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.

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BIOTECHNOLOGY CORE COURSES

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

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DISCIPLINE 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

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CHEMICAL ENGINEERING

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
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DISCIPLINE 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 Control 3 0 3 70

CHE F412 Process Equipment Design 3 0 3

CHE F413 Process Plant Safety 3 0 3

CHE F414 Transport Phenomena 3 0 3

CHE F415 Molecular and Statistical Thermodynamics 3 0 3

CHE F416 Process Plant Design Project I - - 3

CHE F417 Process Plant Design Project II - - 3

CHE F418 Modelling and Simulation in Chemical Engineering 3 0 3

CHE F419 Chemical Process Technology 3 0 3

CHE F421 Bio-chemical Engineering 3 0 3

CHE F422 Petroleum Refining Technology 3 0 3

CHE F423 Membrane Science and Engineering 3 0 3

CHE F424 Rheology of Complex Fluids 3 0 3

CHE F433 Corrosion Engineering 3 0 3

CHE F471 Advanced Process Control 3 0 3

CHE F497 Atomic and Molecular Simulations   3

CHE F498 Colloids and Interface Engineering   3

CHE G511 Fluidization Engineering 3 1 4

CHE G512 Petroleum Refining and Petrochemicals 3 1 4

CHE G513 Environmental Management Systems 3 2 5

CHE G522 Polymer Technology 3 1 4

CHE G523 Mathematical Methods in Chemical Engineering   5

CHE G524 Introduction to Multiphase flow 3 1 4

CHE G526 Nuclear Engineering 3 1 4

CHE G527 Energy Conservation and Management 3 1 4

CHE G528 Introduction to Nanoscience & Technology 3 1 4

CHE G529 Pulp & Paper Technology 3 1 4

CHE G532 Alternate Energy Resources 3 1 4

CHE G533 Petroleum Product Characterization 3 2 5

CHE G551 Advanced Separation Technology 3 2 5

CHE G552 Advanced Transport Phenomena   5

CHE G554 Computational Fluid Dynamics   4

CHE G556 Electrochemical 3 1 4 Engineering

CHE G557 Energy Systems Engineering   4

CHE G558 Chemical Process Optimization   4

CHE G568 Modeling and Simulation in Petroleum Refining   4

CHE G613 Advanced Mass Transfer 3 2 5

CHE G614 Advanced Heat Transfer 3 2 5

CHE G616 Petroleum Reservoir Engineering   5

CHE G617 Petroleum Refinery Engg. 3 2 5

CHE G618 Petroleum Downstream Processing 3 2 5

CHE G619 Process Intensification 3 2 5

CHE G620 Energy Integration Analysis 3 1 4

CHE G622 Advanced Chemical Engineering Thermodynamics   5

CHE G641 Reaction Engineering   5

CHEM

F325 Polymer Chemistry 3 0 3

ME F323 Energy Storage Technologies 3 0 3

MST G521 Material Characterization Techniques 3 2 5

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CIVIL ENGINEERING CORE COURSES L P U

CE F211 Mechanics of Solids 3 0 3

CE F213 Surveying 3 1 4

CE F230 Civil Engineering Materials 4

CE F231 Fluid Mechanics 3

CE F241 Analysis of Structures 3 0 3

CE F242 Construction Planning and
Technology 3 0 3

CE F243 Soil Mechanics 3 1 4

CE F244 Highway Engineering 3 1 4

CE F312 Hydraulics Engineering 3 1 4

CE F313 Foundation Engineering 3 0 3

CE F320 Design of Reinforced
Concrete Structures 3

CE F321 Engineering Hydrology 3

CE F342 Water & Waste Water
Treatment 3 1 4

CE F343 Design of Steel Structures 3 0 3

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DISCIPLINE ELECTIVE COURSES

BITS F313 Multicriterion Decision
Making in Engg. and
Management 3 0 3

CE F323 Introduction to
Environmental Engineering 3 0 3 71

CE F324 Numerical Analysis 3 0 3

CE F325 Fundamentals of Rock
Mechanics 3 0 3

CE F345 Computational

Geomechanics 3 0 3

CE F411 Operation Research for

Engineers 3 0 3

CE F412 Disaster Management 3 0 3

CE F413 Advanced Structural Design 3 0 3

CE F415 Design of Prestressed

Concrete Structure 3 0 3

CE F416 Computer Applications in

Civil Engineering 3 1 4

CE F417 Applications of Artificial

Intelligence in Civil Engg. 3 0 3

CE F419 Geotechnical Earthquake

Engg. and Machine

Foundation 3 0 3

CE F420 Introduction to Bridge

Engineering 3 0 3

CE F421 Analysis and Design of FRP

Reinforced Concrete

Structures 3 0 3

CE F422 Urban Hydrology 2 1 3

CE F423 Green Buildings and

Energy Conservation 3 0 3

CE F425 Airport, Railways and

Waterways 3 0 3

CE F426 Geosynthetics and

Reinforced Soil Structure 3 0 3

CE F427 System Modeling and

Analysis 3 0 3

CE F428 Earthquake Resistant

Design and Construction 3 0 3

CE F429 Design of Foundation
Systems 3 0 3

CE F430 Design of Advanced
Concrete Structures 3 0 3

CE F431 Principles of Geographical
Information Systems 3 1 4

CE F432 Structural Dynamics 3 0 3

CE F433 Remote Sensing and Image
Processing 3 1 4

CE F434 Environmental Impact
Assessment 3 0 3

CE F435 Introduction to Finite
Element Methods 3 0 3

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COMPUTER SCIENCE CORE COURSES L P U

CS F211 Data Structures &
Algorithms 3 1 4

CS F212 Database Systems 3 1 4 Course No Course Title L P U

CS F213 Object Oriented
Programming 3 1 4

CS F214 Logic in Computer Science 3 0 3

CS F215 Digital Design 3 1 4

CS F222 Discrete Structures for
Computer Science 3 0 3

CS F241 Microprocessors &
Interfacing 3 1 4

CS F301 Principles of Programming
Languages 2 0 2

CS F303 Computer Networks 3 1 4

CS F342 Computer Architecture 3 1 4

CS F351 Theory of Computation 3 0 3

CS F363 Compiler Construction 2 1 3

CS F364 Design & Analysis of

Algorithms 3 0 3

CS F372 Operating Systems 3 0 3

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DISCIPLINE ELECTIVE COURSES

BITS F311 Image Processing 3 0 3

BITS F312 Neural Networks and Fuzzy

Logic 3 0 3

BITS F343 Fuzzy Logic and

Applications 3 0 3

BITS F364 Human – Computer

Interaction 3 0 3

BITS F386 Quantum Information and

Computation 3 0 3

BITS F452 Blockchain Technology 3 0 3

BITS F453 Computational Learning

Theory 3 0 3

BITS F454 Bio-Inspired Intelligence:

Algorithms and

Applications 3 0 3

BITS F463 Cryptography 3 0 3

BITS F464 Machine Learning 3 0 3

BITS F465 Enterprise Computing 3 1 4

BITS F466 Service Oriented

Computing   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 F316 Quantum Architecture and Programming 3 0 3

