Definition, concept, scope and development of Agronomy, Climate based classification of crops. Environmental factors affecting crop production. Weather forecast. Scientific cultivation of important cereals, pulses, Oil seeds, fodder. Fibre and cash crops.

Concept of horticulture, its importance and scope Orcharding and kitchen gardening. Scientific cultivation of major fruits and vegetable crops of U.P. Principles and methods of fruit and vegetable preservation. Causes of spoilage of fruits and vegetable products.

Definition of soil. Soil formation and development Physical, Chemical and Biological properties of soil. Soils of U.P. Essential plant nutrients and their deficiency symptoms. Manures, fertilizers and biofertilizers, problem soils and their reclamation. Soil erosion, causes and control measures. Soil testing.

Absorption of water and plant nutrients. Elementary idea of photosynthesis, respiration and transpiration. Types of seed and their quality.

Sources and methods of irrigation. Quality of irrigation water. Moisture conservation . Types of drainage-their merits and demerits.

Classification of pesticides, control measures of different weeds, insects and diseases of important cereal, fruits and vegetable crops.

Farm machinery and their maintenance. Tillage, intercultural and spraying equipments. Important breeds of cows, buffaloes, sheep and goats. Methods of animal breeding. Principles of feeding. Maintenance and production ration: Description, symptoms, diagnosis and treatments of anthrax, foot and mouth, disease, rinderpest, mastitis and milk fever.

Farm records. Revenue records of holdings: Village and agricultural development programmes of Central and State Governments Agricultural Universities, KVK and other extension organizations.

SYLLABUS
Subject: Computer

Digital Logic and Circuits and Discrete Mathematical Structures: Number Systems, Boolean algebra and Logic Gates, Simplification of Boolean Functions, Combinational Circuits, Sequential Circuits, Memory circuits, Sets, Relations & Functions, Mathematical Logic, Boolean algebra, Combinatorics & Recurrence Relations, Graph theory.

Computer Organization and Architecture: Stored Program Concept, Components of a Computer System, Machine Instruction, Op codes and Operands, Instruction Cycle, Organization of. Central Processing Unit, ALU, Hardwired & Micro programmed Control Unit; General Purpose and Special Purpose Registers. Memory Organization, I/O Organization, Functioning of CPU, Instruction Formats, Instruction Types, Addressing Modes, Common Microprocessor Instructions, Multi-core Architecture, Multiprocessor and Multicomputer.

Data Structures and Algorithm: Definition and types, Linear Structures, Non-Linear Data Structures, Hashing and Collision Resolution Techniques. Searching and Sorting, Algorithms, Analyzing. Algorithms, Complexity of algorithms, Growth of functions, Performance measurements, Advanced Data Structures, Red-Black trees, B - trees, Binomial Heaps, Fibonacci Heaps. Introduction to Design Techniques: Divide and Conquer, Greedy algorithms, Optimal ReliabilityAllocation, Knapsack, Minimum Spanning trees Prim's and Kruskal's algorithms, Single source shortest paths - Dijkstra's and Bellman Ford algorithms. Dynamic Programming, Kanpsack, All pair shortest paths - Warshal's and Floyd's algorithms, Resource allocation problem. Backtracking, Branch and Bound with examples such as Travelling Salesman, Problem, Graph Coloring, n-Queen Problem, Hamiltonian Cycles and Sum of subsets. Algebraic computation, fast Fourier Transform, String Matching, Theory of NP- completeness, Approximation algorithms and Randomized algorithms.

Problem Solving through C Programming: Basic Programming Concepts, Introduction to: C Programming Language and programming in C

Object Oriented Techniques: Object orientation, Encapsulation, information hiding, polymorphism, generosity, Object Oriented modelling, UML, Structural Modelling, Behavioural. Modelling and Architectural Modelling. Object Oriented Analysis, Object oriented design, Object design. Structured analysis and structured design (SA/SD), Jackson Structured Development (JSD). Object oriented programming style Introduction to Java, Java Beans, Enterprise Java beans (EJB), Java Swing; Java as internet programming language. The connectivity model, JDBC/ODBC, Bridge, Introduction to servlets.

Operating System: Definition, Design Goals, Evolution, Structure and Functions of Operating System. Process Management, Memory Management, Concurrent Processes, File and Secondary Storage Management, UNIX and Shell Programming, Windows Programming

Database Management Systems: Database Systems, View of Data Models, Database Languages, DBMS Architecture, Database Users and Data Independence. ER Modelling, Relational Model, Introduction to SQL Relational Database Design, Database Security, Transaction Management, introduction to Query. Processing and Query Optimization, Concurrency Control, and Recovery Techniques.

