

## Annexure-A

### The Courses under various Baskets (May be Revision by Consortium)

<b>Business Administration</b>
Basics of Management Information Systems
Business Accounting
Business Entrepreneurship
Organizational Behaviour
Business Mathematics
Principles of Microeconomics
Management Essentials
Business Statistics
Fundamentals of Marketing
Management Accounting
Human Resource Management
Corporate Governance and Ethics
Integrated Disaster Management
Business Laws
Research Methodology
Industrial Relations
Managerial Competencies and Career Development
Introduction to Digital Marketing
Fundamentals of Services Marketing
Consumer Behaviour and Insights
Banking Operations
Post Liberalization Indian Economy
Export Import Management
Corporate Accounting
Financial Services
Financial Management
Business and Environmental Management
Introduction to Sustainable Development

Global Environmental Challenges
Social Entrepreneurship
Technological Entrepreneurship
Creativity and Innovation
Operations Research
Workforce Planning
Fundamentals of Brand Management
International Economics: Theory and Practice
Company Law
Renewable Energy Sources
Business Modelling and Business Plan
Emotional Intelligence for Personal Growth
Fundamentals of HR Analytics
Industrial Laws
Fundamentals of Rural Marketing
Fundamentals of B2B Marketing
Sales and Distribution Management
India's Foreign Trade
International Business Laws
Dimensions of International Business
Special Topics in Accounts
Environmental Pollution
Spatial Monitoring Techniques in Natural Resource Management
Environment Impact Assessment
MSME and Family Managed Business
Group Entrepreneurship and Self-Help Groups
Funding for Entrepreneurs
Fundamentals of Quality Management
Global Business Environment
Compensation Management
HRD Instruments and Mechanisms
Performance Management System

Fundamentals of Market Research
Advertising and Public Relations
Elementary Retail Marketing
Public Finance: Theory and Practice
Basics of International Marketing
International Relations and Strategy
Working Capital Management
Direct Taxation
Financial Reporting and Standards
Climate Change and Business
Wild Life Conservation and Management
Environmental Risk Management
Risk Management in Entrepreneurship
Corporate Entrepreneurship
Building Lean Startup
Strategic Management
Business Continuity Plan & DRP
International Business Management
Data Mining & Warehousing
Advertising and Social Media Strategy
Digital Marketing
Marketing of Services
Retail Management
International Marketing
Industrial Marketing
Business Marketing and Key Account Management
Consumer Behavior
Project Appraisal and Structured Finance
Security Analysis and Portfolio Management
Strategic Cost Management
Financial Engineering

International Financial Management
Merger, Acquisition and Corporate Re-structuring
Financial Econometrics
Purchasing and Supply Management
Technology Management
Logistics and Supply Chain Management
Service Operations Management
Systems Reliability, Safety and Maintenance Management
Project Management
Knowledge Management
Total Quality Management
Emotional Intelligence and Leadership
Employer Brand Building
Strategic HRM
Creativity and Innovation
Training and Development
Search Engine Optimization
Risk Vulnerability and Physical Assessment
Fundamentals of Information Security
Expert System Design and Applications
System Analysis and Design and Software Engineering
Cloud Computing
Business Intelligence
Lab Module-1
Lab Module-2
Lab Module-3
Lab Module-4
Lab Module-5
Lab Module-6
Lab Module-7
Lab Module-8
Lab Module-9

Lab Module-10
Thesis Module-1
Thesis Module-2
Thesis Module-3
Thesis Module-4
Thesis Module-5
Thesis Module-6
Thesis Module-7
Thesis Module-8
PhD Research

<b>Electronics and Communications</b>
Fundamentals of Electrical & Electronics Engg.
Digital System Design
Electronic Devices and Circuits
Electromagnetic Field and Waves
Analog Communication
Analog Electronics
3 Electrical Engineering
Electronics Measurement and Instrumentation
Micro Processor Interface and Programming
Probability and Statistics
Discrete Time Signals and Systems
Discrete Time Signals and Systems
Control Systems
Digital IC Design
Integrated Circuit Technology
Antenna and Wave Propagation
Operating Systems
Digital Communication
Computer Networks

