HANS ROEVER
SINCE 1961

ANNEXURE 21.3

Curriculum for Proposed Programmes

DETAILED PROJECT REPORT

For Grant of Deemed to be University Status under Distinct Category (Existing Institution)

Programmes at Hans Roever-DTBU

(Proposed)

Sl.No	School	UG/PG/ Integrated	Name of the Programme	Duration (Yrs)
1	Engineering & Technology	UG B.Tech.	Embedded AI and Edge Robotics	4
2		UG B.Tech.	Semiconductor Technology	4
3		UG B.Tech.	Smart Mobility and Energy Systems	4
4		Integrated B.Tech.-M.Tech.	Digital Twin Systems Engineering	5
5		PG M.Tech.	Agriculture Robotics	2
6	Computing & AI	UG B.Tech.	Quantum Computing and Advanced Informatics	4
7		UG B.Tech.	Artificial Super Intelligence	4
8		Integrated B.Tech.-MBA	AI, Data Economy and Techno-Entrepreneurship	5
9	Liberal Arts & Indian Knowledge Systems	UG BA (Hons)	Indian Culture and Heritage Studies	4
10	Sciences	UG BSc	Criminology and Forensic Science	3
11	Social Sciences & Management	UG BCom	Fintech and AI in Business Analytics	3
12		UG BBA	Rural Development and Agri Entrepreneurship	3
13		Integrated BCom-MBA	E Commerce and Rural Management	4
14		PG MCom	Agri Finance and Rural Banking	2
15	Health & Wellness Sciences	UG BSc	Health and Physical Education	3
16		UG BSc (Hons)	Digital Health and Analytics	4
17	Agriculture & Rural Development	UG BSc	Agriculture	4
18		UG BSc	Sustainable Agriculture and Rural Innovation	4

School of Engineering and Technology

Curriculum Structure and Credit Allocation for the Proposed Programmes

B.Tech in Embedded AI and Edge Robotics (160 Credits)

Year 1: Foundation (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics I (Calculus & Differential Equations)	4
2	Engineering Physics (Mechanics, Waves, Basic Electronics)	4
3	Engineering Chemistry / Environmental Science	3
4	Introduction to Programming (C/Python)	3
5	Basic Electrical & Electronics Engineering	3
6	Communication Skills & Professional English	2
7	Engineering Graphics / Workshop Practice	1

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics II (Probability, Statistics, Linear Algebra)	4
2	Digital Electronics & Logic Design	3
3	Object-Oriented Programming	3
4	Sensors & Instrumentation Basics	3
5	Engineering Mechanics	3
6	Design Thinking & Innovation	3
7	Internship	1

Total Credits — 20

Year 2: Embedded Systems & AI Foundations (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Signals & Systems	4
2	Microprocessors & Microcontrollers	4
3	Data Structures & Algorithms	3
4	Embedded System Design	3
5	Robotics Fundamentals	3
6	Humanities Elective (Ethics / Industrial Psychology)	2
7	Internship	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Real-Time Operating Systems (RTOS)	4
2	Machine Learning Foundations	3
3	Control Systems for Robotics	3
4	Edge Computing Architecture	3
5	Open Elective I (IoT / Mechatronics / AI Tools)	3
6	Robotics & Embedded Systems Lab	3
7	Internship	1

Total Credits – 20

Year 3: Embedded AI & Robotics Specialization (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Embedded AI Algorithms	3
2	Edge AI Hardware Platforms (NVIDIA Jetson, Coral, FPGA)	3
3	Mobile Robotics & Autonomous Navigation	3
4	Computer Vision & Image Processing	3
5	Elective I (Deep Learning / AIoT / Reinforcement Learning)	3
6	Minor Project I (AI Model Deployment on Edge Devices)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Advanced Robotics (Manipulators, Kinematics, Dynamics)	3
2	Embedded System Security	3
3	Autonomous Systems & Path Planning	3
4	AI-based Control Systems	3
5	Open Elective II (ROS, Digital Twin, 5G for Robotics)	3
6	Minor Project II (Prototype Robot/Edge AI System)	5

Total Credits – 20

Year 4: Industry & Research Integration (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Industrial Robotics & Automation	3
2	Human–Robot Interaction	3
3	Elective II (Drone Technology / Humanoid Robotics / Cobots)	3
4	Elective III (Smart Manufacturing / Industry 4.0 / AR-VR)	3

S. No	Course Title	Credits
5	Emerging Trends in Intelligent Robotics (Neuromorphic, Bio-Inspired)	3
6	Semester Internship (2 months)	4
7	Major Project Phase I (Prototype Development)	1

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Intellectual Property Rights & Tech Entrepreneurship	4
2	Major Project Phase II (Capstone with Industry/Startup)	10
3	Open Elective III (Interdisciplinary)	3
4	Seminar / Viva-Voce / Portfolio Development	3

Total Credits – 20

Credit Distribution

Basic Sciences & Mathematics – 24
Engineering Sciences – 12
Embedded Systems & Robotics Core – 45
AI & Specialization Electives – 27
Open Electives – 8
Projects & Internships – 26
Humanities & Management – 18

Total = 160 Credits

B.Tech in Semiconductor Technology (160 Credits)

Year 1: Foundation (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics I (Calculus & Differential Equations)	4
2	Engineering Physics (Solid State Physics, Quantum Basics)	4
3	Engineering Chemistry / Environmental Science	3
4	Introduction to Programming (C/Python)	3
5	Basic Electrical & Electronics Engineering	3
6	Communication Skills & Professional English	2
7	Engineering Graphics / Workshop Practice	1

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics II (Probability, Statistics, Complex Analysis)	4
2	Materials Science & Engineering	3
3	Analog & Digital Electronics	3
4	Object-Oriented Programming	3
5	Engineering Mechanics	3
6	Design Thinking & Innovation	3
7	Internship	1

Total Credits — 20

Year 2: Core Electronics & Devices (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Signals & Systems	4
2	Semiconductor Physics & Devices	4
3	Electronic Circuits	3
4	Microprocessors & Microcontrollers	3
5	Electromagnetic Theory	3
6	Humanities Elective (Ethics/Industrial Psychology)	2
7	Internship	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	VLSI Design Fundamentals	4
2	Integrated Circuit Fabrication Technology	3
3	Analog & Mixed Signal Design	3
4	Control Systems	3
5	Open Elective I (CS/AI/IoT/Mechatronics)	3
6	Laboratory: Device Fabrication & Characterization	3
7	Internship	1

Total Credits – 20

Year 3: Semiconductor Specialization (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	CMOS Circuit Design	3
2	MEMS & Nanoelectronics	3
3	Wafer Fabrication & Cleanroom Practices	3
4	Semiconductor Packaging & Testing	3
5	Elective I (Photonics, Optoelectronics, Power Semiconductors)	3
6	Minor Project I (Chip Design / Fabrication Simulation)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Advanced VLSI & SoC Design	3
2	Semiconductor Process Integration	3
3	EDA Tools & Verification	3
4	Embedded Systems & Applications	3
5	Open Elective II (AI for Chip Design, Quantum Computing, 5G Hardware)	3
6	Minor Project II (Prototype Device or Design Validation)	5

Total Credits – 20

Year 4: Industry & Research Integration (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Semiconductor Manufacturing & Supply Chain	3
2	Reliability & Failure Analysis of Semiconductors	3
3	Elective II (Nano-materials, Compound Semiconductors, Flexible Electronics)	3
4	Elective III (Automotive Electronics, Biomedical Devices, IoT Hardware)	3
5	Emerging Technologies in Semiconductors (AI Chips, Neuromorphic, Quantum Devices)	3
6	Semester Internship (2 months)	4
7	Major Project Phase I (Chip/Product Development)	1

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Intellectual Property Rights & Tech Entrepreneurship	4
2	Major Project Phase II (Capstone Project with Industry/Research Lab)	10
3	Open Elective III (Interdisciplinary)	3
4	Seminar / Viva-Voce / Portfolio Development	3

Total Credits – 20

Credit Distribution
Basic Sciences & Mathematics – 24
Engineering Sciences – 12
Core Electronics & Semiconductor Engineering – 45
Specialization & Professional Electives – 27
Open Electives – 8
Projects & Internships – 26
Humanities & Management – 18
Total = 160 Credits

