इकाई 1. व्यष्टि अर्थशास्त्रः अर्थ, क्षेत्र एवं अर्थशास्त्र की अध्ययन विधियां, उपयोगिता विश्लेषण, मांग का नियम, तटस्थता वक्र विश्लेषण, उपभोक्ता का संतुलन; मांग की लोच, उत्पत्ति के नियम, उत्पादन फलन, सममात्रा वक्र, उत्पादक का संतुलन, उत्पादन की लागत और लागत वक्र, पूर्ति वक्र, आगम वक्र, बाजार ढाँचा, पूर्ण प्रतियोगिता, एकाधिकार, एकाधिकारात्मक प्रतियोगिता के अंतर्गत कीमत निर्धारण तथा अल्पाधिकार; साधन कीमत निर्धारण– वितरण का सीमांत उत्पादकता सिद्धांत, श्रम, लगान, ब्याज तथा लाभ के सिद्धांत।

इकाई 2. समष्टि अर्थशास्त्रः अर्थ, क्षेत्र तथा समष्टि अर्थशास्त्र के प्रकार, राष्ट्रीय आय – अर्थ, अवधारणायें तथा इसकी माप, क्लासिकी तथा केन्जियन रोजगार सिद्धान्त, उपभोग फलन, गुणक की अवधारणा; स्फीति; व्यापार चक्र; मुद्रा एवं बैकिंग– अवधारणा, कार्य माप, मुद्रा का परिमाण सिद्धांत– लेन–देन तथा नकद शेष दृष्टिकोण; केन्द्रीय बैंक, व्यापारिक बैंक, बैकिंग क्षेत्र सुधार, मौद्रिक नीति; लोक वित– अर्थ, राजकोषीय कार्य, अधिकतम सामाजिक लाभ का सिद्धांत, लोक व्यय– अर्थ, नियम एवं लोक व्यय के प्रभाव; लोक आय–स्त्रोत, कराघात एवं करापात तथा करारोपण के प्रभाव, वस्तु एवं सेवा कर (जी0एस0टी0); लोक ऋण– अर्थ, स्त्रोत और भुगतान की विधियां, सार्वजनिक वस्तु एवं वाह्यतायें, राजकोषीय नीति।

इकाई 3. भारतीय अर्थव्यवस्थाः भारतीय अर्थव्यवस्था की विशेषतायें, जनांकिकीय प्रवृत्तियां, मानव विकास सूचकांक, प्राकृतिक संसाधन, कृषि उत्पादन तथा उत्पादकता की प्रवृत्तियां, कृषि वित और विपणन, सहकारी आंदोलन, खाद्य सुरक्षा; औद्योगिक निष्पादन और समस्यायें, लघु उद्योग, सूक्ष्म–लघु एवं मध्यम उद्योग, भारत में सुधार पूर्व एवं सुधार पश्चात औद्योगिक विकास, नई औद्योगिक नीति, 'नीति' आयोग; भारत का विदेशी व्यापार– प्रवृत्ति और दिशा, भारत का भुगतान संतुलन, नई विदेशी व्यापार नीति, विश्व व्यापार संगठन (WTO) एवं भारत; सामाजिक सुरक्षा योजनायें, भारतीय कर प्रणाली के वर्तमान मुद्दे, भारत में संघीय व्यवस्था, संघीय बजट (नवीनतम) विश्लेषण तथा बजट घाटे, गरीबी निवारण और रोजगार सृजन कार्यक्रम, उत्तराखण्ड की अर्थव्यवस्था– मूलभूत विशेषतायें, प्राकृतिक संसाधन– खनिज, जल और वन; जनसंख्या, फसल चक्र (cropping pattern), जैविक खेती और पारम्परागत फसलें, सहकारी कृषि, राज्य की अधः संरचना; औद्योगीकरण तथा विपणन की समस्यायें, प्रकास; पर्यटन, क्षेत्रीय असंतुलन, राज्य की कल्याणकारी योजनायें तथा आपदा प्रबंधन तंत्र, राज्य के बजटों (नवीनतम) का विश्लेषण।

इकाई 4. अर्थशास्त्र में सांख्यिकी का अनुप्रयोगः समंकों का संकलन, वर्गीकरण तथा प्रदर्शन; केन्द्रीय प्रवृत्ति की माप– माध्य, माध्यिका एवं बहुलक, अपकिरण, लारेंज वक्र, सहसंबंध–कार्ल पियर्सन तथा कोटि अंतर विधि, सूचकांक।