Embedded System Design
Microwave Engineering
SMT Workshop
Power Electronics
Digital Signal Processing
Optical Communication
Principles of Wireless Communication
Detection and Estimation Theory
Detection and Estimation Theory
Cooperative Cognitive Communication
Wireless Sensor Networks
Security and Authentication in Wireless Networks
Wireless Power Transfer Techniques
MIMO Radar Systems
Digital Signal Processing Applications in Wireless Networks
Advanced Information Theory
Advanced Error Control Coding
Data Encryption Techniques
Statistical Digital Signal Processing and Modeling
Data Compression Techniques
Advance Embedded System
FPGA based system design
Embedded System for Wireless Communication
Embedded System Testing
Control of Embedded System
FPGA Architecture & Application
EDA
Solid State Devices
VLSI Signal Processing
MEMS Technology
Hardware Design Methodology
Testing and Verification
Analog VLSI Design

Low Power Design
MEMS
Quantum Mechanics
VLSI Design and Automation
Advanced Antenna Design and Measurements
Semiconductor Optoelectronics
High Speed Devices
Thin Film Science and Technology
Monolithic Microwave Integrated Circuits
Analytical and Computational techniques in EM's
RF & IC Design
Advanced Lithography
Physics of nano Materials
Fundamentals of Nanoscale Devices
Quantum Electronics
Advanced Engineering Mathematics
Materials for Energy Harvesting
Modern Control Systems
Non-Conventional energy Sources
Sensors and Sensor Networks
Advanced Medical Instrumentation
Robust Control System
Embedded Control System
Networked Control System
Intelligent Control System
Digital Control System
Advanced Electromagnetics
Advanced Antenna Design and Measurements
Microwave Circuits
Tools for Microwave Measurement and Design
Smart Antennas
Principles of Microwave Remote Sensing for Environmental Applications
Modern Trends in Microwave Engineering

Optical Electronics
Optical Communication systems
Guided Optical Component and Devices
Optical Networks
Photonics Sensors
CMOS photonics
Lab Module-1
Lab Module-2
Lab Module-3
Lab Module-4
Lab Module-5
Lab Module-6
Lab Module-7
Lab Module-8
Lab Module-9
Lab Module-10
Thesis Module-1
Thesis Module-2
Thesis Module-3
Thesis Module-4
Thesis Module-5
Thesis Module-6
Thesis Module-7
Thesis Module-8
PhD Research

<b>Information Technology</b>
Introduction to Programming
Computer Organization and Architecture
Data Structures
Principles of Communication Engineering
Probability & Statistics



Theory of computation
Object Oriented Methodologies
Operating System
Design and Analysis of Algorithms
Principles of Programming Languages
Computer Networks
Software Engineering
Database Management System
Network Security
Graphics and Visual Computing
Introduction to Machine Learning
Image and Video Processing
Artificial Intelligence
Data mining
Convex Optimization
Pattern Recognition
Probabilistic Machine Learning and Graphical Models
Information Retrieval
Advanced data analytics
Natural Language Processing
Deep Learning
Computer Vision
Visual Recognition
Computational Astrophysics
Biometrics
Pattern Recognition
Data Compression
Document Image Analysis
Remote Sensing and GIS
Software Requirements and Engineering
Software Metrics
Software Process Management
Software Testing and Quality Management

Agile Software Development Engineering
Software Design and Architecture
Software Design and Architecture
Software Security
Virtual Reality
Advanced Graphics & Animation
Principles of Interaction Design
Robotics and Industrial Automation
Robot Motion Planning
Virtual Reality
Cryptography
Principles of Cyber Security
Introduction to Information Security Management
Database Security
Blockchain and Cryptocurrency
Intrusion Detection System
Computer Forensics
Wireless Sensor Network
Wireless Network Protocols
Mobile Computing
Internet Protocol
Network Operating System
Mobile Data Management
Introduction to Information Security Management
Cognition and Cognitive Processes Modeling
Probabilistic Machine Learning and Graphical Models
Advanced data analytics
Parallel Computing
Compiler Design
Real Time Operating Systems
Cyber Physical Systems
Introduction to Network Science
Distributed Systems