B.Tech in Smart Mobility and Energy Systems (160 Credits)

Year 1: Foundation (40 Credits)

I **SEMESTER (20 Credits)**

S. No	Course Title	Credits
1	Mathematics I (Calculus & Differential Equations)	4
2	Engineering Physics (Mechanics & Energy Fundamentals)	4
3	Engineering Chemistry / Environmental Science	3
4	Introduction to Programming (C/Python)	3
5	Basic Electrical & Electronics Engineering	3
6	Communication Skills & Professional English	2
7	Engineering Graphics / Workshop Practice	1

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics II (Probability, Statistics & Linear Algebra)	4
2	Fundamentals of Energy Systems	3
3	Analog & Digital Electronics	3
4	Object-Oriented Programming	3
5	Engineering Mechanics	3
6	Design Thinking & Innovation	3
7	Internship	1

Total Credits — 20

Year 2: Core Mobility & Energy Engineering (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Signals & Systems	4
2	Electric Vehicle (EV) Basics & Powertrain Systems	4
3	Energy Storage Systems (Batteries / Fuel Cells)	3
4	Microprocessors & Microcontrollers	3
5	Thermodynamics & Heat Transfer	3
6	Humanities Elective (Ethics/Environmental Policies)	2
7	Internship	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Electric Machines & Drives	4
2	Smart Grids & Power Electronics	3
3	Embedded Systems for Mobility	3
4	Control Systems	3
5	Open Elective I (AI/IoT/Automation/Design Engineering)	3
6	Laboratory: EV Systems & Energy Storage Lab	3
7	Internship	1

Total Credits – 20

Year 3: Mobility & Energy Systems Specialization (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Hybrid & Electric Vehicle Design	3
2	Renewable Energy Technologies	3
3	Battery Management Systems (BMS)	3
4	Intelligent Transportation Systems (ITS)	3
5	Elective I (Charging Infra / Hydrogen Mobility / Energy Analytics)	3
6	Minor Project I (EV/Smart Energy Prototype)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Advanced Power Electronics for EV & Energy Systems	3
2	Vehicle Dynamics & Safety Systems	3
3	IoT for Smart Mobility & Energetics	3
4	Smart Sensors & Cyber-Physical Systems	3
5	Open Elective II (Smart Cities, AI Mobility, 5G Systems)	3
6	Minor Project II (Prototype / Simulation Validation)	5

Total Credits – 20

Year 4: Industry & Research Integration (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mobility Infrastructure, Charging Networks & Energy Distribution	3
2	Reliability & Safety of Mobility & Energy Systems	3
3	Elective II (Autonomous Systems / Battery Tech / Smart Grids)	3
4	Elective III (Sustainable Mobility / Clean Tech / Energy Policy)	3
5	Emerging Mobility Technologies (AI Mobility, Connected Vehicles)	3
6	Semester Internship (2 months)	4
7	Major Project Phase I	1

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Intellectual Property Rights & Tech Entrepreneurship	4
2	Major Project Phase II (Capstone Project in Mobility/Energy)	10
3	Open Elective III (Interdisciplinary)	3
4	Seminar / Viva-Voce / Portfolio Development	3

Total Credits – 17

Credit Distribution

Basic Sciences & Mathematics – 24
Engineering Sciences – 12
Core Mobility & Energy Engineering – 45
Specialization & Professional Electives – 27
Open Electives – 8
Projects & Internships – 26
Humanities & Management – 18

Total = 160 Credits

Integrated B.Tech-MTech in Digital Twin Systems & Engineering

Year 1: Foundation (40 Credits)

I SEMESTER

S. No	Course Title	Credits
1	Mathematics I (Calculus & Linear Algebra)	4
2	Physics for Engineers (Mechanics, Waves, Optics)	4
3	Chemistry / Environmental Science	3
4	Programming Fundamentals (Python/C)	3
5	Engineering Graphics & CAD	3
6	Communication Skills & Professional English	2
7	Workshop Practice / Basic Electronics	1

Total Credits – 20

II SEMESTER

S. No	Course Title	Credits
1	Mathematics II (Probability, Statistics, Differential Equations)	4
2	Engineering Mechanics & Materials	3
3	Data Structures & Algorithms	3
4	Electrical & Electronics Engineering Fundamentals	3
5	Introduction to IoT & Emerging Technologies	3
6	Design Thinking & Innovation	3
7	Internship	1

Total Credits – 20

Year 2: Core Computing + Systems (40 Credits)

III SEMESTER

S. No	Course Title	Credits
1	Signals & Systems	3
2	Database Management Systems	3
3	Computer Networks & Cybersecurity	4
4	Sensors, Actuators & Embedded Systems	3
5	Thermodynamics & Fluid Systems (for physical twins)	3
6	Humanities Elective (Industrial Psychology, Ethics)	3
7	Internship 1	1

Total Credits 20

IV SEMESTER

S. No	Course Title	Credits
1	Modeling & Simulation Fundamentals	3
2	Control Systems & Automation	3
3	Cloud Computing & Edge Computing	3
4	Mechatronics & Cyber-Physical Systems	3
5	Open Elective I (AI/Robotics/AR-VR)	3
6	Laboratory: Simulation Tools (MATLAB, ANSYS, Simulink)	3
7	Internship	1

Total Credits – 20

Year 3: Digital Twin Specialization (40 Credits)

V SEMESTER

S. No	Course Title	Credits
1	Digital Twin Architecture & Platforms	4
2	3D Modeling & Additive Manufacturing (CAD/CAM/3D Printing)	3
3	Data Analytics & Machine Learning for Digital Twins	3
4	Industrial IoT (IIoT)	3
5	Elective I (Smart Cities / Healthcare Twins / Aerospace Twins)	3
6	Minor Project I (System-level Digital Twin Prototype)	4

Total Credits – 20

VI SEMESTER

S. No	Course Title	Credits
1	Cloud-Edge Integration for Digital Twins	3
2	AR/VR & XR Interfaces for Twin Visualization	3
3	Predictive Maintenance & Asset Management	3
4	Elective II (Defence DT, Automotive DT, Energy Systems)	3
5	Open Elective II (Blockchain, Quantum Tech, Sustainability)	3
6	Minor Project II (Industry Case Study with Simulation Lab)	5

Total Credits – 20

Year 4: Advanced B.Tech + Entry to M.Tech Research Track (40 Credits)

VII SEMESTER (Existing + Research Alignment)

S. No	Course Title	Credits
1	Advanced Digital Twin Applications (Smart Manufacturing, Defence, Healthcare)	3
2	AI-Driven Digital Twin Ecosystems	3
3	Emerging Trends in Digital Twin (Metaverse, Industry 5.0, Twin Transition for Sustainability)	3
4	Elective III (Robotics Twins / Human Digital Twins / Space Systems)	3
5	Elective IV (Autonomous Systems / IoT Security / Cognitive Twins)	3
6	Internship (2 months, Industry/Research Lab – M.Tech Track Entry)	3
7	Major Project Phase I (DT Product/System Prototype – Research Proposal Base)	4

Total Credits – 23

VIII SEMESTER (Enhanced to build M.Tech Research Foundation)

S. No	Course Title	Credits
1	Tech Entrepreneurship, IPR & Innovation Management	3
2	Major Project Phase II (Capstone – Industry/Startup Collaboration)	10
3	Open Elective III (Interdisciplinary / Management / Policy)	2
4	Seminar / Viva-Voce / Portfolio (Integrated B.Tech–M.Tech Readiness)	2

Total Credits – 17

Year 5: M.Tech Digital Twin Engineering (60 Credits)

(Semesters IX & X – Advanced Coursework + Dissertation)

IX SEMESTER (30 Credits)

(Advanced Digital Twin Engineering – PG Level)

S. No	Course Title	Credits
1	Advanced Modeling & Simulation of Digital Twin Systems	4
2	Cyber-Physical Systems Security & Resilience	3
3	High-Performance Computing for Digital Twins (Edge/HPC/GPU)	3
4	Digital Thread & Enterprise PLM Systems	3
5	Elective V (choose one): • Bio-Digital Twins • Climate & Energy Twins • Defence & Aerospace Twins • Industrial AI Twins	3
6	Elective VI (choose one): • Quantum Digital Twins • Autonomous Twin Networks • Federated Twin Learning	3