CS F317 Reinforcement Learning 3 0 3

CS F320 Foundations of Data Science 3 0 3

CS F401 Multimedia Computing 3 0 3

CS F402 Computational Geometry 3 0 3

CS F407 Artificial Intelligence 3 0 3 72

Course No	Course Title	L	P	U

CS F413 Internetworking Technologies 3 0 3

CS F415 Data Mining 3 0 3

CS F422 Parallel Computing 3 0 3

CS F424 Software for Embedded Systems 3 1 4

CS F425 Deep Learning 3 0 3

CS F426 Graph Mining 3 1 4

CS F427 Performance Analysis of Computer Networks 3 0 3

CS F428 Special topic in Computer Science 1 0 1

CS F429 Natural Language Processing 3 0 3

CS F430 Approximation Algorithms 3 0 3

CS F431 Combinatorial Optimization 3 0 3

CS F432 Brain -inspired Deep

Learning 3 0 3

CS F433 Computational

Neuroscience 3 0 3

CS F441 Selected Topics from

Computer Science - - 3

CS F444 Real Time Systems 3 0 3

CS F446 Data Storage Technologies

and Networks 3 0 3

CS F468 Information Security Project 0 3 3

CS F469 Information Retrieval 3 0 3

CS G513 Network Security 3 1 4

CS G519 Social Media Analytics 3 1 4

CS G520 Advanced Data Mining 3 1 4

CS G527 Cloud Computing   5

IS F311 Computer Graphics 3 0 3

IS F341 Software Engineering 3 1 4

IS F462 Network Programming 3 0 3

MATH

F231 Number Theory 3 0 3

MATH

F421 Combinatorial Mathematics 3 0 3

MATH

F441 Discrete Mathematical

Structures 3 0 3

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ELECTRICAL AND ELECTRONICS ENGINEERING CORE COURSES

EEE F211 Electrical Machines 3 1 4

EEE F212 Electromagnetic Theory 3 0 3

EEE F214 Electronic Devices 3 0 3

EEE F215 Digital Design 3 1 4

EEE F241 Microprocessors and

interfacing 3 1 4

EEE F242 Control Systems 3 0 3

EEE F243 Signals & Systems 3 0 3 Course No Course Title L P U

EEE F244 Microelectronic Circuits 3 0 3

EEE F311 Communication Systems 3 1 4

EEE F312 Power Systems 3 0 3

EEE F313 Analog & Digital VLSI

Design 3 0 3

EEE F341 Analog Electronics 3 1 4

EEE F342 Power Electronics 3 1 4

MATH

F212

OR

ME F344 Optimization

OR

Engineering Optimization

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DISCIPLINE ELECTIVE COURSES

BITS

F312   Neural Networks and Fuzzy

Logic 3 0 3

BITS F415 Introduction To MEMS 3 1 4

CS F213 Object Oriented

Programming 3 1 4

CS F342 Computer Architecture 3 1 4

CS F372 Operating Systems 3 0 3

CS F451 Combinatorial Mathematics 3 0 3

CS G553 Reconfigurable Computing   5

ECE F312 EM Fields and Microwave

Engineering Laboratory 0 1 1

ECE F343 Communication Networks 3 0 3

EEE F216 Electronic Devices

Simulation Laboratory 0 2 2

EEE F245 Control System Laboratory 0 1 1

EEE F246 Electrical and Electronic

Circuits Laboratory 0 2 2

EEE F312   EM Fields and Microwave

Engineering 3 0 3

EEE F345 Power Apparatus &

Networks 3 0 3

EEE F346 Data Communication

Networks 2 0 2

EEE F348 FPGA Based System Design

Laboratory 0 2 2

EEE F411 Internet of Things 3 1 4

EEE F414 Telecommunication

Switching Systems &

Networks 3 0 3

EEE F416 Digital Communication 3 0 3

EEE F417 Computer Based Control

System 3 0 3

EEE F418 Modern Communication

Technologies 3 0 3

Course No	Course Title	L	P	U
EEE F419	Flexible and Stretchable Electronics	3	1	4
EEE F420	Biomedical Signal Processing	3	1	4
EEE F422	Modern Control Systems	3	0	3
EEE F424	Smart Grid for Sustainable Energy	3	0	3

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Course No	Course Title	L	P	U
EEE F425	Power System Analysis and control	3	0	3
EEE F426	Fiber Optics & Optoelectronics	3	0	3
EEE F427	Electric Power Utilization and Illumination	3	0	3
EEE F428	Energy Storage Systems	3	0	3
EEE F429	Smart Materials and Applications	3	1	4
EEE F430	Green Communications and Networks	3	0	3
EEE F431	Mobile Telecommunication Networks	3	0	3
EEE F432	Medical Instrumentation	3	0	3
EEE F433	Electromagnetic Fields & Waves	3	0	3
EEE F434	Digital Signal Processing	3	1	4
EEE F435	Digital Image Processing	3	0	3
EEE F436	Electromagnetic Compatibility	3	1	4
EEE F462	Advanced Power Systems	3	0	3

EEE F472 Satellite Communication 3 0 3

EEE F473 Wind Electrical Systems 3 0 3

EEE F474 Antenna Theory and Design 3 1 4

EEE F475 Special Electrical Machines 3 1 4

EEE F476 Switchgear and Protection 3 1 4

EEE F477 Modelling of Field -Effect NanoDevices 3 0 3

EEE F478 Power Systems Laboratory 0 2 2

EEE G512 Embedded System Design 3 1 4

EEE G626 Hardware Software Co - Design 4

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ELECTRONICS AND COMMUNICATION ENGINEERING CORE COURSES L P U

ECE F211 Electrical Machines 3 1 4

ECE F212 Electromagnetic Theory 3 0 3

ECE F214 Electronic Devices 3 0 3

ECE F215 Digital Design 3 1 4

ECE F241 Microprocessors and interfacing 3 1 4

ECE F242 Control Systems 3 0 3

ECE F243 Signals & Systems 3 0 3

ECE F244 Microelectronic Circuits 3 0 3

ECE F311 Communication Systems 3 1 4

ECE F314 Electromagnetic Fields & Microwave Engineering 3 0 3

ECE F341 Analog Electronics 3 1 4

ECE F343 Communication Networks 3 0 3

ECE F344 Information Theory & Coding 3 0 3 Course No Course Title L P U

ECE F434 Digital Signal Processing 3 1 4

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DISCIPLINE ELECTIVE COURSES L P U