Formal verification and application
Lab Module-1
Lab Module-2
Lab Module-3
Lab Module-4
Lab Module-5
Lab Module-6
Lab Module-7
Lab Module-8
Lab Module-9
Lab Module-10
Thesis Module-1
Thesis Module-2
Thesis Module-3
Thesis Module-4
Thesis Module-5
Thesis Module-6
Thesis Module-7
Thesis Module-8
PhD Research

<b>Mathematics</b>
Mathematics I
Mathematics II
Probability and Statistics
Complex Analysis
Introduction to Partial Differential Equations
Linear Algebra
Set Theory and Discrete Mathematics
Abstract Algebra
Introduction to Fourier series

An Introduction to Number Theory
Analysis-I
Set Theory and Mathematical Logic
Topology
Several variable calculus and differential geometry
Numerical Analysis and Scientific Computing-I
Probability Theory
Complex Analysis
Theory of Computation
Analysis-II
Functional Analysis
Applied Stochastic Process
Matrix Theory and Linear Estimation
Regression Analysis
Sampling Theory
Inference I
Ordinary Differential Equations
Partial Differential Equations
Distributions in Statistics
An Introduction to Mathematical Modeling
Mathematical Methods
Numerical Analysis and Scientific Computing-II
Basic Probability and Distribution Theory
Real Analysis
Complex Analysis
Statistical Simulation and Data Analysis
Analysis of Variance
Multivariate Analysis
Inference II
Non-Parametric Inference

Time Series Analysis
Numerical Linear Algebra
Finite Element Method
Fluid Mechanics
Algorithms
Statistical and AI Techniques in Data Mining
Mathematical Modelling
Biomathematics
Fields and Galois Theory
An Introduction to Commutative Algebra
Rings and Modules
Introduction to Stochastic Calculus
Measure theory
Fourier Analysis
Differential Manifolds and Lie Groups
Applied Harmonic Analysis
Topics in Topology
Approximation theory
Spectral Theory for Self-Adjoint Operators
Introduction to Hyperbolic Geometry
Introduction to Operator Theory
Topics in Operator Theory and Harmonic Analysis
Abstract Harmonic analysis
Locally Convex Spaces
Several Complex Variable
Introduction to Lie Algebras and Representation Theory
Complex Function Theory
Differential Geometry
Algebraic topology I
Advanced Calculus

Integral Equations
Sobolev Spaces and its Applications
Graphs and Matrices
Nonlinear Dynamical Systems
Nonlinear Analysis and its Application to PDEs
Chevalley Groups and Algebraic groups
Analytical Techniques for PDEs
Introduction to Arithmetic Geometry
Harmonic Analysis on Poincare Disc
Robust Statistical Methods
Variational Methods in PDE
Geometry of Differentiable Forms
Econometrics
Spatio-temporal Models in Mathematical Biology
Statistical Decision Theory
Order Statistics
Statistical Simulation, Data Analysis and Model Building
Time Series Analysis: Forecasting and Control
Nonlinear Regression
Topics in Arithmetic
Probabilistic Theory of Pattern
Empirical Processes
Modal logic
Wavelet Methods for Elliptic Partial Differential Equations (EPDEs)
Markov chain Monte Carlo
Numerical analysis and scientific computing
A first course in algebraic number theory
Fredholm theory
Introduction to Geometric Analysis
Introduction to Homogenization

Numerical Solution of Integral Equations
Project-1
Project-2
Project-3
Project-4
Project-5
Project-6
Project-7
Project-8
Project-9
Project-10
Project-11
Project-12
PhD Research