S. No	Course Title	Credits
7	M.Tech Research Methods, Data-Driven Experimentation & Scientific Writing	3
8	Pre-Thesis Project (Problem Identification & Prototype)	8

Total Credits – 30

X SEMESTER (30 Credits)

(Full-Semester M.Tech Thesis + Defence)

S. No	Component	Credits
1	Master's Dissertation / Thesis (Industry/Research Lab/CoE)	24
2	Publications & Research Outcomes (1 Scopus / Patent / Prototype)	3
3	Final Viva-Voce / Defence	3

Total Credits – 30

Summary of 5-Year Integrated B.Tech–M.Tech Programme (220 Credits)

B.Tech Credits (Years 1–4)

- Basic Sciences & Mathematics – 24
- Core Computing & Engineering Sciences – 36
- Digital Twin Core & Labs – 37
- Professional Electives – 15
- Open Electives – 9
- Projects & Internships – 26
- Humanities, Ethics & Management – 13

Total = 160 Credits

M.Tech Credits (Year 5)

- PG Core Courses – 13
- PG Electives – 6
- Research Methods – 3
- Pre-Thesis Project – 8
- M.Tech Thesis + Viva – 30

Total = 60 Credits

M.Tech. Agriculture Robotics (90 Credits)

Year 1: Foundation & Core Robotics (45 Credits)

I SEMESTER (22 Credits)

S. No	Course Title	Credits
1	Mathematical Foundations for Robotics (Linear Algebra, Optimization)	4
2	Fundamentals of Agricultural Systems & Smart Farming Technologies	3
3	Advanced Robotics Engineering (Kinematics, Dynamics)	4
4	Sensors, Actuators & Control for Agri-Robots	3
5	Embedded Systems for Agriculture Automation	3
6	Research Methodology & Technical Writing	2
7	Laboratory: Robotics & Sensor Integration Lab	2

Total Credits — 22

II SEMESTER (23 Credits)

S. No	Course Title	Credits
1	Autonomous Navigation & Field Robotics	4
2	AI, Machine Vision & Deep Learning for Agriculture	4
3	Mechatronics for Agri-Machinery	3
4	Agricultural Drones & Unmanned Aerial Systems (UAS)	3
5	Professional Elective I (choose one):	3
	– Precision Irrigation Robotics	
	– Crop Monitoring & Imaging Analytics	
	– Farm Automation Machinery	
6	Open Elective I (Interdisciplinary)	2
7	Minor Project I (Prototype Design / Field Simulation)	4

Total Credits — 23

Year 2: Advanced Specialization & Research (45 Credits)

III SEMESTER (22 Credits)

S. No	Course Title	Credits
1	Agriculture Robotics System Design & Integration	3
2	IoT & Cloud-Based Farm Automation Systems	3
3	Human–Robot Interaction (HRI) for Agriculture	3
4	Professional Elective II (choose one):	3
	– Dairy & Livestock Automation	
	– Harvesting & Post-Harvest Robotics	

S. No	Course Title	Credits
	– Greenhouse Automation Systems	
5	Professional Elective III	3
	– AI for Soil Health & Yield Prediction	
	– Agri-Drones for Pest & Nutrient Management	
	– Sustainable Agricultural Engineering Systems	
6	Internship (8 weeks) – Farm Robotics / Agri-Tech Companies	4
7	Seminar / Technical Presentation	2

Total Credits — 22

IV SEMESTER (23 Credits)

S. No	Course Title	Credits
1	Entrepreneurship, Innovation & Agri-Tech Startups	3
2	Open Elective II (Interdisciplinary)	2
3	Major Project / Dissertation (Industry / Research Lab)	15
4	Viva-Voce & Portfolio	3

Total Credits – 23

Credit Distribution

Core Courses – 48
Professional Electives – 9
Open Electives – 4
Labs & Seminars – 4
Projects (Minor + Major) – 19
Internship – 4
Research & Methodology – 2

Total = 90 Credits

SPECIALIZATION ELECTIVES (Indicative List)

Professional Elective I

1. Precision Irrigation Robotics
2. Crop Health Monitoring & Imaging Analytics
3. Farm Automation Machinery Design

Professional Elective II

1. Dairy & Livestock Automation
2. Harvesting & Post-Harvest Robotics
3. Greenhouse Smart Automation

Professional Elective III

1. AI for Soil Health & Yield Prediction
2. Agri-Drones for Pest & Nutrient Management
3. Sustainable Agricultural Engineering Systems

Major Project Themes

1. Robotic Fruit/Vegetable Harvesters
2. AI-powered Weeding Robots
3. Autonomous Fertilizer/Seed Sprayers
4. Multi-sensor Drone Analytics for Crops
5. Greenhouse Robotics for Climate Control
6. Machine Vision for Yield Estimation

School of Computing and AI

Curriculum Structure and Credit Allocation for the Proposed Programmes

B.Tech in Quantum Computing and Advanced Informatics

Year 1: Foundation (40 Credits)
I SEMESTER

S. No	Course Title	Credits
1	Mathematics I (Calculus & Linear Algebra)	4
2	Physics I (Mechanics, Waves, Optics)	4
3	Chemistry / Environmental Science	3
4	Programming Fundamentals (Python/C)	3
5	Basic Electrical & Electronics Engineering	3
6	Communication Skills & Professional English	2
7	Engineering Graphics / Workshop Practice	1

Total Credits – 20

II SEMESTER

S. No	Course Title	Credits
1	Mathematics II (Probability, Statistics, Complex Variables)	4
2	Physics II (Modern Physics & Introduction to Quantum Mechanics)	4
3	Data Structures & Algorithms	3
4	Digital Logic & Computer Organization	3
5	Introduction to AI & Emerging Technologies	3
6	Humanities Elective (Ethics, Philosophy of Science)	2
7	Internship	1

Total Credits – 20

Year 2: Core Computing + Quantum Basics (40 Credits)
III SEMESTER

S. No	Course Title	Credits
1	Linear Algebra & Group Theory for Quantum Computing	4
2	Quantum Mechanics for Engineers	4
3	Operating Systems	3
4	Database Management Systems	3
5	Signals & Systems	3
6	Open Elective I (IoT/Robotics/Applied Math)	3
7	Internship	1

Total Credits – 21

IV SEMESTER

S. No	Course Title	Credits
1	Quantum Physics II (Spin, Entanglement, Measurement Theory)	3
2	Computer Networks & Cybersecurity	3
3	Algorithms & Complexity Theory	3
4	Quantum Programming (Qiskit, Cirq, PyQuil)	3
5	Machine Learning Foundations	3
6	Laboratory: Quantum Simulation Tools (IBM Q Experience)	3
7	Internship	1

Total Credits – 20

Year 3: Quantum Specialization (40 Credits)

V SEMESTER

S. No	Course Title	Credits
1	Quantum Algorithms (Shor's, Grover's, Variational Algorithms)	4
2	Quantum Error Correction & Fault Tolerance	3
3	Quantum Hardware (Superconducting Qubits, Trapped Ions, Photonics)	3
4	Quantum Information Theory	3
5	Elective I (Quantum Chemistry / Quantum Materials / Quantum Sensing)	3
6	Minor Project I (Quantum Simulation/Software)	4

Total Credits – 20

VI SEMESTER

S. No	Course Title	Credits
1	Quantum Cryptography & Quantum Communication	3
2	Cloud Quantum Computing (IBM, Google, Azure Quantum)	3
3	Quantum Machine Learning	3
4	Elective II (Quantum Optics, Topological Qubits, Neuromorphic Computing)	3
5	Open Elective II (AI for Quantum, Data Science, HPC)	3
6	Minor Project II (Prototype QC Application)	5

Total Credits – 20

Year 4: Industry & Research Integration (40 Credits)
VII SEMESTER

S. No	Course Title	Credits
1	Quantum Operating Systems & Compilers	3
2	Quantum Devices & Semiconductor Integration	3
3	Emerging Frontiers in Quantum Tech (Quantum Internet, Quantum Cloud, Quantum Metrology)	3
4	Elective III (Quantum Finance, Quantum Biology, Quantum AI)	3
5	Elective IV (Quantum Materials, Quantum Sensors, Space Applications)	3
6	Internship in Quantum Lab / Industry	4
7	Major Project Phase I (Product/System Prototype)	4