BITS F415 Introduction to MEMS 3 1 4

BITS F463 Cryptography 3 0 3

CS F213 Object Oriented
Programming 3 1 4

CS F342 Computer Architecture 3 1 4

CS F372 Operating Systems 3 0 3

CS F451 Combinatorial Mathematics 3 0 3

CS G553 Reconfigurable Computing   5

ECE F216 Electronic Devices
Simulation Laboratory 0 2 2

ECE F312 EM Fields and Microwave
Engineering Laboratory 0 1 1

ECE F414 Telecommunication
Switching Systems &
Networks 3 0 3

ECE F416 Digital Communication 3 0 3

ECE F418 Modern Communication
Technologies 3 0 3

ECE F424 Smart Grid for Sustainable
Energy 3 0 3

ECE F428 Energy Storage Systems 3 0 3

ECE F429 Smart Materials and
Applications 3 1 4

ECE F430 Green Communications
and Networks 3 0 3

ECE F431 Mobile Telecommunication

Networks 3 0 3

ECE F472 Satellite Communication 3 0 3

EEE F245 Control System Laboratory 0 1 1

EEE F246 Electrical and Electronic

Circuits Laboratory 0 2 2

EEE F313 Analog & Digital VLSI

Design 3 0 3

EEE F345 Power Apparatus &

Networks 3 0 3

EEE F346 Data Communication

Networks 2 0 2

EEE F348 FPGA Based System Design

Laboratory 0 2 2

EEE F411 Internet of Things 3 1 4

EEE F417 Computer Based Control

System 3 0 3

EEE F419 Flexible and Stretchable

Electronics 3 1 4

EEE F420 Biomedical Signal

Processing 3 1 4

EEE F422 Modern Control Systems 3 0 3

EEE F426 Fiber Optics and

Optoelectronics 3 0 3 74

EEE F429 Smart Materials and

Applications 3 1 4

EEE F430 Green Communications

and Networks 3 0 3

EEE F432 Medical Instrumentation 3 0 3

EEE F435 Digital Image Processing 3 0 3

EEE F436 Electromagnetic

Compatibility 3 1 4

EEE F474   Antenna Theory and Design 3 1 4

EEE F475 Special Electrical Machines 3 1 4

EEE F476 Switchgear and Protection 3 1 4

EEE F477 Modelling of Field -Effect

Nano Devices 3 0 3

EEE F478 Power Systems Laboratory 0 2 2

EEE G512 Embedded System Design 3 1 4

EEE G626 Hardware Software Co -

Design   4

INSTR

F412 Analysis Instrumentation 3 0 3

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ELECTRONICS AND INSTRUMENTATION ENGINEERING CORE COURSES L P U

INSTR

F211 Electrical Machines 3 1 4

INSTR

F212 Electromagnetic Theory 3 0 3

INSTR

F214 Electronic Devices 3 0 3

INSTR

F215 Digital Design 3 1 4

INSTR

F241 Microprocessors and

interfacing 3 1 4

INSTR

F242 Control Systems 3 0 3

INSTR

F243 Signals & Systems 3 0 3

INSTR

F244 Microelectronic Circuits 3 0 3

INSTR

F311 Electronic Instrumentation

& Instrumentation

Technology 3 1 4

INSTR

F312 Transducers and

Measurement Systems 3 0 3

INSTR

F313 Analog & Digital VLSI

Design 3 0 3

INSTR

F341 Analog Electronics 3 1 4

INSTR

F342 Power Electronics 3 1 4

INSTR

F343 Industrial Instrumentation

& Control 3 0 3 Course No Course Title L P U

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DISCIPLINE ELECTIVE COURSES L P U