<b>Physics</b>
Review of Classical Physics I
Review of Classical Physics II
Review of Quantum Physics I
Review of Quantum Physics II
Optics
Quantum Physics
Thermal Physics
Classical Mechanics
Statistical Mechanics
Mathematical Methods I
Mathematical Methods II
Quantum Mechanics I
Quantum Mechanics II
Intro to Atomic & Nucl Physics
Classical Electrodynamics I

Classical Electrodynamics II
Energy
Principles of Lasers and Their Applications
Introduction to Atmospheric Science
Physics of The Universe
Order and Chaos
Modern Optics
Modern Theories of Material Design
Introductory Biophysics
Physics of Bio-Materials: Structure and Dynamics
Physics of Non-Equilibrium Phenomena
Quantum Processes in Low Dimensional Semiconductors
Physics of Information Processing
Natural Nano-Machines
Modern Physics Laboratory
Nonlinear Systems
Advanced Quantum Mechanics
Introductory Group Theory & Its Application to Quantum Mechanics
Advanced Statistical Mechanics
Special Topics in Quantum Mechanics
Non-Equilibrium Statistical Mechanics
Physics of Natural Nanomachines
Statistical Physics of Biomolecules and Cells
Condensed Matter Physics II
Electronic Structure of Materials
Magnetism in Materials
Computational Methods for Physical Sciences
Computer Simulations in Physics
Topics in Semiconductor Physics
Physics and Technology of Thin Films
Disordered Systems
Physics of Semiconductor Nanostructures
Low Temperature Physics



Nuclear Techniques in Solid State Studies
Elements of Bio-And Medical Physics
Condensed Matter Phenomena in Low-Dimensional Systems
Lasers and Laser Spectra
Quantum Electronics
Coherent Optics
Electronics
Nuclear Physics
Quarks, Nucleons and Nuclei
General Relativity and Cosmology
Atmospheric Science
Particle Physics
Quantum Field Theory
Special Topics in Physics
Measurement Techniques
Digital Electronics for Scientists
Mean Field Theories in Random Alloys
Advanced Low Temperature Physics
High Energy Physics II
Lab Module-1
Lab Module-2
Lab Module-3
Lab Module-4
Lab Module-5
Lab Module-6
Lab Module-7
Lab Module-8
Lab Module-9
Lab Module-10
Project-1
Project-2
Project-3
Project-4

Project-5
Project-6
Project-7
Project-8
Project-9
Project-10
Project-11
Project-12
PhD Research

<b>Multidisciplinary Subjects</b>
Spirituality
Ethics
Gandhian Theory
Sanskrit
German
English
Yoga
Swimming
Cricket
Athletics
Basketball
Football
Hockey
Tennis
Table Tennis
Weight Training
Badminton
Kabbadi

KhoKho
Exercise and Body Fitness
Judo
History
Psychology
Communication Studies
Philosophy
Archaeology
Sociology
Religious Studies
Political Science
History of Indian Art
Clay Modeling
Portrait Painting
Indian Aesthetics
History of Western Art
Contemporary Indian Art
Techniques and Technology of Fine Arts
Art Criticism
History of Indian Sculpture
Indian Pre-Modern and Modern Art
Western Paintings and Sculpture
Art management and Marketing
Music and Aesthetics
Geometry and Perspective
Printmaking
Mold Making and Casting
Pictorial Composition
Graphic Tools
Art Gallery Management

Print Making in Mix Media
Composition Painting
Creative Writing
Conversational Skills
Architectural Drawing
3 D Design
Theory of Music
Dance Aesthetics
Folk Dance and Folk Drama
Musical Instruments and Folk Music
History of Folk Music, Dance, and Drama
History of India
Ancient World History
World Politics
Astrological Fundamentals
Introduction to Sociology
Indian Sociology
Sociology of Religion
Economic Sociology
Political Sociology
Environment & Society
Sociology of Gender
History of Photography
Studio Lighting
Film Cameras and Processing
Portrait Photography
Natural and Artificial Photographic Light Sources
Wildlife, Fashion and Photo Journalism