Total Credits – 23

VIII SEMESTER

S. No	Course Title	Credits
1	Tech Entrepreneurship & IPR in Quantum Technologies	3
2	Major Project Phase II (Capstone with Research Lab / Startup)	10
3	Open Elective III (Multidisciplinary – Policy, Ethics, Futuristic Tech)	2
4	Viva-Voce / Seminar / Portfolio	2

Total Credits – 17

Credit Distribution

- Basic Sciences & Mathematics – 28
- Core Computing (CS + Engineering Sciences) – 36
- Core Quantum Engineering – 39
- Professional Electives – 15
- Open Electives – 9
- Projects & Internships – 26
- Humanities, Ethics & Policy – 7

Total = 160 Credits

B.Tech in Artificial Super Intelligence (160 Credits)

Year 1: Foundation (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics I (Calculus & Differential Equations)	4
2	Engineering Physics (Mechanics, Waves, Quantum Basics)	4
3	Engineering Chemistry / Environmental Science	3
4	Introduction to Programming (Python for AI)	3
5	Basics of Electronics & Computer Systems	3
6	Communication Skills & Professional English	2
7	Engineering Graphics / Workshop Practice	1

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics II (Linear Algebra, Probability & Statistics)	4
2	Data Structures & Algorithms	3
3	Digital Logic & Computer Architecture	3
4	Object-Oriented Programming	3
5	Engineering Mechanics	3
6	Design Thinking & Innovation	3
7	Internship	1

Total Credits — 20

Year 2: Core AI & Computational Systems (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Signals & Systems	4
2	Foundations of Artificial Intelligence	4
3	Operating Systems	3
4	Database Systems	3
5	Computer Networks & Security Basics	3
6	Humanities Elective (Ethics/Tech Psychology)	2
7	Internship	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Machine Learning Fundamentals	4
2	Deep Learning & Neural Networks	3
3	Cognitive Computing & Knowledge Engineering	3
4	Control Systems for Intelligent Machines	3
5	Open Elective I (Robotics/IoT/Edge AI)	3
6	AI Laboratory (ML & DL Implementation)	3
7	Internship	1

Total Credits – 20

Year 3: Artificial Super Intelligence Specialization (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Artificial Super Intelligence Architecture	3
2	Large-Scale Neural Systems & Transformers	3
3	Autonomous Systems & Self-Learning Algorithms	3
4	Reinforcement Learning & Decision Intelligence	3
5	Elective I (Explainable AI / AI Alignment / Ethical AI)	3
6	Minor Project I (AS-I Model/Prototype)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Distributed AI & Multi-Agent Systems	3
2	Advanced Deep Learning & Generative AI	3
3	Edge AI & High-Performance Computing	3
4	Human–AI Interaction & Cognitive Interfaces	3
5	Open Elective II (Quantum AI / Brain–Machine Interfaces / 5G AI Applications)	3
6	Minor Project II (Applied ASI System)	5

Total Credits – 20

Year 4: Industry, Research & Future Technologies (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Autonomous Intelligence & Safety Systems	3
2	AI Governance, Standards & Risk Management	3
3	Elective II (Neuromorphic AI / AGI Foundations / Swarm AI)	3
4	Elective III (Digital Twins / Smart Cities AI / Predictive Systems)	3
5	Emerging ASI Technologies (Supercomputing, Synthetic Data, AGI Cloud)	3
6	Semester Internship (2 months)	4
7	Major Project Phase I (ASI System Development)	1

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Intellectual Property Rights & Tech Entrepreneurship	4
2	Major Project Phase II (Capstone in ASI / Industry/Research Lab)	10
3	Open Elective III (Interdisciplinary)	3
4	Seminar / Viva-Voce / Portfolio Development	3

Total Credits – 17

Credit Distribution

Basic Sciences & Mathematics – 24
Engineering Sciences – 12
Core AI & Computational Engineering – 45
Specialization & Professional Electives – 27
Open Electives – 8
Projects & Internships – 26
Humanities & Management – 18

Total = 160 Credits

Integrated B.Tech.–MBA in AI, Data Economy & Techno-Entrepreneurship (200 Credits)

Year 1: Foundation in Engineering & Computing (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics I (Calculus & Linear Algebra)	4
2	Engineering Physics / Digital Electronics Fundamentals	4
3	Problem Solving & Programming using Python	3
4	Basic Electrical & Electronics Engineering	3
5	Communication Skills & Professional English	2
6	Engineering Graphics / Workshop Practice	2
7	Induction Programme / Professional Development	2

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics II (Probability, Statistics & Applied Optimization)	4
2	Data Structures & Algorithms	4
3	Computer Systems & Networking Basics	3
4	Object-Oriented Programming	3
5	Design Thinking & Innovation	3
6	Internship / Field Work – I	3

Total Credits — 20

Year 2: Core AI, Computing & Systems (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Discrete Mathematics & Logic for AI	4
2	Operating Systems	3
3	Database Management Systems	3
4	Machine Learning Fundamentals	3
5	Signals, Systems & Sensor Technologies	3
6	Humanities Elective (Ethics / Psychology / Sociology)	2
7	Internship – II	2

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Artificial Intelligence Principles	4
2	Deep Learning & Neural Networks	4
3	Cybersecurity & Data Privacy	3
4	Cloud Computing & Virtualization	3
5	Open Elective – I (Robotics / IoT / Data Science)	3
6	Laboratory: AI Tools & Applications	3

Total Credits – 20

Year 3: Advanced AI + Data Economy (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Advanced Machine Learning & Reinforcement Learning	3
2	Big Data Technologies & Data Economy	3
3	NLP & Multimodal AI	3
4	Distributed Systems & Blockchain	3
5	Elective – I (Generative AI, Vision AI, AI Chips, etc.)	3
6	Minor Project – I (AI Model / System Prototype)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	AI Systems Engineering & MLOps	3
2	Data Governance, Ethics & Responsible AI	3
3	Robotics & Autonomous Systems	3
4	Internet of Everything / 5G Applications	3
5	Open Elective – II	3
6	Minor Project – II (AI Product Development)	5

Total Credits – 20

Year 4: Entrepreneurship + Integration with Management (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Technology Entrepreneurship & Startup Management	3
2	Financial Accounting & Costing for Engineers	3
3	Product Design & Innovation Management	3
4	Strategic Management & Business Analytics	3
5	Professional Elective – II	3

S. No	Course Title	Credits
6	Internship – III (Industry / Startup)	5

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Managerial Economics & Techno-Economic Analysis	3
2	Marketing Management for Tech Enterprises	3
3	Human Resource Management	3
4	Elective – III (Venture Capital, Tech Law, IP Management)	3
5	Major Project – Phase I (Business/Tech Integration)	8

Total Credits – 20

Year 5: MBA Degree Components (40 Credits)

IX SEMESTER (20 Credits)

S. No	Course Title	Credits
1	AI-driven Business Strategy	3
2	Digital Transformation & Governance	3
3	Supply Chain & Operations Analytics	3
4	Elective – IV (FinTech / HealthTech / AgriTech)	3
5	MBA Internship (2–3 Months)	8

Total Credits – 20

X SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Corporate Leadership & Organizational Behavior	3
2	Tech Entrepreneurship & Venture Creation Lab	4
3	Major Project – Phase II (MBA Capstone)	10
4	Seminar / Viva Voce / Portfolio Development	3

Total Credits – 20

Credit Distribution

Basic Sciences & Mathematics	– 24
Engineering Sciences	– 18
Core AI + Computing Courses	– 45
Specialization & Professional Electives	– 30
Management & MBA Core	– 35
Projects & Internships	– 38
Open Electives	– 10
Humanities & Communication	– 10

Total = 200 Credits

School of Liberal Arts & IKS

Curriculum Structure and Credit Allocation for the Proposed Programmes

BA (Hons) Indian Culture and Heritage Studies

Duration: 4 Years (8 Semesters) | Total Credits: 160 | Framework: NEP-2020 (CBCS, ABC, Multi-Entry-Exit)

Semester I – Foundations (20 Credits)