BITS F312 Neural Network & Fuzzy

Logic 3 0 3

BITS F415 Introduction To MEMS 3 1 4

CS F213 Object Oriented

Programming 3 1 4

CS F342 Computer Architecture 3 1 4

CS F372 Operating Systems 3 0 3

CS F451 Combinatorial Mathematics 3 0 3

CS G553 Reconfigurable Computing   5

ECE F312 EM Fields and Microwave

Engineering Laboratory 0 1 1

ECE F314 Electromagnetic Fields &

Microwave Engineering 3 0 3

EEE F245 Control System Laboratory 0 1 1

EEE F246 Electrical and Electronic

Circuits Laboratory 0 2 2

EEE F311 Communication Systems 3 1 4

EEE F345 Power Apparatus &

Networks 3 0 3

EEE F346 Data Communication

Networks 2 0 2

EEE F348 FPGA Based System Design

Laboratory 0 2 2

EEE F411 Internet of Things 3 1 4

EEE F417 Computer Based Control

System 3 0 3

EEE F419 Flexible and Stretchable

Electronics 3 1 4

EEE F420 Biomedical Signal

Processing 3 1 4

EEE F422 Modern Control Systems 3 0 3

EEE F426 Fiber optics &

Optoelectronics 3 0 3

EEE F427 Electric Power Utilization

and Illumination 3 0 3

EEE F429 Smart Materials and

Applications 3 1 4

EEE F430 Green Communications

and Networks 3 0 3

EEE F431 Mobile Telecommunication

Networks 3 0 3

EEE F433 Electromagnetic Fields &

Waves 3 0 3

EEE F434 Digital Signal Processing 3 1 4

EEE F435 Digital Image Processing

(check number and

description with BITS

Image Processing) 3 0 3

EEE F436 Electromagnetic

Compatibility 3 1 4

EEE F472 Satellite Communication 3 0 3 75

Course No Course Title L P U

EEE F474   Antenna Theory and Design 3 1 4

EEE F475 Special Electrical Machines 3 1 4

EEE F476 Switchgear and Protection 3 1 4

EEE F477 Modelling of Field -Effect

Nano Devices 3 0 3

EEE F478 Power Systems Laboratory 0 2 2

EEE G512 Embedded System Design 3 1 4

EEE G626 Hardware Software Co -

Design   4

INSTR

F216 Electronic Devices

Simulation Laboratory 0 2 2

INSTR

F413 Advanced Process Control 3 0 3

INSTR

F414 Telecommunication

Switching Systems &

Networks 3 0 3

INSTR

F415 Digital Control 3 0 3

INSTR

F419 Virtual Instrumentation 3 1 4

INSTR

F420 Design of Instrumentation

Systems 3 0 3

INSTR

F422 Instrumentation for

Petrochemical Industry 3 0 3

INSTR

F424 Smart Grid for Sustainable

Energy 3 0 3

INSTR

F428 Energy Storage Systems 3 0 3

INSTR

F429 Smart Materials and

Applications 3 1 4

INSTR

F430 Green Communications

and Networks 3 0 3

INSTR

F432 Medical Instrumentation 3 0 3

INSTR

F473 Wind Electrical Systems 3 0 3

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MANUFACTURING ENGINEERING CORE COURSES L P U

MF F211 Mechanics of Solids 3 0 3

MF F216 Materials Science and

Engineering 2 1 3

MF F217 Machine Drawing 0 2 2

MF F218 Transport Phenomena in

Manufacturing 3 1 4

MF F219 Operations Management 3 0 3

MF F220 Metrology and Quality

Assurance 2 1 3

MF F221 Mechanisms and Machines 3 0 3

MF F222 Casting, Forming and

Welding 3 1 4

MF F314 Design of Machine

Elements 3 0 3 Course No Course Title L P U

MF F315 Automation and Control 3 1 4

MF F316 Machining and Machine

Tools 3 1 4

MF F317 Computer Aided Design

and Manufacturing 2 1 3

MF F318 Non Traditional

Manufacturing Processes 3 0 3

MF F319 Supply Chain Management 3 0 3

MF F320 Engineering Optimization 3 0 3

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DISCIPLINE ELECTIVE COURSES

BITS F415 Introduction To MEMS 3 1 4

ECON

F411 Project Appraisal 3 0 3

ME F321 Data Mining in Mechanical
Sciences 2 1 3

ME F323 Energy Storage
Technologies 3 0 3

ME F340 Introduction to Sports
Engg. 3 0 3

ME F416 Reverse Engineering and
Rapid Prototyping 3 0 3

ME F417 Advanced Metal Forming 3 0 3

ME F419 Total Product Integration
Engineering 3 0 3

ME F424 Energy Management 3 0 3

ME F425 Additive Manufacturing 3 0 3

ME F426 Industry 4.0 in
Manufacturing 3 0 3

ME F428 Smart Materials 3 1 4

ME F432 Computer Aided
Manufacturing 2 1 3

ME F443 Quality Control Assurance
and Reliability 3 0 3

ME F484 Automotive Technology 3 0 3

MF F321 Procurement Management 3 0 3

MF F411 Fluid Power Systems 3 1 4

MF F412 Automotive Systems 3 0 3

MF F413 Mechanical Vibrations and

Acoustics 3 0 3

MF F414 Manufacturing Excellence 3 0 3

MF F418 Lean Manufacturing 3 0 3

MF F422 Supply Chain Modelling

and Empirical Analysis 3 1 4

MF F442 Advances in Materials

Science 3 0 3

MF F453 Industrial Relations 3 0 3

MF F463 Maintenance and Safety 3 0 3

MF F471 Instrumentation and

Control 3 0 3

MF F472 Precision Engineering 3 0 3

MF F473 Product Design and

Development 3 0 3 76

Course No Course Title L P U

MF F474 Product Design and

Development Projects 0 0 3

MF F485 Sustainable Manufacturing 3 0 3

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MECHANICAL ENGINEERING CORE COURSES L P U

ME F211 Mechanics of Solids 3 0 3 ME F212 Fluid Mechanics 3 0 3 ME F216 Materials Science and Engineering 2 1 3 ME F217 Applied Thermodynamics 3 1 4 ME F218 Advanced Mechanics of Solids 2 0 2 ME F219 Manufacturing Processes 3 1 4 ME F220 Heat Transfer 3 1 4 ME F221 Mechanisms and Machines 3 0 3 ME F314 Design of Machine Elements 3 0 3 ME F315 Advanced Manufacturing Processes 2 1 3 ME F316 Manufacturing Management 2 0 2 ME F317 Engines, Motors, and Mobility 2 0 2 ME F318 Computer-Aided Design 1 2 3 ME F319 Vibrations and Control 3 0 3 ME F320 Engineering Optimization 3 0 3 ME F341 Prime Movers & Fluid Machines 2 1 3

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 DISCIPLINE ELECTIVE COURSES AN F311 Principles of Aerodynamics 3 0 3 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 BITS F327 Artificial Intelligence for Robotics 2 1 3 BITS F415 Introduction to MEMS 3 1 4 DE G513 Tribology 3 2 5 DE G514 Fracture Mechanics 3 2 5 DE G531 Product Design 3 2 5 ECE F242 Control Systems 3 0 3 ECON F411 Project Appraisal 3 0 3 EEE F242 Control Systems 3 0 3 INSTR F242 Control Systems 3 0 3 MATH F313 Numerical Analysis 3 0 3 ME F321 Data Mining in Mechanical Sciences 2 1 3 Course No Course Title L P U ME F323 Energy Storage Technologies 3 0 3 ME F340 Introduction to Sports Engineering 3 0 3 ME F411 Fluid Power Systems 3 1 4 ME F413 Nonlinear Vibrations 3 0 3 ME F414 Fuel Cell Science and Technology 3* ME F415 Gas Dynamics 3 0 3 ME F416 Reverse Engineering and Rapid Prototyping 3 0 3 ME F417 Advanced Metal Forming 3 0 3 ME F418 Rocket and Spacecraft Propulsion 3 0 3 ME F419 Total Product Integration Engg. 3 0 3 ME F420 Power Plant Engineering 3 0 3 ME F423 Microfluidics and Applications 4* ME F424 Energy Management 3 0 3 ME F425 Additive Manufacturing 3 0 3 ME F426 Industry 4.0 in Manufacturing 3 0 3 ME F427 Continuum Mechanics 3 1 4 ME F428 Smart Materials 3 1 4 ME F429 Micro-Nanoscale Heat Transport 3 1 4 ME F432 Computer Aided manufacturing 2 1 3 ME F433 Solar Thermal Process Engineering 3 1 4 ME F441 Automotive Vehicles 3 0 3 ME F443 Quality Control, Assurance and Reliability 3 0 3 ME F451 Mechanical Equipment Design 3 0 3 ME F452 Composite Materials & Design 3 0 3 ME F461 Refrigeration and Air conditioning 3 0 3 ME F472 Precision Engineering 3 0 3 ME F482 Combustion 3 0 3 ME F483 Wind Energy 3 0 3 ME F484 Automotive Technology 3 0 3 ME F485 Numerical Techniques for Fluid Flow and Heat Transfer 3 0 3 ME G511 Mechanism and Robotics 3 2 5 ME G512 Finite Element Methods 3 2 5 ME G514 Turbomachinery 3 2 5 ME G515 Computational Fluid Dynamics 3 2 5 77 Course No Course Title L P U ME G533 Conduction and Radiation Heat Transfer 3 2 5 ME G534 Convective Heat and Mass Transfer 3 2 5 MF F311 Mechatronics and Automation 2 1 3 MF F321 Procurement Management 3 0 3 MF F418 Lean Manufacturing 3 0 3 MF F421 Supply chain management 4 MF F422 Supply Chain Modelling and Empirical Analysis 3 1 4 MF F485 Sustainable Manufacturing 3 0 3 MST G522 Advanced Composites 3 2 5

