomaterials for tissue engineering are continually emerging. The field of Material Science combines a wide knowledge base and puts it to diverse practical and commercial use.					
Courses & Units Required	5 courses (min) 1	courses (min) 15 units (min)					
	Course Number	Course Title	L	P	U		
Core Courses	CHE F243 / ME F213	Materials Science and Engineering	3 2	0	3 2		
	MST F331	Materials Characterization	3	1	4		
	MST F332	Materials Processing	3	0	3		
	BITS F416	Introduction to Nanoscience	3	0	3		
	CHE F433	Corrosion Engineering	3	0	3		
Elective Courses	CHEM F223	Colloid and Surface Chemistry	3	0	3		
Elective Courses	СНЕМ F326	Solid State Chemistry	3	0	3		
	СНЕМ F336	Nanochemistry	3	1	4		
	ME F452	Composite Materials and Design	3	0	3		

Minor in Materials Science and Engineering							
MST F33	Introduction to Biomaterials	3	0	3			
MST F33	Materials for Catalytic Applications	3	0	3			
MST F33	Coating and thin film technology	3	0	3			
MST F33	Glass Technology	3	0	3			
MST F33	Materials for Energy Applications	3	0	3			
MST F33	Metals and Alloys	3	0	3			
MST F33	Polymer Materials	3	0	3			
PHY F379	Thin Film Technology	3	0	3			
PHY F414	Physics of Advanced Materials	3	1	4			
PHY F416	Soft condensed Matter Physics	3	1	4			

Minor in Philosophy, Economics, and Politics						
Description	to a wide range of in and to develop international orgestudents who wis with a good grasp minor, this option (economics, sociol enable students phenomena as w	The minor in <i>Philosophy, Economics &amp; Politics &amp; (PEP)</i> aims at introducing students to a wide range of approaches to understand the social and human world we live in and to develop skills useful for a range of career opportunities in national and international organizations. It would particularly interest and enthuse those students who wish to complement their core expertise in science and engineering with a good grasp of the humanities and social sciences. As a multi-disciplinary minor, this option will provide a judicious mix of knowledge in social sciences (economics, sociology and politics) and the humanities (philosophy) that would enable students to draw connections among political, economic, and social phenomena as well as equip them with the necessary skills to think through complex challenges of our society in a creative and critical manner.				
Courses & Units Required	6 courses (min) 18	6 courses (min) 18 units (min)				
	Course Number	Course Title	L	P	U	
Core Courses	ECON F211	Principles of Economics	3	0	3	
	GS F211	Modern Political Concepts	3	0	3	
	HSS F235	Introductory Philosophy	3	0	3	
	BITS F 385	Introduction to Gender Studies	3	0	3	
	GS F231	Dynamics of Social Change	3	0	3	
	GS F234	Development Economics	3	0	3	
	GS F243	Current Affairs	3	0	3	
	GS F312	Applied Philosophy	3	0	3	
Elective Courses	GS F313	Marxian Thoughts	3	0	3	
	GS F332	Contemporary India	3	0	3	
	GS F333	Public Administration	3	0	3	
	HSS F236	Symbolic Logic	3	0	3	
	HSS F315	Society, Business, and Politics	3	0	3	
	HSS F322	Social and Political Ecology	3	0	3	

Minor in Philosophy, Economics, and Politics							
	HSS F331	Sankara's Thoughts	3	0	3		
	HSS F333	Comparative Religion	3	0	3		
	HSS F343	Professional Ethics	3	0	3		
	HSS F345	Gandhian Thoughts	3	0	3		
	HSS F346	International Relations	3	0	3		
	HSS F350	Human Rights: History, Theory and Practice	3	0	3		
	HSS F353	Philosophy of Aesthetics	3	0	3		
	HSS F354	Introduction to Islamic Economy	3	0	3		
	HSS F355	Dictatorship, Democracy & Development	3	0	3		
	HSS F356	Social Movements and Protest Politics	3	0	3		