Code	Course Title	L	T	P	C
IKS 101	Foundations of Indian Knowledge Systems	3	0	0	3
IKS 102	Introduction to Sanskrit Language – Level I	3	0	0	3
IKS 103	Indian History & Civilization – Pre-Vedic to Gupta Era	3	0	0	3
AEC 101	Communication Skills in English	2	0	0	2
IKS 104	Mathematics for Data Analytics	3	0	0	3
VAC 101	Yoga, Wellness & Human Values	1	0	0	1
MDC 101	Environmental Studies / Indian Ecology & Sustainability	3	0	0	3
Total		14	1	1	**20**

Semester II – Heritage & Philosophy (20 Credits)

Code	Course Title	L	T	P	C
IKS 201	Indian Philosophy – Darshanas & Thinkers	3	0	0	3
IKS 202	Sanskrit Language – Level II	3	0	0	3
IKS 203	Cultural Heritage of India: Art, Architecture & Literature	3	0	0	3
SEC 201	Digital Tools for Heritage Documentation	1	0	2	2
VAC 201	Indian Logic & Scientific Thought	2	0	0	2
OEC 201	Comparative Civilizations / Global Heritage Studies	2	0	0	2
Total		14	1	1	**20**

Semester III – Knowledge Traditions (20 Credits)

Code	Course Title	L	T	P	C
IKS 301	Vedic & Upanishadic Knowledge Traditions	3	0	0	3
IKS 302	Indian Society, Ethics & Governance	3	0	0	3
IKS 303	Heritage Conservation & Museum Studies	3	0	0	3
SEC 301	Telugu / Sanskrit for Knowledge Texts	2	0	0	2
VAC 301	Life Skills & Emotional Intelligence	1	0	2	2
OEC 301	Performing Arts, Music & Aesthetics of India	2	0	0	2
Total		14	1	1	**20**

Semester IV – Indian Sciences & Research (20 Credits)

Code	Course Title	L	T	P	C
IKS 401	Indian Sciences: Ayurveda, Astronomy & Mathematics	3	0	0	3
IKS 402	Indian Epics, Puranas & Narratives	3	0	0	3
IKS 403	Research Methodology in IKS	2	0	2	3
SEC 401	Heritage Field Study / Temple Architecture Mapping	0	0	3	3
OEC 401	Indian Polity & Legal Traditions	3	0	0	3
VAC 401	Value Education & Ethics of Governance	2	0	0	2

Total 13 1 1 **20**

Semester V – Integration & Practice (20 Credits)

Code	Course Title	L	T	P	C
IKS 501	Indian Knowledge & Modern Science Dialogue	3	0	0	3
IKS 502	Indigenous Technologies & Craft Traditions	3	0	0	3
IKS 503	Cultural Heritage Management	3	0	0	3
MNE 501	Multidisciplinary Elective I	3	0	0	3
SEC 501	Internship / Fieldwork in Museum / Cultural Centre	0	0	3	3
VAC 501	Employability & Career Skills	1	0	0	1

Total 13 0 5 **20**

Semester VI – Application & Outreach (20 Credits)

Code	Course Title	L	T	P	C
IKS 601	Indian Aesthetics & Performing Traditions	3	0	0	3
IKS 602	Contemporary Relevance of IKS	3	0	0	3
MNE 601	Heritage Laws & Intellectual Property	3	0	0	3
OEC 601	Multidisciplinary Elective II	3	0	0	3
PRJ 601	Community Heritage Project / Documentation	0	0	6	3
VAC 601	Personality Development & Leadership	1	0	0	1

Total 13 0 6 **20**

Semester VII – Advanced Studies (20 Credits)

Code	Course Title	L	T	P	C
IKS 701	Indian Knowledge Systems in Global Context	3	0	0	3
IKS 702	Advanced Sanskrit Texts & Commentaries	3	0	0	3
IKS 703	Research Seminar / Thesis Proposal	3	0	0	3
DSE 701	Discipline Elective (Yoga Science / Comparative Philosophy / Indian Logic)	3	0	0	3
EXP 701	Heritage Tourism / Outreach Internship	0	3	6	3

Total 9 3 8 **20**

Semester VIII – Capstone & Professional (20 Credits)

Code	Course Title	L	T	P	C
IKS 801	Dissertation / Major Project on IKS & Cultural Heritage	0	0	8	4
IKS 802	Entrepreneurship in Culture & Heritage Industries	2	1	0	3
OEC 801	Indian Knowledge for Sustainable Development	2	0	0	2
SEC 801	Professional Ethics & Global Citizenship	2	0	0	2
IKS 803	Comprehensive Viva / Portfolio Presentation	0	2	0	2

Total 7 0 20 **20**

Program Summary

Category	Total Credits	Percentage of Total (160 Cr)
Core Courses (IKS & Major Subjects)	88	55%
Ability Enhancement Courses (AEC – Communication, Language, Life Skills)	16	10%
Multidisciplinary / Discipline Electives (MNE / OEC / DSE)	24	15%
Skill / Value Added Courses (VAC / SEC)	12	7.5%
Interdisciplinary / Experiential (Internship, Project, Dissertation)	20	12.5%

Total = 160 Credits (100%)

Multiple Entry-Exit Options (as per NEP 2020)

- Exit after 1 Year (40 Cr): Certificate in Indian Knowledge and Culture
- Exit after 2 Years (80 Cr): Diploma in Indian Culture and Heritage
- Exit after 3 Years (120 Cr): B.A. in Indian Knowledge Systems and Heritage
- 4 Years (160 Cr): B.A. (Hons.) with Research

School of Sciences

Curriculum Structure and Credit Allocation for the Proposed Programmes

B.Sc. – Criminology and Forensic Science (120 Credits)

Year 1: Foundations (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Introduction to Criminology	4
2	Basics of Forensic Science	4
3	Human Anatomy & Physiology	3
4	Fundamentals of Law & Indian Legal System	3
5	Communication Skills & Professional English	2
6	Environmental Studies / Value Education	2
7	Crime Scene Observation Lab	2

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Criminological Theories	4
2	Crime & Society	3
3	Forensic Physics & Chemistry	4
4	Cyber Crime Fundamentals	3
5	Psychology for Criminology	3
6	Crime Scene Processing Lab	2
7	Internship / Field Exposure	1

Total Credits — 20

Year 2: Core Criminology & Forensics (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Criminal Law (IPC, CrPC, Evidence Act)	4
2	Forensic Biology & Serology	4
3	Fingerprint Science & Pattern Analysis	3
4	Forensic Toxicology	3
5	Open Elective I (Cyber Awareness / Disaster Mgmt / Psychology)	3
6	Forensic Biology & Fingerprint Lab	3

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Forensic Ballistics & Explosives	4
2	Document Examination & Handwriting Analysis	3
3	Forensic Anthropology	3
4	Victimology & Criminal Profiling	3
5	Open Elective II (Digital Forensics / Sociology of Crime)	3
6	Ballistics & Document Examination Lab	4

Total Credits – 20

Year 3: Specialization & Practice (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Cyber Forensics & Network Investigation	4
2	Forensic DNA Analysis	3
3	Police Administration & Criminal Justice System	3
4	Elective I (Any one): Forensic Psychology / Economic Crimes / Environmental Forensics	3
5	Minor Project I (Crime Scene / Forensic Case Study)	4
6	DNA & Cyber Forensics Lab	3

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Advanced Forensic Techniques	3
2	Elective II (Wildlife Forensics / Digital Surveillance / Homeland Security)	3
3	Elective III (Cyber Laws / Women & Child Protection Laws)	3
4	Internship / Police Station / Forensic Laboratory Posting (2 months)	6
5	Major Project – Forensic Case Investigation / Research Dissertation	5

Total Credits – 20

Credit Distribution

Basic Sciences & Foundation	– 21
Core Criminology	– 23
Core Forensic Science	– 40
Open Electives	– 6
Labs & Practicals	– 14
Internships	– 7
Projects	– 9

Total = 120 Credits

School of Social Sciences & Management

Curriculum Structure and Credit Allocation for the Proposed Programs

B.Com. – Fintech and AI in Business Analytics (120 Credits)