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Other Courses

BIO F231 Biology Project Laboratory 3

BITS

C483 Indian Wisdom for Modern

Management 3 0 3

BITS F211 Introduction to IPR 1

BITS F212 Introduction to Human Rights 1

BITS F213 Introduction to Environmental

studies 1

BITS F215 Applications of Bio -Medical

Instrumentation Techniques in

Healthcare 2 0 2

BITS F217 Environment, Development and

Climate Change 3 0 3

*BITS

F225

Environmental Studies 3 0 3

BITS F311 Image Processing 3 0 3

BITS F319 Negotiation Skills and

Techniques 2 0 2

BITS F320 Managerial Skills 2*

BITS F321 Legal and Economic 4* Environment of Business

BITS F333 Project on Organisational

Aspects 3

BITS F334 Project on Organisational

Aspects 3

BITS F372 Data Communications and

Networks 3 0 3

BITS F381 TIC Projects 3

BITS F382 Reading Course 3

BITS F383 TIC Projects 3

BITS F398 Creative Multimedia 2 2 3

BITS F414   Introduction to Bioinformatics 3 0 3

BITS F416 Introduction to Nanoscience 3 0 3

BITS F417 Micro Fluidics and its

Application 4*

BITS F428 Essentials of Strategic

Management 3 0 3

BITS F431   Flexible Manufacturing Systems 3 2 3

BITS F441 Robotics 3

BITS F442   Remote Sensing and Image

Processing 3

BITS F444 Artificial Intelligence 3

BITS F445 Neural Networks and

Applications 3 0 3

BITS F446 Pattern Recognition 3

BITS F447 Multimedia Computing 3 0 3

BITS F448 Retail Management Systems 3 0 3

BITS F449 Financial Engineering 3 0 3

BITS F461 Software Engineering 3

BITS F462 Renewable Energy 3 0 3

BITS F468 New Venture Creation 3 0 3

BITS F469 Financing Infrastructure

Projects 3 0 3

BITS F488 Services Management Systems 3 0 3

BITS F490 Project Management 4

BITS F493 Business Analysis and

Valuation 3 0 3

BITS F494 Environmental Impact

Assessment 3 1 4

BITS

G516 Introduction to Business

Sustainability 3 0 3

BITS

G517 Cross Cultural Management 3 0 3

MGTS

F351 Organisational Behaviour 3 0 3

MGTS Advertising and Sales 3 0 3 86

F433 Promotion

PHY F221 Modern Physics 3 0 3

PHY F345 Quantum Mechanics for

Engineers 3 0 3

*[Students completing this course will be

awarded a non -letter grade (GOOD or POOR)]

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List of Audit Type Courses

BITS

N101T PHY FITNESS HEALTH & WEL 1*

CHI N101T BEGINNING CHINESE 3 0 3

FRE

N101T BEGINNING FRENCH 3*

FRE

N102T TECHNICAL FRENCH 3 0 3

GER

N101T BEGINNING GERMAN 3 0 3

GER

N102T TECHNICAL GERMAN 3 0 3

HSS

N201T INTRO TO PHOTOGRAPHY 3 0 3

HSS

N202T IND C DANCE

BHARATNATYAM 3 0 3

HSS

N203T Basic Arabic 3 0 3

HSS

N301T ELEMENTS OF DANCE 1 1 2

JAP N101T BEGINNING JAPANESE 3 0 3

MUSIC

N103T INDIAN CLASS MUSIC VOC I 3*

MUSIC

N104T INDIA CLASS MUSIC VOC II 3*

MUSIC WESTERN CLASS MUSIC I 3* N105T

MUSIC

N106T WESTERN CLASS MUSIC II 3*

MUSIC

N111T HIND CLASS MUSIC (INST)I 3*

MUSIC

N112T HIND CLASS MUSIC(INST)II 3*

MUSIC

N113T INDIA CLASS MUSIC(INST)I 3*

MUSIC

N114T INDIA CLASS MUSIC(INST)II 3*

MUSIC

N203T INDIA CLASS MUSIC(VOC)

III 3*

MUSIC

N204T IND CLASS MUSIC(VOC) IV 3*

MUSIC

N205T WESTERN CLASS MUSIC III 3*

MUSIC

N206T WESTERN CLASS MUSIC IV 3*

MUSIC

N213T IND CLASS MUSIC (INST) III 3*

MUSIC

N214T IND CLASS MUSIC(INST)IV 3*

MUSIC

N303T ADV IND MUSIC

PRA(VOCAL) -

MUSIC

N313T ADV IND MUSIC PRA (INST) -

RUS N101T BEGINNING RUSSIAN 3 0 3

RUS N102T TECHNICAL RUSSIAN 3 0 3

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PHARMACY CORE COURSES L P U BITS F219 Process Engineering 2 1 3 PHA F211 Pharmaceutical Analysis 2 1 3 PHA F214 Anatomy, Physiology & Hygiene 2 1 3 PHA F215* Introduction to Molecular Biology and Immunology 3 0 3 PHA F216 Pharmaceutical Formulations I 2 1 3 PHA F217 Pharmaceutical Microbiology 2 1 3 PHA F241 Pharmaceutical Chemistry 2 1 3 PHA F242 Biological Chemistry 2 1 3 PHA F243 Industrial Pharmacy 2 1 3 PHA F244 Physical Pharmacy 2 1 3 PHA F311 Pharmacology I 2 1 3 PHA F312 Medicinal Chemistry I 2 1 3 PHA F313 Instrumental Methods of Analysis 2 1 4 PHA F315 Pharmaceutical Formulations II 2 1 3 PHA F341 Pharmacology II 2 1 3 PHA F342 Medicinal Chemistry II 2 1 3 PHA F343 Forensic Pharmacy 2 - 2 PHA F344 Natural Drugs 2 1 3 * To be offered to B.Pharm. students admitted in 2014 onwards in place of PHA F243

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DISCIPLINE ELECTIVE COURSES L P U BITS F467 Bioethics and Biosafety 3 0 3 MATH F212 Optimization 3 0 3 PHA F316 Pharmaceutical Regulatory Science 3 0 3 PHA F317 Safety Pharmacology and Toxicology 3 0 3 PHA F413 Pharmaceutical Management and Quality 3 0 3 Course No Course Title L P U Control PHA F414 Biopharmaceutics 3 0 3 PHA F415 Pathophysiology 3 0 3 PHA F416 Chemistry of Synthetic Drugs 3 0 3 PHA F417 Pharmacoeconomics 3 0 3 PHA F418 Biopharmaceutics and Pharmacokinetics 3 0 3 PHA F419 Herbal Drug Technology 3 0 3 PHA F422 Cosmetic Science 2 1 3 PHA F432 Hospital Pharmacy 3 0 3 PHA F441 Biochemical Engineering 3 0 3 PHA F442 Applied Pharmaceutical Chemistry 3 0 3 PHA F461 Phytochemistry 2 1 3 PHA G546 Pharmaceutical Biostatistics 3 0 3

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BIOLOGICAL SCIENCES CORE COURSES L P U BIO F211 Biological Chemistry 3 0 3 BIO F212 Microbiology 3 1 4 BIO F213 Cell Biology 3 0 3 BIO F214 Integrated Biology 3 0 3 BIO F215 Biophysics 3 0 3 BIO F241 Ecology & Environmental Science 3 0 3 BIO F242 Introduction to Bioinformatics 3 0 3 BIO F243 Genetics 3 0 3 BIO F244 Instrumental Methods of Analysis 1 3 4 BIO F311 Recombinant DNA

Technology 3 0 3 BIO F312 Plant Physiology 3 0 3 BIO F313 Animal Physiology 3 0 3 BIO F341 Developmental Biology 3 0 3 BIO F342 Immunology 3 0 3