Minor in Physics							
Description	The theories in physics are all-pervading and their applications are found in varied branches of engineering and sciences. The minor in Physics aims to introduce the student to fundamental theories in physics. The core courses cover the basics and by choosing from the large pool of electives, the student will be able to pursue to a deeper level the areas of her/his interest. This minor would equip the students with the skill and knowledge which will help them in gaining insights in their own primary area of study.						
Courses & Units Required	5 courses (min) 15	5 units (min)					
	Course Number	Course Title	L	P	U		
Core Courses	PHY F212 <b>or</b> ECE F212/ EEE F212/ INSTR F212	Electromagnetic Theory – 1 <b>or</b> Electromagnetic Theory	3	0	3		
	PHY F242	Quantum Mechanics – 1	3	0	3		
	PHY F312	Statistical Mechanics		0	3		
	BITS F316	Nonlinear Dynamics and Chaos		0	3		
	BITS F386	Quantum Information and Computing	3	0	3		
	PHY F211	Classical Mechanics	3	1	4		
	PHY F213	Optics	3	0	3		
	PHY F214	Electricity Magnetism and Optics Lab	0	2	2		
Elective Courses	PHY F215	Introduction to Astronomy and Astrophysics	3	0	3		
Elective Courses	PHY F241	Electromagnetic Theory – 2	3	1	4		
	PHY F243	Mathematical Method of Physics	3	0	3		
	PHY F244	Modern Physics Lab	0	2	2		
	PHY F311	Quantum Mechanics – 2	3	0	3		
	PHY F313	Computational Physics	3	0	3		
	PHY F315	Theory of Relativity	3	0	3		

Minor in Physics						
	PHY F341	Solid State Physics	3	0	3	
	PHY F342	Atomic and Molecular Physics	3	0	3	
	PHY F343	Nuclear and Particle Physics	3	0	3	
	PHY F346	Laser Science and Technology	3	0	3	
	PHY F418	Lasers and Applications	3	1	4	
	PHY F426	Physics of Semiconductors Devices	3	1	4	
	PHY F427	Atmospheric Physics	3	0	3	
	PHY F428	Quantum Information Theory	3	0	3	

	Minor in Public Policy							
Description	understanding of policy intervention students an und	the Minor in Public Policy aims at providing the students a clear and contextualised addrestanding of conceptual and empirical aspects of public policy, the nature of public licy interventions in India and their varying impacts. Also, it intends to provide the addents an understanding of the dynamics of policymaking, central aspects of vernance and core features and functions of institutions, and equip them with skills of licy analysis.						
Courses & Units Required	5 courses (min) 1	courses (min) 15 units (min)						
	Course Number	Course Title	L	P	U			
Core Courses	GS F233	Public Policy	3	0	3			
	GS F333	Public Administration	3	0	3			
	HSS F232	Introduction to Development Studies	3	0	3			
	HSS F317	Introduction to Globalisation	3	0	3			
Elective Courses	HSS F322	Social and Political Ecology	3	0	3			
	HSS F361	Urban Policy and Governance	3	0	3			
	HSS F362	Local Governance and Participation	3	0	3			

Minor in Robotics and Automation				
Description	This minor aims to impart specialized knowledge and skills in robotics and automation required by engineers to the current demands of various industrial sectors. Automobile, aerospace & defense, logistics engineering and factory automation companies are currently asking for engineering graduates with add-on skills in these areas. Feedback has established that several sectors of industry need the newly recruited employees with knowledge and skills in 'automation', 'robotics', and 'mechatronics'. Currently, the need of core courses of any B.E. programme of the Institute limits sufficient coverage of these topics in the existing core and hence the only way students can complement their learning with these specialized courses is through a minor programme. This minor programme has been designed by keeping that need in focus. This minor programme consists of a fairly generic core so as to be relevant to students of any discipline and a			