Year 1: Commerce, Accounting & Digital Foundations (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Financial Accounting – I	4
2	Business Mathematics & Statistics	4
3	Business Economics	3
4	Computer Applications in Business	3
5	Business Communication	2
6	Environmental Studies / Value Education	2
7	Digital Tools Lab (MS Excel, Tally Basics)	2

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Financial Accounting – II	4
2	Principles of Management	3
3	Programming for Business Analytics (Python/R)	3
4	Organizational Behaviour	3
5	Banking & Financial Systems	3
6	Financial Accounting Lab	3
7	Internship / Field Exposure	1

Total Credits — 20

Year 2: FinTech, AI & Business Analytics Core (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Corporate Accounting	4
2	Business Data Analytics	3
3	FinTech Fundamentals	3
4	Machine Learning for Business	3
5	Open Elective – I (Digital Marketing / E-Commerce)	3
6	Data Analytics Lab (Python/R, Power BI)	3
7	Internship	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Cost & Management Accounting	4
2	Artificial Intelligence in Business	3
3	Blockchain & Cryptocurrencies	3
4	Business Research Methods	3
5	Open Elective – II (Cyber Security / Retail Analytics)	3
6	FinTech & AI Lab	3

Total Credits – 20

Year 3: Advanced FinTech, Strategy & Industry Practice (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Financial Markets & Investment Analysis	4
2	AI-Driven Financial Modelling	3
3	Digital Payments & RegTech	3
4	Elective – I (InsurTech / WealthTech / Risk Analytics)	3
5	Minor Project – I (FinTech / AI Case Study)	4
6	Financial Analytics Lab	3

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Strategic Financial Management	4
2	Business Intelligence & Decision Support Systems	3
3	Financial Laws, Ethics & Compliance	3
4	Internship / Industry Training (2–3 Months)	6
5	Major Project – FinTech / AI Business Research	4

Total Credits – 20

Credit Distribution

Basic Commerce & Management – 30
Accounting & Finance Core – 25
FinTech & AI Specialization – 27
Open Electives – 6
Labs & Practicals – 14
Internships – 8
Projects (Minor + Major) – 10

Total = 120 Credits

B.Com. – Rural Development & Agri Entrepreneurship (120 Credits)

Year 1: Foundations in Management & Rural Systems (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Principles of Management	4
2	Fundamentals of Economics (Micro & Macro)	4
3	Introduction to Rural Development	3
4	Basics of Agriculture & Agro-Ecology	3
5	Business Communication & Professional English	2
6	Environmental Studies / Value Education	2
7	Data Skills Lab (MS Excel for Rural Data)	2

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Financial Accounting for Rural Enterprises	4
2	Agricultural Economics	4
3	Rural Sociology & Community Development	3
4	Digital Literacy for Rural India	3
5	Principles of Marketing	3
6	Accounting & Rural Data Lab	2
7	Internship / Village Immersion	1

Total Credits — 20

Year 2: Core Rural Management & Entrepreneurship (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Rural Development Policies & Programmes (India)	4
2	Agri-Business Management	4
3	Marketing of Agricultural Products	3
4	Cooperative Management & SHGs	3
5	Open Elective – I (Gender Studies / Digital Marketing)	3
6	Agri-Marketing & Cooperative Lab	3

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Entrepreneurship Development & Start-ups	4
2	Soil, Water & Farm Resource Management	3
3	Rural Finance, Microfinance & NABARD	3
4	Business Research Methods	3
5	Open Elective – II (E-Governance / CSR & Sustainability)	3
6	Entrepreneurship & Rural Finance Lab	3
7	Internship	1

Total Credits – 20

Year 3: Agri-Entrepreneurship, Technology & Field Practice (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Agri-Entrepreneurship & Venture Creation	4
2	Supply Chain & Cold Storage Management	3
3	Food Processing & Value Addition	3
4	Elective – I (Organic Farming / Dairy & Poultry / Agri-Exports)	3
5	Minor Project – I (Rural / Agri Enterprise Case Study)	4
6	Food Processing & MSME Lab	3

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Sustainable Rural Development & Climate-Smart Agriculture	3
2	Elective – II (Agri-Technology / Precision Farming / Smart Irrigation)	3
3	Elective – III (Rural Tourism / Social Entrepreneurship / Agri-Policy)	3
4	Internship / Rural Enterprise Training (2 Months)	6
5	Major Project – Rural / Agri Entrepreneurship Business Plan	5

Total Credits – 20

Credit Distribution

Foundation & Management	– 28
Core Rural Development	– 26
Core Agri-Business & Entrepreneurship	– 30
Open Electives	– 6
Labs & Practicals	– 14
Internships	– 8
Projects (Minor + Major)	– 8

Total = 120 Credits

Integrated B.Com – MBA - E-Commerce & Rural Management (160 Credits)

Year 1: Commerce, Management & Digital Foundations (40 Credits)

I **SEMESTER (20 Credits)**

S. No	Course Title	Credits
1	Financial Accounting – I	4
2	Business Economics (Micro & Macro)	4
3	Principles of Management	3
4	Fundamentals of E-Commerce	3
5	Business Communication & Professional English	2
6	Environmental Studies / Value Education	2
7	Digital Skills Lab (MS Office, Internet Tools)	2

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Financial Accounting – II	4
2	Business Mathematics & Statistics	4
3	Organizational Behaviour	3
4	Rural Economy of India	3
5	Digital Marketing Fundamentals	3
6	Accounting & Data Analysis Lab	2
7	Internship / Field Exposure	1

Total Credits — 20

Year 2: Core Commerce, E-Commerce & Rural Systems (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Corporate Accounting	4
2	Business Law	3
3	Web Technologies for E-Commerce	3
4	Rural Development Policies & Programmes	3
5	Marketing Management	3
6	E-Commerce Applications Lab	3
7	Internship	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Cost & Management Accounting	4
2	Supply Chain & Logistics Management	3
3	Digital Payment Systems & FinTech	3
4	Cooperative Management & SHGs	3
5	Open Elective I (Agri-Business / Digital Marketing / MSME Studies)	3
6	FinTech & SCM Lab	3
7	Internship	1

Total Credits – 20

Year 3: E-Commerce & Rural Management Specialization (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	E-Commerce Strategy & Business Models	3
2	Rural Marketing & Distribution Systems	3
3	Consumer Behaviour	3
4	Agri-Supply Chain & Cold Storage Management	3
5	Elective I (Agri-E-Commerce / Social Entrepreneurship / Retail Analytics)	3
6	Minor Project I (E-Commerce / Rural Enterprise Case Study)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Digital Business Analytics	3
2	Rural Finance, Microfinance & NABARD	3
3	Legal Aspects of E-Commerce & Cyber Laws	3
4	Food Processing & Value Addition Management	3
5	Open Elective II (Precision Farming / Rural Tourism / Blockchain in Business)	3
6	Minor Project II (Rural / E-Commerce Startup Prototype)	5

Total Credits – 20

Year 4: MBA Core + Industry & Research Integration (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Strategic Management	3
2	Financial Management	3
3	Human Resource Management	3

S. No	Course Title	Credits
4	Operations & Project Management	3
5	Entrepreneurship & Startup Development	3
6	Semester Internship (2 Months)	4
7	Major Project Phase I (Business Plan / Rural Enterprise Model)	1

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	International Business & Export Management	3
2	Business Ethics, Corporate Governance & ESG	3
3	Elective III (Digital Transformation / Rural Policy / Agri-Exports)	3
4	Major Project Phase II (Industry / Rural / E-Commerce Based)	10
5	Seminar / Viva-Voce / Portfolio	1

Total Credits – 17

Credit Distribution

Basic Commerce & Management – 32
Core Accounting & Finance – 24
E-Commerce & Digital Business – 36
Rural Development & Agri-Management – 24
Open & Professional Electives – 9
Labs & Practicals – 13
Internships – 7
Projects (Minor I + II + Major I + II) – 15

Total = 160 Credits

M.Com – Agri Finance & Rural Banking (90 Credits)

Year 1: Commerce, Finance & Rural Banking Foundations (45 Credits)

I SEMESTER (22 Credits)