Computer Networks: Network definition, network topologies, network classifications, network protocol, layered network architecture, overview of OSI reference. Model, TCP/I P protocol suite. Data Communication Fundamentals and Techniques, Networks Switching Techniques and Access mechanisms, Data Link Layer Functions and Protocol, Multiple Access Protocol and Networks, Networks Layer Functions and Protocols, Transport Layer Functions and Protocols, Overview of Application layer protocol.

Software Engineering: Definition, Software development, and life-cycle models, CMM, Software Quality, role of metrics and measurement. Requirements Analysis and Specification, Software Project Planning, Software Architecture, Software Design and implementation, Software Testing and Reliability.

Internet Technology, Web Design and Web Technology: Internet Technology and Protocol, Internet Connectivity, Internet Network, Services on Internet, Electronic Mail, Current Trends on Internet, Web Publishing and Browsing, HTML Programming Basics, Interactivity Tools Internet. Security Management Concepts, Information Privacy and Copyright Issues, Web Technology: protocols, development strategies, applications, Web project and team. Web Page Designing, Scripting, Server Site Programming.

System Analysis And Design: Analysis and Design of a System, documenting and evaluating the system, Data Modelling, Development of Information Management System, Implementation, Testing and Security Aspects.

Information Security and Cyber Laws: Distributed Information Systems, Role of Internet and Web services, Threats and attacks, Assessing-Damages, Security in Mobile and Wireless Computing, Security Threats to E-Commerce, E—Governance and EDI, Concepts in Electronics payment systems, E-Cash, Credit/Debit Cards. Physical -Needs Disaster and Controls, Basic Tenets of Physical Security and Physical Entry Controls, Access Control. Model of Cryptographic Systems, Design and Implementation Issues, Policies, Network Security, Attacks, Need of Intrusion 'Monitoring and Detection, Intrusion Detection. Security metrics- Classification and their benefits. Information Security & Laws, Ethics- Ethical Issues, Issues in Data and Software Privacy. Overview and types of Cyber Crimes.

Security-Needs Disaster and Controls, Basic Tenets of Physical Security and Physical Entry Controls, Access Control. Model of Cryptographic Systems, Design and Implementation Issues, Policies, Network Security, Attacks, Need of Intrusion 'Monitoring and Detection, Intrusion Detection. Security metrics- Classification and their benefits. Information Security & Laws, Ethics- Ethical Issues, Issues in Data and Software Privacy. Overview and types of Cyber Crimes.

Computer Graphics Types of computer graphics,-Graphic Displays Random scan displays, Raster scan displays, Frame buffer and video controller, Line and Circle generating algorithms, Transformations, Windowing and Clipping, Three Dimensional graphics, Curves and Surfaces, Hidden Lines and Surfaces.

SYLLABUS
SUBJECT- ART

Unit-1

Elements of Painting, Medium, Technique and principles of Composition.

(A) Ancient Traditional and modern medium and Techniques of Painting.

Unit-2

Concepts of Eastern and Western Aesthetics-Definitions, Thinkers, Principles of Art and Inter-relationship of arts. (A) Six limbs of Indian Art.

Unit-3

Indian Pre-historic, Ancient, Classical, and Medieval Art-Development, Style and Specific area.

(A)Indian Modern, and Contemporary Art-Art Groups, Painters, Sculptors, Print-makers, Thinkers and their concepts.

Unit-4

European Pre-historic, Ancient, Classical and Medieval Arts- Development, Style and Specific Area.

(A) Modern Art of Europe, Art-Groups, Isms, Painters, Sculptors, Print-makers, Thinkers and their concepts.

Unit-5 Indian Contemporary Art-Art Scenerio Artists, Art activities and Current trends. Art market, Art Criticism and Art- thought.

Syllabus
Music

1- Vocal

Vibration and Frequency, Nad and its Characteristics Study of Swar and Shruti, Placement of Shuddha and vikrit Swaras according to Sharangdev, Ahobal, Lochan SriNiwas, Rammamatya and Pt. Bhatkhande. Study of the 72 mela system of Pt Vyankatmakhi, study of 10 thaats of Bhatkhande and modern 32 Thatas, placement of shuddha and Vikrit Swaras on the 36"

string of veena according of Pt. Sri Nivas, Sarana- chatustaie, Musical quality of Sound (Swayambhu Swara), Jati Raag, Gram Moorchana Consonance - Dissonance, Harmony-melody, Echo, Resonance, Reverberation, Various kinds of chords Salient Features of western Staff-Notation and its comparison with Pt. Bhatkhande and Pt. Vishnu Digambar Pulaskar.