Minor in Robotics and Automation						
	broad set of elective courses covering application of the fundamentals of robotics and automation to various industry sectors.					
Courses & Units Required	05 courses (min) 15 units (min)					
	Course Number	Course Title	L	P	U	
	BITS F441	Robotics	3	0	3	
Core Courses	EEE/INSTR/ECE F242	Control Systems	3	0	3	
	BITS F327	Artificial Intelligence for Robotics	2	1	3	
	BITS F312	Neural Network & Fuzzy Logic	3	0	3	
	BITS F415	Introduction To MEMS	3	1	4	
	BITS F442	Remote Sensing and Image Processing	3	0	3	
	BITS F464	Machine Learning	3	0	3	
	ECE F434	Digital Signal Processing	3	1	4	
	EEE F411	Internet of Things (IoT)	3	1	4	
Electives	EEE F422	Modern Control Systems	3	0	3	
	EEE G512	Embedded System Design	3	1	4	
	INSTR F343	Industrial Instrumentation and Control	3	0	3	
	INSTR G611	Advanced Control Systems	3	2	5	
	ME F244	Kinematics & Dynamics of Machinery	3	0	3	
	ME F432	Computer Aided Manufacturing	2	1	3	
	MF F311	Mechatronics & Automation	2	1	3	
	MSE G511	Mechatronics	3	2	5	

Minor in Supply Chain Analytics				
Description	Supply chain analytics help organizations to take better, faster and more informed decisions about their business operations. The global market for supply chain analytics is projected to exceed \$10 billion by 2025 and has a compound annual growth rate (CAGR) of 16%. Today's supply chain analytics solutions already have impressive capabilities, and with future advancements will only become more of a game-changer for businesses across all industries. Supply chain analytics minor programme will enable the students to develop foundations and to broaden their knowledge base of supply chain in general and supply chain analytics in specific. It will cover three verticals such as supply chain management, supply chain modelling and empirical analysis (qualitative data analysis) & supply chain analytics (quantitative data analysis). The minor programme is designed to create supply chain professionals for present and future business environment.			
Courses & Units Required	05 courses (min) 15 units (min)			

	Course Number	Course Title	L	P	U
Core Courses	BITS F455	Analytics for Supply Chain	3	0	3
	MF F319	Supply Chain Management	3	0	3
	MF F422	Supply Chain Modelling and Empirical Analysis	3	1	4
	ME F443	Quality Control Assurance and Reliability	3	0	3
	MF F321	Procurement Management	3	0	3
Electives	MF F418	Lean Manufacturing	3	0	3
	MF F485	Sustainable Manufacturing	3	0	3
	MATH F212 OR	Optimization <b>OR</b>			
	ME F320 <b>OR</b>	Engineering Optimization <b>OR</b>	3	0	3
	MF F320	Engineering Optimization			
	MATH F242	Operations Research	3	0	3
	MATH F353	Statistical Inference and Applications	3	0	3

Minor in Water and Sanitation						
Description	Sustainable Development Goal 6 (SDG 6) focusses on Water and Sanitation and the tasks mentioned in SDG 6. Sanitation is also high on agenda of the Indian Government as evident from Swachh Bharat Mission. Trained Postgraduate and working professionals are of high demand. Bill and Melinda Gates foundation had significantly invested in Water, Sanitation and Hygiene programme and they had funded UNESCO IHE and its 8 partners in developing e learning alliance. The foundation's investment strategy in sanitation requires qualified and trained professionals. This minor would equip the students with the skill and knowledge which will help them in gaining insights in the area of water and sanitation.					
Courses & Units Required	05 courses (min) 15 units (min)					
	Course Number	Course Title	L	P	U	
	BIO F216	Water Sanitation and Solid Waste Management	3	0	3	
Core Courses	BIO F217	Laboratory for Water Sanitation and Solid Waste management	1	2	3	
	BIO F266	Study Project			3	
	SAN G511	Sanitation Technology	3	2	5	
	SAN G512	Sanitation and Public Health	3	2	5	
Electives	SAN G513	Sanitation Governance Behaviour change and Advocacy			5*	
	SAN G514	Sanitation Finance and Project Management			5*	
	SAN G515	Emergency Sanitation & Leadership			5*	