S. No	Course Title	Credits
1	Advanced Financial Accounting & Reporting	4
2	Agricultural Economics & Rural Development	3
3	Principles of Banking & Financial Institutions	4
4	Rural Credit Systems & Cooperative Banking	3
5	Quantitative Techniques for Finance	3
6	Research Methodology & Business Statistics	2
7	Banking Software & Financial Analytics Lab	3

Total Credits — 22

II SEMESTER (23 Credits)

S. No	Course Title	Credits
1	Agricultural Finance & Credit Management	4
2	Rural & Cooperative Banking Operations	4
3	Microfinance & Self-Help Group (SHG) Financing	3
4	Risk Management & Crop Insurance	3
5	Professional Elective I (Choose One): – Farm Credit & Agri Lending Practices – Cooperative Auditing & Compliance – Rural Entrepreneurship Finance	3
6	Open Elective I (Interdisciplinary)	2
7	Minor Project I (Rural Banking / Agri Finance Case Study)	4

Total Credits — 23

Year 2: Advanced Rural Banking & Financial Specialization (45 Credits)

III SEMESTER (22 Credits)

S. No	Course Title	Credits
1	Treasury Management & Rural Financial Markets	3
2	Digital Banking, FinTech & Financial Inclusion	3
3	NABARD, SIDBI & Development Financial Institutions	3
4	Professional Elective II (Choose One): – Agricultural Marketing Finance – Warehouse Receipt Financing & Commodity Markets – MSME & Rural Enterprise Financing	3

S. No	Course Title	Credits
5	Professional Elective III (Choose One):	3
	– Climate Finance & Sustainable Agri Finance	
	– Rural Risk Analytics & Credit Scoring	
	– Impact Finance & ESG in Rural Banking	
6	Internship (8 Weeks) – Bank / NABARD / Cooperative / MFIs	4
7	Seminar / Technical Presentation	3

Total Credits — 22

IV SEMESTER (23 Credits)

S. No	Course Title	Credits
1	Entrepreneurship Development in Rural & Agri Sector	3
2	Open Elective II (Interdisciplinary)	2
3	Major Project / Dissertation (Bank / Rural Finance Institution)	15
4	Viva-Voce & Portfolio Evaluation	3

Total Credits – 23

Credit Distribution

Core Commerce & Finance – 46
Professional Electives – 9
Open Electives – 4
Labs & Seminars – 6
Projects (Minor + Major) – 19
Internship – 4
Research & Methodology – 2

Total = 90 Credits

INDICATIVE SPECIALIZATION ELECTIVES

Professional Elective I

1. Farm Credit & Agri Lending Practices
2. Cooperative Auditing & Compliance
3. Rural Entrepreneurship Finance

Professional Elective II

1. Agricultural Marketing Finance

2. Warehouse Receipt Financing & Commodity Markets
3. MSME & Rural Enterprise Financing

Professional Elective III

1. Climate Finance & Sustainable Agri Finance
2. Rural Credit Scoring & Risk Analytics
3. Impact Finance & ESG in Rural Banking

Major Project Themes

1. Financial Performance of Cooperative Banks
2. Impact of Microfinance on Rural Livelihoods
3. NABARD-Linked Rural Credit Models
4. Digital Banking Penetration in Rural India
5. Crop Insurance & Revenue Risk Management
6. Inclusive Finance through SHGs & FPOs

School of Health & Wellness Sciences

Curriculum Structure and Credit Allocation for the Proposed Programmes

UG B.Sc. - Health and Physical Education (120 Credits)

Year 1: Foundations of Health & Physical Education (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Introduction to Health & Physical Education	4
2	Human Anatomy & Physiology	4
3	Foundations of Physical Fitness	3
4	Basic Nutrition & Health Education	3
5	Communication Skills & Professional English	2
6	Environmental Studies / Value Education	2
7	Physical Fitness Practical – I	2

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Exercise Physiology – I	4
2	Basics of Sports & Games	3
3	Health Psychology	3
4	Kinesiology & Biomechanics	3
5	First Aid, Safety & Disaster Management	3
6	Sports Skills Practical – I	3
7	Internship / Field Exposure	1

Total Credits — 20

Year 2: Core Physical Education & Health Sciences (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Exercise Physiology – II	4
2	Sports Training Methods & Coaching	4
3	Sports Nutrition & Diet Planning	3
4	Yoga, Wellness & Stress Management	3
5	Open Elective – I (Sports Psychology / Fitness Technology)	3
6	Sports Training Practical – I	3

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Sports Biomechanics & Performance Analysis	4
2	Health Promotion & Public Health	3
3	Sports Management & Event Organization	3
4	Adapted Physical Education (Special Population)	3
5	Open Elective – II (Sports Journalism / Fitness Marketing)	3
6	Sports Training Practical – II	3
7	Internship	1

Total Credits – 20

Year 3: Specialization, Leadership & Industry Practice (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Sports Injuries, Rehabilitation & Physiotherapy Basics	4
2	Fitness Testing & Performance Evaluation	3
3	Technology in Sports & Fitness (Wearables, AI Tools)	3
4	Elective – I (Adventure Sports / Strength & Conditioning / Sports Analytics)	3
5	Minor Project – I (Fitness Assessment / Sports Case Study)	4
6	Sports Fitness & Rehabilitation Lab	3

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Sports Ethics, Laws & Professional Practices	3
2	Elective – II (Elite Sports Training / Yoga Therapy / Sports Psychology)	3
3	Elective – III (Nutrition Therapy / Sports Marketing / Event Leadership)	3
4	Internship / Coaching Practice / Sports Organization Training (2 Months)	6
5	Major Project – Health, Fitness or Sports Research	5

Total Credits – 20

Credit Distribution

Basic Sciences & Foundations	– 22
Core Health & Physical Education	– 49
Specialization & Electives	– 18
Labs & Practicals	– 14
Internships	– 8
Projects (Minor + Major)	– 9

Total = 120 Credits

BSc (Hons) Digital Health and Analytics

I SEMESTER (19 Credits)

S. No	Course Title	Credits
1	Human Anatomy & Physiology – I	4
2	Introduction to Healthcare Systems	3
3	Basics of Computer Science & Digital Technologies	3
4	English Communication & Professional Skills	2
5	Mathematics for Data Analytics	3
6	Anatomy & Physiology Lab	1
7	Computer Fundamentals Lab	2
8	Environmental Studies (MC)	0

Total Credits – 19

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Human Anatomy & Physiology – II	4
2	Biochemistry & Pathology Basics	3
3	Database Management Systems	3
4	Health Information Systems & EHR	3
5	Programming Fundamentals (Python/R)	3
6	DBMS Lab	2
7	Digital Health Systems Lab	2
8	Constitution of India / Universal Human Values (MC)	0

Total Credits – 20

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Medical Terminology & Clinical Workflows	3
2	Epidemiology & Public Health Informatics	3
3	Data Structures & Algorithms	3
4	Telemedicine & Digital Health Systems	3
5	Open Elective – I	3
6	Data Structures Lab	3
7	Telemedicine Lab	2

Total Credits – 20

IV SEMESTER (22 Credits)

S. No	Course Title	Credits
1	Biostatistics & Research Methodology	3

S. No	Course Title	Credits
2	Digital Health Devices, IoT & Wearables	3
3	Artificial Intelligence in Healthcare	3
4	Cybersecurity & Privacy in Health Data	3
5	Open Elective – II	3
6	AI in Healthcare Lab	2
7	IoT & Wearables Lab	4

Total Credits – 22

V SEMESTER (22 Credits)

S. No	Course Title	Credits
1	Cloud Computing & Health Data Storage	3
2	Machine Learning Applications in Healthcare	3
3	Blockchain & Digital Records Management	3
4	Health Data Analytics & Visualization	3
5	Professional Elective – I	3
6	ML in Healthcare Lab	3
7	Mini Project – I (Digital Health Prototype)	3

Total Credits – 22

VI SEMESTER (22 Credits)

S. No	Course Title	Credits
1	Advanced Digital Health Platforms (Smart Hospitals)	3
2	Mobile Health (mHealth) Applications	3
3	Predictive Analytics & Precision Medicine	3
4	Hospital Information Systems & Digital Transformation	3
5	Professional Elective – II	3
6	Digital Health Application Development Lab	3
7	Research Project / Dissertation	4