Syllabus of agriculture Sciences

UNIT- I

Definition and scope of Agronomy, Classification of field Crops, general principles of Crop production: Climate, soil, soil preparation, seed and sowing, tillage, water management, nutrient management, plant protection management, harvesting, threshing and storage, mixed and inter-cropping, manure and fertilizers, cultivation of common crops- Cereal Crops : Wheat, Barley, Oat: oilseed Crops : Rapeseed and mustard Linseed, Sunflower ; Pulse crops : Chick pea, field pea, Lentil, Rajmah, Fodder Crops : Oat, Berseem, Lucerne; Cash Crops : Potato, sugarcane, recommended varieties, seed rate, time and method of sowing, irrigation, manure and fertilizer, weed controls, insect-pests and diseases, harvesting, processing and yield. Soils- origin and classification loam, silt, clay, sandy loam, physical and chemical properties of soil. Use of fertilizers, essential nutrients- nitrogen, phosphorus and potassium, organic and inorganic fertilizers and their effects on crops and soil, FYM and green manauring, water requirement of crops, measurement of water discharge, prevention of loss of water, different methods of irrigation – flooding, basin method, border /strip method, sprinkler and drip irrigation. Disadvantage of excess moisture, prevention of formation of acidic and alkaline soils and their management.

UNIT –II

Study of horticultural crops including recommended varieties and their main features, suitability for different regions, time and method of sowing, manure and fertilizer, irrigation, diseases and pests and their control. major vegetables like Potato, Brinjal, chillies, tomato, Cauliflower, Cabbage, knol khol, Onion, Watermelon, Okra, Radish, Carrot and Pea. cucurbits, bittergourd, bottlegourd, muskmelon, ridge gourd, root crops-carrot, radish sweet potato, turnip, fruits vegetables-tomato, bringal, botanical Classification of vegetables and fruits, pruning and training of fruit plants, Unfruitfulness , Fruit drop, Polyembryony, Parthenocarpy and incompatibility. Practices involved in the production of fruits: Mango, Guava, Kagzi lime, Banana, Grape, Litchi, Papaya, Loquat, Aonla, Ber, Jack Fruit, Apple, Pear and Peach, Production techniques of plantation crops: Coconut, Cashew nut, Tea Coffee and coca

UNIT-III

Type of iron and steel, wood, plastic and tin used in agricultural implements and their forms & properties. Study of different types of ploughs- indigenous, chisel, rotary and disc plough,. their management & cost, selection of prime movers, water lifting devices; discharge, command area, cost of different system; soil preparation, methods of ploughing, need for tillage, kinds of tillage, mechanical Power transmission through belts, pullies and gears, EC engine and its components. Classification of tractors, Elementary knowledge about main components of tractor and their functions such as steering, clutches, transmission gears, differential and final drive, Introductory agricultural economics-meaning and scope, Production – meaning, factors of production such as land, labour, capital and management, properties of factor of production; law of returns; intensive and extensive agriculture, law of demand, relative prices and standard of living; Cooperation - meaning, principles of cooperation, land development banks: Agriculture-place in Five Year Plans; Extension Education, Extension Teaching and Learnin. Extension and Rural Development Programmes: Including T and V system, National Demonstration, IRDP, Jawahar Rojgar Yozana.

UNIT-IV

Study of major breeds of cow, buffalo, goat, sheep, poultry and Pig; Physiology and anatomy of cow and buffalo; characteristics of good milch cow and buffalo, bulls and bullocks. Care and management of pregnant cow, poultry management. Principles of feeding of various classes of livestock and poultry. Clean milk production and maintenance of hygiene. Common medicines and vaccines used in treatment/prevention and control of animal diseases; handling of animals for treatment; castration. Operation flood, Milk and Milk products, Identification of Adult rated milk. Importance of farm's livestock and poultry in agriculture and Indian economy, Pathogenesis disease and vaccination. The antigens, antibiotics, antiseptics, disinfectants, The milk and its synthesis in mammary glands. Composition of milk of different species and colostrum. Details composition and physio-chemical properties of cow and buffalo's milk. Factors affecting quantity and chemical composition of milk. Chemistry of milk constituents viz. lactose, fat, protein, enzymes and vitamins. preservatives and adulterants of milk. Chemical changes occurring during storage of milk. Classification of common feeds and fodders, low-cost balanced feeds. Evaluation of energy and protein value of feed. Processing methods of animal feed stuffs. Processing of milk for filtration, clarification, bactofugation, standardization, homogenization, cream separation-centrifugation. Indigenous milk products-paneer, chhana, ghee, khoa, dahi. Other milk products- cream, butter, ice-cream, condensed milk, milk powder, cheese, dairy by products.