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DISCIPLINE ELECTIVE COURSES L P U BIO F216 Water, Sanitation and Solid Waste Management 3 0 3 BIO F217 Laboratory for Water, Sanitation and Solid waste Management 1 2 3 BIO F231 Biology Project Laboratory 3 BIO F314 Conservation Biology 2 1 3 BIO F315 Applied Nutrition and Nutraceuticals 2 0 2 BIO F352 Cell and Tissue Culture Technology 3 1 4 BIO F411 Laboratory 0 3 3 BIO F413 Molecular Biology of Cell 3 0 3 78 Course No Course Title L P U BIO F417 Biomolecular Modelling 3 0 3 BIO F418 Genetic Engineering Techniques 1 3 4 BIO F419 Molecular Evolution 3 0 3 BIO F421 Enzymology 3 0 3 BIO F431 Reproductive Physiology 3 0 3 BIO F441 Biochemical Engineering 3 0 3 BIO F451 Bioprocess Technology 3 0 3 BIO G512 Molecular Mechanism of Gene Expression 3 2 5 BIO G513 Microbial and Fermentation Technology 3 2 5 BIO G515 Stem Cell and Regenerative Biology 3 1 4 BIO G522 Interferon Technology 3 1 4 BIO G523 Advanced and Applied Microbiology 3 2 5 BIO G524 Animal Cell Technology 3 2 5 BIO G525 Environmental Biotechnology & Waste Mgnt 3 2 5 BIO G526 Cancer Biology 3 2 5 BIO G544 Bioremediation and biometallurgy 5 0 5 BIO G545 Molecular Parasitology and Vector Biology 5 BIO G561 Advances in Recombinant DNA Technology 3 2 5 BIO G570 Recent Developments in Biology 1 0 1 BIO G612 Human Genetics 3 2 5 BIO G631 Membrane and Liposome Technology 3 1 4 BIO G632 Transgenic Technology 3 2 5 BIO G642 Experimental Techniques 4 4 BIO G643 Plant Biotechnology 3 2 5 BIO G651 Protein and Enzyme Bioengineering 3 2 5 BIO G661 Gene Toxicology 3 1 4 BIO G671 Bioconversion Technology 3 2 5 BIOT F345 Proteomics 3 0 3 BIOT F346 Genomics 3 0 3 BIOT F347 Immunotechnology 3 0 3 BIOT F416 Introduction to Pharmaceutical Biotechnology 3 0 3 BIOT F422 Nanobiotechnology 3 0 3 BIOT F424 Food Biotechnology 3 0 3 BITS F418 Introduction to Biomedical Engineering 3 1 4 BITS F467 Bioethics and Biosafety 3 0 3 CHEM Organic Chemistry I 3 0 3 Course No Course Title L P U F212 CHEM F213 Physical Chemistry II 3 0 3 MATH F212 Optimization 3 0 3

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CHEMISTRY CORE COURSES L P U CHEM F211 Physical Chemistry I 3 0 3 CHEM F212 Organic Chemistry I 3 0 3 CHEM F213 Physical Chemistry II 3 0 3 CHEM F214 Inorganic Chemistry I 3 0 3 CHEM F241 Inorganic Chemistry II 3 0 3 CHEM F242 Chemical Experimentation I 0 3 3 CHEM F243 Organic Chemistry II 3 0 3 CHEM F244 Physical Chemistry III 3 0 3 CHEM F311 Organic Chemistry III 3 0 3 CHEM F312 Physical Chemistry IV 3 0 3 CHEM F313 Instrumental Methods of Analysis 3 1 4 CHEM F341 Chemical Experimentation II 0 4 4 CHEM F342 Organic Chemistry IV 3 0 3 CHEM F343 Inorganic Chemistry III 3 0 3 PHY F212 Electromagnetic Theory I 3 0 3

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DISCIPLINE ELECTIVE COURSES L P U CHEM F223 Colloid and Surface Chemistry 3 0 3 CHEM F320 Introductory Computational Chemistry Laboratory 0 4 2 CHEM F323 Biophysical Chemistry 3 0 3 CHEM F324 Numerical Methods in Chemistry 3 3 4 CHEM F325 Polymer Chemistry 3 0 3 CHEM F326 Solid State Chemistry 3 0 3 CHEM F327 Electrochemistry: Fundamentals and Applications 3 0 3 CHEM Supramolecular Chemistry 3 0 3 79 Course No Course Title L P U F328 CHEM F329 Analytical Chemistry 3 1 4 CHEM F330 Photophysical Chemistry 3 1 4 CHEM F333 Chemistry of Materials 3 0 3 CHEM F334 Magnetic Resonance 3 0 3 CHEM F335 Organic Chemistry and Drug Design 3 0 3 CHEM F336 Nanochemistry 3 1 4 CHEM F337 Green Chemistry and Catalysis 3 0 3 CHEM F412 Photochemistry and Laser Spectroscopy 3 0 3 CHEM F413 Electron Correlation In Atoms And Molecules 3 1 4 CHEM F414 Bio and Chemical Sensors 3 0 3 CHEM F415 Frontiers in Organic Synthesis 3 0 3 CHEM F422 Statistical Thermodynamics 3 0 3 CHEM F423 Astrochemistry 3 0 3 CHEM F430 Atmospheric Chemistry 3 0 3 CHEM F431 Sustainable Chemistry using Renewables 3 0 3 CHEM G521 Environmental Chemistry 5

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ECONOMICS CORE COURSES L P U ECON F211 Principles of Economics 3 0 3 ECON F212 Fundamentals of Finance and Accounts 3 0 3 ECON F213 Mathematical and Statistical Methods 3 0 3 ECON F214 Economic Environment of Business 3 0 3 ECON F241 Econometric Methods 3 0 3 ECON F242 Microeconomics 3 0 3 ECON F243 Macroeconomics 3 0 3 ECON F244 Economics of Growth and Development 3 0 3 ECON F311 International Economics 3 0 3 Course No Course Title L P U ECON F312 Money, Banking and Financial Markets 3 0 3 ECON F313 Issues in Economic Development 3 0 3 ECON F341 Public Finance Theory and Policy 3 0 3 ECON F342 Applied Econometrics 3 0 3 ECON F343 Economic Analysis of Public Policy 3 0 3

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DISCIPLINE ELECTIVE COURSES L P U ECON F215 Computational Methods for Economics 3 0 3 BITS F314 Game Theory and It's Applications 3 0 3 ECON F315 Financial Management 3 0 3 ECON F314 Industrial Economics 3 0 3 ECON F345 Behavioral Economics 3 0 3 ECON F351 Indian Economic Development 3 0 3 ECON F352 Management of Banks and Financial Institutions 3 0 3 ECON F353 Energy Economics and Policy 3 0 3 ECON F354 Derivatives and Risk Management 3 0 3 ECON F355 Business Analysis and Valuation 3 0 3 ECON F356 Strategic Financial Management 3 0 3 ECON F357 Management Control System 3 0 3 ECON F411 Project Appraisal 3 0 3 ECON F412 Security Analysis and Portfolio Management 3 0 3 ECON F413 Financial Engineering 3 0 3 ECON F414 Creating and Leading Entrepreneurial Organizations 3 0 3 ECON F415 New Venture Creation 3 0 3 ECON F417 Risk Management and Insurance 3 0 3 ECON F418 Quantitative Analysis of International Trade 3 0 3 ECON F419 Advanced Microeconomics 3 0 3