Notation system:

Classification of Ragas, Classification of instruments, Comparative Study of Northern and Southern,Music Systems (with special reference to Raga and Tala), Study of the main Gharans of Vocal music, History of Ancient, Medieval and modern period of music, Short notes on Varna, Alankar, Pakad, Vakara Swara, Kan Murki, Gamak, Kampan Khatka, meend Vadi- Samvadi, Anuvadi, Vivadi, Grah, Ansha, Nyas, Geet, Margi, Deshi ,Nibaddha, Anibaddha, Gaan, Ragalaap, Roopalaap, Alaptigaan, Alpatva-Bahutva, Abirbhav- Tirobhav, Ardhadarshak Swar, Raga, and its Time -theory , Sandhi Prakash Raga, Poorv and Uttar Raga, Parmal- Praveshak Raga, Merits and demerits of Gayaka, Study of Styles of Dhrupad, Dhamar, Thumari, Tappa, Tarana, Chaturang , Trivat.

Study of main Treaties of music: Natyashastra, Brahadeshi, Sangeet Ratnakar, Biographies of eminent artists — Swami Haridas, Tansen, Pt. Bhatkhande Pt. Vishnu Digambar Pulaskar Ameer Khusro, Pt. Ravishankar, Pt. Onkar nath Thakur. Nikhil Bannergee.

Study of the main ragas : Kalyan , Bhairav , Bhairavi, Bilawal, Todi, Poorvi , Asavari, Desh, Baggeshwari, Marwa, Kafi, Khamaj, and comparative study of these Ragas.

2. Instrumental:

Study of different instruments-

Tabla, Sitar, Tanpura, Pakhawaj, Sarangi, Guitar, Voilin, Harmonium, Ten Pranas of Talas, Varna, Laya, and study of Laykaries; Deshi and Margi talas, study of Sam-Visham Talas, Shortnotes on taal- Tali, theka, Sam, Khali, Avartan, Vibhag, Peshkcara, Gat, Kayda, Tukra, Varieties of Paran, Palta, Rela, Peshkara, Damdar and Vedamdar, Tihai,

Mukhra,Tripalli, Chaupalli, Chakradaar bol, Laggi, Ladi, Jhala, Jod, krantan, Jamzama, Murki, Parts of Tabla, Tuning methods of Tabla, Recognition of instruments by its given bols, recognition of talas by given Bols of Theka, Historical description of instruments, Stuti ke bol, Tukra, Paran ke bol, Navhakka. Study of different Pairs,-Kayda-Peshkra, Chakardar Gat-Tukra, Laya, Tala, Rela.

Study of various Talas-Teental, Chartal, Ektal, Dhamar, Roopak, Keharwa, Adachartal, Deepchandi, Gazjhampa, Teevra, Jhoomra, Seven Talas of Karnatak Music, Study of different Gharanas and Baj of Sitar and Tabla, Biography of Eminent artists- Pt. Siddhar khan, Pt. Kanthe Maharaj„ Pt. Gudai Maharaj, Pt. Ram Sahai,Ahmed Jaan Thirakwa, Nana Saheb Panse, Pt Bhairav Sahai, NikhilBannerjee, Manilal Nag, Vilayat Khan, Imdad Khan, Ali Akbar Khan, LaIJi Srivstava.

Syllabus
Subject-Physical Education

1. Principle and History of Physical Education- Meaning and Definition of Physical Education, Its Aim and Objectives, Need and Importance of Physical Education, Biological Basis of Physical Education, History of Physical Education in India and world. Olympic game, Asian Game, Common Wealth Game, Afro Asian Game, Important Sports Institutes of India.

2. Psychology in Physical Education- Definition and Importance of Psychology in Physical Education, Define Learning, Laws of Learning and Transfer of Learning, Principle of Learning, Learning Curve, Developmental Characteristics at Different stages of Development, Meaning and Types of Intelligence, Intelligence Quotient, Theories of Intelligence, Meaning and Definition of Personality, Types of Personality, Meaning and Types of Motivation, Play Theory.

3. Organisation and Supervision in Physical Education- Meaning and Importance of Organisation and Supervision, Budget, Principle of Management, Leadership and its Types, Competition - Knockout, League, Combination and Challenge, competition. Extramural and Intramural Competition, Meaning and definition of Recreation, Aims and Objectives of Recreation, Meaning of Camp, Aims and objectives of camp, Types of camp.