UNIT-V

Mendel's Law's of heredity, Chromosomal theory of inheritance, meiosis and mitosis, Linkage and crossing over - types, mechanism and significance, Nucleic acid as genetic material - structure, replication, genetic code and translation, Mutation - spontaneous and induced, Sex chromosomes and its determination in man and droisophila, sex linked characters. Mean as measures of central tendency-Mean, Median, Mode, Geometric Mean, Harmonic Mean, Weighted Range, Quartile Deviation, Variance, Standard Deviation and Coefficient of variation. Chemistry of Carbohydrates- Glucose, fructose, Galactose, Sucrose, Lactose, Maltose, Starch, Cellulose. Ammo acids, Lipids and fatty acids. Vitamin A, D, E, K, Thiamine, Riboflavin and Nicotinic acid, Plant growth substances, photoperiodism and verbalization, Insect Anatomy: Digestive, Excretory, Reproductive, Circulatory, Respiratory and Nervous systems of grasshopper, General introduction to Phylum Arthropoda, class Insecta, Mode of reproduction in crop plants in relation to breeding techniques. Genetic consequences of self and cross pollinated crops. Plant Introduction and exploration, Breeding self pollinated crops, population's improvement, Mass selection, recurrent selection. Breeding cross pollinated crops mass selection, pedigree, bulk and back cross methods. Classification of plant diseases according to cause and occurrence. Plant Pathogens: Fungi (Albugo. Erysiphe, Ustilago, Claviceps and Puccinia. Diagnositic characters of the following genera: Phytophthora, Peronospora, Sclerospora, Ustilago, Sphacelotheca, Tolyposporium, Melampsora, Alternaria, Cercospora, Fusarium, Helminthosporium, pyricularia, Rhizoctonia and Colletotrichum. Preliminary knowledge of hazards related to pesticide use, MRL, ADI, Mammalian Safety Ratio .Basic concept of Integrated Pest Management.

15, 18, 28, 29

Fundamental of Computers
Syllabus

Unit 1: Basic Concepts : Introduction to Computers, Classification and Generations of computers; Block Diagram of Computer,Hardware, Software, Firmware, Input devices, Memory and Storage Devices, Central Processing Unit, Output devices and Computer Ports, Software: System software and Application Software, Concept of Algorithm and Flowchart, Generations of Programming Languages.

Unit 2: Operating System

Concept of Operating System, Operating System : Open and Proprietary, Versions of Windows, Features of Windows Operating System, Windows Desktop, Booting, Shut Down and Standby options,Start Menu, Keyboard Shortcuts; Application Management using Control Panel, Installing and Uninstalling a software; System Tools: Disk Cleanup, Disk Fragmentation, Working with Windows Explorer; Basics of Linux

Unit 3: Software Packages Word Processing: Word processing concepts, Working with word document: Opening, Closing and saving options, Editing text, Find and replace text, Language checking and thesauruses, Formatting, spell check, Autocorrect, Autotext; Bullets and numbering, Paragraph Formatting, Indent, Page Formatting; Header and footer; Tables: Inserting and importing of tables, filling and formatting a table; Pictures and Video; Mail Merge; Printing documents; Keyboard Shortcuts

Spreadsheet: Spreadsheet concepts, Managing worksheets, Formatting of Worksheets and Cells, Entering data, Editing; Printing a worksheet; Organizing Charts and graphs; Formulas and Functions: Handling operators in formula; generally used Spreadsheet functions: Mathematical, Statistical, Financial, Logical, Date and Times; Keyboard Shortcuts

Presentation Software: Introduction and creation of the presentation, Use of Templates; Adding new slide, Navigating across slides, Use of Master Slide, slide show, Saving and Opening of presentation, Text formatting options, Copy, Move , Delete slides, Applying designs, Using Animations, Slide Transitions, Insert clip art, Insert sound/movies, Viewing the presentation; Taking printout of presentation/Handouts; Keyboard Shortcuts.

Unit 4: Working with Internet

Basics of Computer Network and Internet, Working with Internet, ISP, Web Browsers, World Wide Web (WWW), Uniform Resource Locator (URL) and Domain Names, Uses of Internet, Concept of Search Engines, IP Address, Applications of Internet, Chatting, Video-Conferencing, Email: Manage an E-mail Account, E-mail Address, configure E-mail Account, log to an E-mail, Sending and Receiving e-mails, sending files as attachments, Address Book; Uploading/ Downloading Files, Net Etiquettes. Social impact of ICT in Education, health care and Governance

Unit 5: Cyber Security Virus, Worms, Trojan and Anti-Virus software, Spyware, Malware, Spams, Data Backup and Recovery Tools, Indian IT ACT, Types of Cyber Crime, firewall, Cookies, Hackers and Crackers, Cyber Security Techniques: Authentication, Encryption, Digital Signatures, Anti-Virus, Firewall, Steganography.