ECON Applied Macroeconometrics 3 0 3 80 Course No Course Title L P U F420 ECON F422 Functions and Working of Stock Exchanges 3 0 3 ECON F434 International Business 3 0 3 ECON F435 Marketing Research 3 0 3 ECON F471 Resources and Environmental Economics 3 0 3 FIN F314 Investment Banking and Financial Services 3 0 3 FIN F414 Financial Risk Analytics and Management 3 0 3 MATH F212 Optimization 3 0 3 MATH F242 Operations Research 3 0 3 MATH F424 Applied Stochastic Process 3 1 4

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MATHEMATICS CORE COURSES L P U MATH F212 Optimization 3 0 3 MATH F213 Discrete Mathematics 3 0 3 MATH F214 Elementary Real Analysis 3 0 3 MATH F215 Algebra I 3 0 3 MATH F241 Mathematical Methods 3 0 3 MATH F242 Operations Research 3 0 3 MATH F243 Graphs and Networks 3 0 3 MATH F244 Measure & Integration 3 0 3 MATH F311 Introduction to Topology 3 0 3 MATH F312 Ordinary Differential Equations 3 0 3 MATH F313 Numerical Analysis 3 0 3 MATH F341 Introduction to Functional Analysis 3 0 3 MATH F342 Differential Geometry 3 0 3 MATH F343 Partial Differential Equations 3 0 3 DISCIPLINE ELECTIVE COURSES L P U BITS F314 Game Theory and Its Applications 3 0 3 BITS F343 Fuzzy Logic and 3 0 3 Course No Course Title L P U Applications BITS F463 Cryptography 3 0 3 CS F211 Data Structures and Algorithms 3 1 4 CS F364 Design and Analysis of Algorithms 3 0 3 MATH F231 Number Theory 3 0 3 MATH F314 Algebra II 3 0 3 MATH F353 Statistical Inference and Applications 3 0 3 MATH F354 Complex Analysis 3 0 3 MATH F378 Advanced Probability Theory 3 0 3 MATH F420 Mathematical Modeling 3 0 4 MATH F421 Combinatorial Mathematics 3 0 3 MATH F422 Numerical Methodology for Partial Differential Equations 3 1 4 MATH F423 Introduction to Algebraic Topology 3 0 3 MATH F424 Applied Stochastic Process 3 1 4 MATH F425 Numerical Linear Algebra 3 1 4 MATH F426 Mathematical Theory of Finite Element Methods 3 1 4 MATH F431 Distribution Theory 3 0 3 MATH F432 Applied Statistical Methods 3 0 3 MATH F441 Discrete Mathematical Structures 3 0 3 MATH F444 Numerical Solutions of Ordinary Differential Equations 3 0 3 MATH F445 Mathematical Fluid Dynamics 3 0 3 MATH F456 Cosmology 3 0 3 MATH F471 Nonlinear Optimization 3 0 3 MATH F481 Commutative Algebra 3 0 3 MATH F492 Wavelet analysis and applications 3 1 4

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PHYSICS CORE COURSES L P U PHY F211 Classical Mechanics 3 1 4 81 Course No Course Title L P U PHY F212 Electromagnetic Theory I 3 0 3 PHY F213 Optics 3 0 3 PHY F214 Electricity, Magnetism & Optics Laboratory 0 2 2 PHY F241 Electromagnetic Theory II 3 1 4 PHY F242 Quantum Mechanics I 3 0 3 PHY F243 Mathematical Methods of Physics 3 0 3 PHY F244 Modern Physics Laboratory 0 2 2 PHY F311 Quantum Mechanics II 3 0 3 PHY F312 Statistical Mechanics 3 0 3 PHY F313 Computational Physics 3 0 3 PHY F341 Solid State Physics 3 0 3 PHY F342

Atomic & Molecular Physics 3 0 3 PHY F343 Nuclear & Particle Physics 3 0 3 PHY F344 Advanced Physics Laboratory 0 3 3

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DISCIPLINE ELECTIVE COURSES L P U BIO F215 Biophysics 3 0 3 BITS F316 Nonlinear Dynamics and Chaos 3 0 3 BITS F317 Theoretical Neuroscience 3 0 3 PHY F346 Laser Science and Technology 3 0 3 BITS F386 Quantum Information and Computation 3 0 3 BITS F416 Introduction to Nanoscience 3 0 3 BITS F417 Microfluidics & its Applications 4 BITS F446 Pattern Recognition 3 EEE F426 Fibre Optics & Optoelectronics 3 0 3 MATH F424 Applied Stochastic Processess 3 1 4 MATH F456 Cosmology 3 0 3 PHY F215 Introduction to Astronomy & Astrophysics 3 0 3 PHY F315 Theory of Relativity 3 0 3 PHY F316 Musical Acoustics 3 0 3 PHY F317 Introduction to Radio Astronomy 3 0 3 PHY F378 Plasma Physics and its Applications 3 0 3 PHY F379 Thin Film Technology 3 0 3 PHY F412 Introduction To Quantum Field Theory 3 1 4 PHY F413 Particle Physics 3 1 4 PHY F414 Physics of Advanced Materials 3 1 4 Course No Course Title L P U PHY F415 General Theory of Relativity and Cosmology 3 1 4 PHY F416 Soft Condensed Matter Physics 3 1 4 PHY F417 Experimental Methods of Physics 3 1 4 PHY F418 Lasers and Applications 3 1 4 PHY F419 Advanced Solid State Physics 3 1 4 PHY F420 Quantum Optics 3 1 4 PHY F421 Advanced Quantum Mechanics 3 1 4 PHY F422 Group Theory and Applications 3 1 4 PHY F423 Special Topics in Statistical Mechanics 3 1 4 PHY F424 Advanced Electrodynamics 3 1 4 PHY F425 Advanced Mathematical Methods of Physics 3 1 4 PHY F426 Physics of Semiconductor Devices 3 1 4 PHY F427 Atmospheric Physics 3 0 3 PHY F428 Quantum Information Theory 3 0 3 PHY F431 Geometrical Methods in Physics 3 0 3 PHY F432 Classical Theory of Fields: A Symmetry Perspective 4* PHY F433 Topics in Nonlinear Optics 3 0 3 PHY G512 Advanced Quantum Field Theory 3 0 3

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GENERAL STUDIES – COMMUNICATION AND MEDIA STUDIES STREAM CORE COURSES L P U 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 Advertising 2 1 3 GS F241 Creative Writing 2 1 3 GS F243 Current Affairs 3 0 3 GS F244 Reporting and Writing for Media 3 0 3 GS F245 Effective Public Speaking 2 1 3 GS F321 Mass Media Content and Design 2 1 3 GS F322 Critical Analysis of Literature and Cinema 3 0 3 GS F342 Computer Mediated Communication 3 0 3 GS F343 Short Film and Video 2 1 3 82 Course No Course Title L P U Production

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DISCIPLINE ELECTIVE COURSES L P U BITS F385 Introduction to Gender Studies 3 0 3 GS F211 Modern Political Concepts 3 0 3 GS F212 Environment, Development & Climate Change 3 0 3 GS F231 Dynamics of Social Change 3 0 3 GS F232