Total Credits – 22

VII SEMESTER (24 Credits) – Internship Phase – I

S. No	Course Title	Credits
1	Industry/Clinical Internship (6 months) (Rotations: Hospitals, Health IT Companies, EHR Vendors, Telemedicine Firms)	20
2	Seminar & Technical Writing	4

Total Credits – 24

VIII SEMESTER (24 Credits) – Internship Phase – II

S. No	Course Title	Credits
1	Industry/Research Internship (6 months) (Rotations: AI Health Startups, Global Digital Health Projects, WHO/NGO Health Informatics Labs)	20
2	Comprehensive Viva & Exit Examination	4

Total Credits – 24

Professional Electives (Basket)

- AI & Deep Learning in Diagnostics
- Digital Therapeutics (DTx)
- Health Economics & Policy Analytics
- AR/VR for Healthcare Training
- Robotics in Surgery & Digital Assistance
- Genomics & Bioinformatics for Digital Health

School of Agriculture & Rural Development

Curriculum Structure and Credit Allocation for the Proposed Programmes

B.Sc. - Agriculture (160 Credits)

Year 1: Foundation in Basic & Agricultural Sciences (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics / Statistical Methods for Agriculture – I	4
2	Fundamentals of Agronomy	4
3	Agricultural Chemistry & Soil Science – I	3
4	Introduction to Agriculture & Indian Farming Systems	3
5	Basic Computer Applications in Agriculture	3
6	Communication Skills & Professional English	2
7	Field Practicals – I (Agronomy & Soil)	1

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics / Statistics for Agriculture – II	4
2	Agricultural Meteorology & Climate Science	3
3	Soil Science & Soil Fertility	3
4	Crop Production Technology – I	3
5	Environmental Studies & Sustainable Farming	3
6	Design Thinking & Agricultural Innovation	3
7	Internship / Farm Exposure – I	1

Total Credits — 20

Year 2: Core Agricultural Sciences (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Crop Production Technology – II	4
2	Horticulture & Plantation Crops	4
3	Plant Physiology	3
4	Agricultural Microbiology	3
5	Agricultural Extension Education – I	3
6	Humanities Elective (Ethics / Rural Psychology)	2

S. No	Course Title	Credits
7	Internship / Field Work – II	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Genetics & Plant Breeding	4
2	Agricultural Entomology	3
3	Agricultural Economics	3
4	Irrigation Engineering & Water Management	3
5	Open Elective – I (Agri-Business / Agro-Ecology / Precision Farming)	3
6	Agriculture Laboratory – I (Soil, Entomology, Microbiology)	3
7	Internship – III	1

Total Credits – 20

Year 3: Agricultural Specialization (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Plant Pathology & Disease Management	3
2	Seed Science & Technology	3
3	Farm Machinery & Power	3
4	Post-Harvest Technology & Food Processing	3
5	Elective – I (Organic Farming / Hydroponics / Agri-Biotech)	3
6	Minor Project – I (Farm / Crop / Soil Case Study)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Precision Agriculture & Remote Sensing	3
2	Integrated Pest Management (IPM)	3
3	Protected Cultivation & Greenhouse Technology	3
4	Agricultural Marketing & Trade	3
5	Open Elective – II (Agri-IoT / Climate Smart Agriculture / GIS)	3
6	Minor Project – II (Technology Validation / Design Project)	5

Total Credits – 20

Year 4: Industry, Research & Extension Integration (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Agri-Business Management & Entrepreneurship	3

S. No	Course Title	Credits
2	Agricultural Extension Education – II	3
3	Elective – II (Agri-Finance / Rural Development / Agri-Exports)	3
4	Elective – III (Livestock Management / Fisheries / Dairy Science)	3
5	Emerging Technologies in Agriculture (AI, Drones, Robotics, Agri-Data)	3
6	Semester Internship (2 months)	4
7	Major Project Phase – I	1

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Intellectual Property Rights & Agri Entrepreneurship	4
2	Major Project Phase – II (Industry / Research Based)	10
3	Open Elective – III (Interdisciplinary)	3
4	Seminar / Viva-Voce / Portfolio Development	3

Total Credits – 17

Credit Distribution

Basic Sciences & Mathematics – 24
Core Agricultural Sciences – 48
Specialization & Professional Electives – 27
Open Electives – 8
Labs & Practicals – 12
Projects (Minor + Major) – 26
Humanities & Management – 15

Total = 160 Credits

B.Sc. - Sustainable Agriculture & Rural Innovation (160 Credits)

Year 1: Foundation in Sustainability & Agricultural Sciences (40 Credits)

I SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics / Statistical Methods for Sustainable Agriculture – I	4
2	Fundamentals of Sustainable Agronomy	4
3	Agricultural Chemistry & Soil Science – I	3
4	Introduction to Sustainable Agriculture & Indian Farming Systems	3
5	Basic Computer Applications for Rural & Agri Systems	3
6	Communication Skills & Professional English	2
7	Field Practicals – I (Soil & Agronomy)	1

Total Credits — 20

II SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Mathematics / Statistics for Sustainable Agriculture – II	4
2	Agricultural Meteorology, Climate Change & Adaptation	3
3	Soil Science, Carbon Sequestration & Soil Fertility	3
4	Crop Production Technology – I (Sustainable Practices)	3
5	Environmental Studies & Agro-Ecosystem Sustainability	3
6	Design Thinking & Rural Innovation	3
7	Internship / Farm & Village Exposure – I	1

Total Credits — 20

Year 2: Core Sustainable Agricultural Sciences (40 Credits)

III SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Crop Production Technology – II (Climate-Smart Practices)	4
2	Sustainable Horticulture & Plantation Crops	4
3	Plant Physiology & Stress Tolerance	3
4	Agricultural Microbiology & Bio-Fertilizers	3
5	Agricultural Extension Education – I	3
6	Humanities Elective (Ethics / Rural Psychology)	2
7	Internship / Field Work – II	1

Total Credits — 20

IV SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Genetics & Climate-Resilient Plant Breeding	4

S. No	Course Title	Credits
2	Agricultural Entomology & Integrated Pest Ecology	3
3	Agricultural Economics & Rural Markets	3
4	Irrigation Engineering & Water Resource Management	3
5	Open Elective – I (Agri-Business / Agro-Ecology / Precision Farming)	3
6	Agriculture Laboratory – I (Soil, Entomology, Microbiology)	3
7	Internship – III	1

Total Credits – 20

Year 3: Sustainable Agriculture & Rural Innovation Specialization (40 Credits)

V SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Plant Pathology & Eco-Friendly Disease Management	3
2	Seed Science, Indigenous Seeds & Biodiversity Conservation	3
3	Renewable Energy in Agriculture & Farm Mechanization	3
4	Post-Harvest Technology, Food Security & Value Addition	3
5	Elective – I (Organic Farming / Hydroponics / Agri-Biotechnology)	3
6	Minor Project – I (Sustainability / Rural Innovation Case Study)	5

Total Credits – 20

VI SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Precision Agriculture, GIS & Remote Sensing	3
2	Integrated Pest Management & Bio-Control	3
3	Protected Cultivation & Greenhouse Technology	3
4	Agricultural Marketing, Rural Trade & FPOs	3
5	Open Elective – II (Agri-IoT / Climate-Smart Agriculture / GIS)	3
6	Minor Project – II (Technology Validation / Design Project)	5

Total Credits – 20

Year 4: Industry, Research & Rural Innovation Integration (40 Credits)

VII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Agri-Business Management, Startups & Entrepreneurship	3
2	Agricultural Extension Education – II	3
3	Elective – II (Agri-Finance / Rural Development / Agri-Exports)	3
4	Elective – III (Livestock / Fisheries / Dairy & Allied Sectors)	3
5	Emerging Technologies in Sustainable Agriculture (AI, Drones, Robotics, Agri-Data)	3

S. No	Course Title	Credits
6	Semester Internship (2 months)	4
7	Major Project – Phase I	1

Total Credits – 20

VIII SEMESTER (20 Credits)

S. No	Course Title	Credits
1	Intellectual Property Rights & Rural Innovation Entrepreneurship	4
2	Major Project Phase – II (Industry / Research Based)	10
3	Open Elective – III (Interdisciplinary)	3
4	Seminar / Viva-Voce / Portfolio Development	3

Total Credits – 17

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