Introductory Psychology 3 0 3 GS F242 Cultural Studies 3 0 3 GS F311 Introduction to Conflict Management 3 0 3 GS F325 Journalism 3 0 3 GS F326 Creative Thinking 2 1 3 GS F327 Selected Reading 3 0 3 GS F333 Public Administration 3 0 3 GS F334 Global Business Technology & Knowledge Sharing 3 0 3 GS F344 Copywriting 2 0 2 HSS F227 Cross Cultural Skills 3 0 3 HSS F232 Introduction to Development Studies 3 0 3 HSS F315 Society, Business, and Politics 3 0 3 HSS F317 Introduction to Globalization 3 0 3 HSS F319 Lighting for Theatre and Films 2 HSS F323 Organizational Psychology 3 0 3 HSS F328 Human Resource Development 3 0 3 HSS F341 Performance Design 1 2 3 HSS F343 Professional Ethics 3 0 3 HSS F346 International Relations 3 0 3

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GENERAL STUDIES – DEVELOPMENT STUDIES STREAM CORE COURSES L P U ECON F211 Principles of Economics 3 0 3 GS F211 Modern Political Concepts 3 0 3 GS F212 Environment, Development & Climate Change 3 0 3 GS F213 Development Theories 3 0 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 F311 Introduction to Conflict Management 3 0 3 GS F312 Applied Philosophy 3 0 3 GS F331 Techniques in Social 3 0 3 Course No Course Title L P U Research GS F332 Contemporary India 3 0 3 GS F333 Public Administration 3 0 3 GS F334 Global Business Technology & Knowledge Sharing 3 0 3 DISCIPLINE ELECTIVE COURSES L P U BITS F214 Science, Technology and Modernity 3 0 3 BITS F385 Introduction to Gender Studies 3 0 3 BITS F399 Humanistic Theories of Science and Technology 3 0 3 GS F212 Environment, Development and Climate Change 3 0 3 GS F213 Development Theories 3 0 3 HSS F233 Main Trends in Indian History 3 0 3

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DISCIPLINE ELECTIVE COURSES L P U HSS F234 Main Currents of Modern History 3 0 3 HSS F235 Introductory Philosophy 3 0 3 HSS F236 Symbolic Logic 3 0 3 HSS F312 Bureaucracy 3 0 3 HSS F315 Society, Business, and Politics 3 0 3 HSS F343 Professional Ethics 3 0 3 HSS F344 Heritage of India 3 0 3 HSS F345 Gandhian Thoughts 3 0 3 HSS F346 International Relations 3 0 3

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Project Type Courses In addition to discipline electives mentioned above, the following project type courses are also being offered by the departments for each of their respective programmes. These courses may be taken by the students to meet the discipline elective requirements. XXX F266 Study Project 3 XXX F366 Laboratory Project 3 XXX F367 Laboratory Project 3 XXX F376 Design Project 3 XXX F377 Design Project 3 XXX F491 Special Project 3 where XXX indicates the Degree programme. For example, CHE F266 Study Project is intended for a student of B.E. Chemical Engineering. 83 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 84 Course No. Course Title L P U HSS F226 Postmodernism 3 0 3 HSS F227 Cross Cultural Skills 3 0 3 HSS F228 Phonetics & Spoken English 3 0 3 HSS F229 Introduction to Western Music 3 0 3 HSS F232 Introduction to Development Studies 3 0 3 HSS F233 Main Trends in Indian History 3 0 3 HSS F234 Main Currents of Modern History 3 0 3 HSS F235 Introductory Philosophy 3 0 3 HSS F236 Symbolic Logic 3 0 3 HSS F237 Contemporary Indian English Fiction 3 0 3 HSS F238 Sports and Society 3 0 3 HSS F244 Crime and New Media 3 0 3 HSS F245 Gender, Science and Technology 3 0 3 HSS F246 Philosophy of Nāgārjuna 3 0 3 HSS F247 Social Informatics 3 0 3 HSS F248 Introduction to Disability Studies 3 0 3 HSS F249 Politics in India 3 0 3 HSS

F250 Comics and Visual Culture 3 0 3 HSS F251 Introduction to Discourse and Conversational Analysis 2 1 3 HSS F252 International Law 3 0 3 HSS F266 Study Project 3 HSS F311 Introduction to Videogame Studies 3 0 3 HSS F313 Introduction to Contemporary Arts 3 0 3 HSS F315 Society, Business, and Politics 3 0 3 HSS F316 Popular Literature and Culture of South Asia 3 0 3 HSS F317 Introduction to Globalization 3 0 3 HSS F318 Introduction to Anthropology 3 0 3 HSS F319 Lighting for Theatre and Films 2* HSS F323 Organizational Psychology 3 0 3 HSS F325 Cinematic Adaptation 3 0 3 Course No. Course Title L P U HSS F326 Humanities and Design 2 1 3 HSS F327 Contemporary Drama 3 0 3 HSS F328 Human Resource Development 3 0 3 HSS F329 Musicology – An – Introduction 3 0 3 HSS F330 Appreciation of Art 3 0 3 HSS F331 Sankara's Thoughts 3 0 3 HSS F332 Cinematic Art 3* HSS F333 Comparative Religion 3 0 3 HSS F334 Srimad Bhagavad Gita 3 0 3 HSS F335 Literary Criticism 3 0 3 HSS F336 Modern Fiction 3 0 3 HSS F337 English Literary Forms and Movements 3 0 3 HSS F338 Comparative Indian Literature 3 0 3 HSS F339 Theatre Art Acting and Production 3 0 3 HSS F340 Post Colonial Literatures 3 0 3 HSS F341 Performance Design 1 2 3 HSS F342 Advanced Communicative English 3 0 3 HSS F343 Professional Ethics 3 0 3 HSS F344 Heritage of India 3 0 3 HSS F345 Gandhian Thoughts 3 0 3 HSS F346 International Relations 3 0 3 HSS F347 Introduction to Carnatic Music 3 0 3 HSS F348 Introduction to Hindustani Music 3 0 3 HSS F349 Ecocriticism 3 0 3 HSS F350 Human Rights: History, Theory & Practice 3 0 3 HSS F351 Social and Political Ecology 3 0 3 HSS F352 Technology, Work and Society 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 3 0 3 85 Course No. Course Title L P U Protest Politics HSS F364 Political Economy of Gulf Cooperation Council States 3 0 3 HSS F365 Science of Sustainable Happiness 3 0 3 HSS F368 Asian Cinemas and Cultures 3 0 3 HSS F369 Caste and Gender in India 3 0 3 HSS F371 Cities-Life, Issues and Conflicts 3 0 3 HSS F372 Introduction to Social Psychology 3 0 3 HSS F373 Shakespeare and Popular Culture 3 0 3 HSS F374 Urban Modernity and the Renewal of Paris 3 0 3 HSS F375 Business and Politics in Colonial and Post Colonial India: a historical approach 3 0 3 HSS F399 Introduction to American Literature 3 0 3 SANS F111 Sanskrit 3 0 3 It may be noted that a student cannot count a course (or its equivalent) of his/her own discipline (s) as a humanities elective even if it is listed in this pool of humanities electives.

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