Anekant Education Society's

Tuljaram Chaturchand College, Baramati.

(Autonomous)

Three Year B. Voc. Degree Program in Dairy Technology

(Faculty of Vocational Courses)

CBCS Syllabus

F. Y. B. Voc. Dairy Technology

Semester -II

For Department of

Dairy Technology

Tuljaram Chaturchand College, Baramati

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

To be implemented from Academic Year 2023-2024

Title of the Programme: F. Y. B. Voc.(Dairy Technology)

Preamble

AES's Tuljaram Chaturchand College has made the decision to change the syllabus of across various faculties from June, 2023 by incorporating the guidelines and provisions outlined in the National Education Policy (NEP), 2020. The NEP envisions making education more holistic and effective and to lay emphasis on the integration of general (academic) education, vocational education and experiential learning. The NEP introduces holistic andmultidisciplinaryeducationthatwouldhelptodevelopintellectual, scientific, social, physical, emotional, ethical and moral capacities of the students. The NEP 2020 envisages flexible curricular structures and learning based outcome approach for the development of the students. By establishing a nationally accepted and internationally comparable credit structure and courses framework, the NEP 2020 aims to promote educational excellence, facilitate seamless academic mobility, and enhance the global competitiveness of Indian students. It fosters a system where educational achievements can be recognized and valued not only within the country but also in the international arena, expanding opportunities and opening doors for students to pursue their aspirations on a global scale.

In response to the rapid advancements in science and technology and the evolving approaches in various domains of Dairy sector and related subjects, the Board of Studies in Dairy Technology at Tuljaram Chaturchand College, Baramati - Pune, has developed the curriculum for the first semester of F. Y. B. Voc. Dairy Technology, which goes beyond traditional academic boundaries. The syllabus is aligned with the NEP 2020 guidelines to ensure that students receive an education that prepares them for the challenges and opportunities of the 21stcentury. This syllabus has been designed under the framework of the Choice Based Credit System (CBCS), taking into consideration the guidelines set forth by the National Education Policy(NEP) 2020,LOCF(UGC),NCRF, NHEQF, Prof. R. D. Kulkarni's Report, Government of Maharashtra's General Resolution dated 20thApril and 16th May 2023, and the Circular issued by SPPU, Pune on 31st May2023.

The department of Dairy technology aims at imparting quality education in the realm of procurement, processing and packaging of milk and milk products with an objective to enhance and expand the knowledge and skill set of target students so that they can contribute in the betterment of society at large. The department of Dairy Technology was established with the objective of producing highly proficient technocrats who can meet the standards of the corporate. The department purports to have dexterous mentors adept at molding the student talent pool. A team of well qualified faculty navigates issuing priceless guidance and tapping the potential of students.

It is estimated that a huge number of Dairy Technology professionals will be required in India five years down the line in keeping with the global trend. Indian professionals are respected across the world

for their technology – related skills. Our focus in this department is not only on completing the curriculum to pass the examinations but we also try to keep up with the developments in the technology and expose the students to the latest to ensure that they are able to cope up with the fast changing industrial scenario.

The department is in purpose – built accommodation and is equipped with teaching and office space as well as well-equipped laboratories for practical - based teaching. All faculties of the department are members of various professional societies and technical bodies like AFST (I), etc. the department has signed MoU's with various organizations for student exchange and projects.

Overall, revising the Dairy Technology syllabus in accordance with the NEP 2020 ensures that students receive an education that is relevant, comprehensive, and prepares them to navigate the dynamic and interconnected world of today. It equips them with the knowledge, skills, and competencies needed to contribute meaningfully to society and pursue their academic and professional goals in a rapidly changing global landscape.

ProgrammeSpecificOutcomes(PSOs)

PSO1. Problem Analysis: Demonstrate the ability to analyze technical and scientific problems in both private and government fields and propose effective solutions.

PSO2. Industrial Survey Project: Possess the skills necessary to conduct industrial survey projects, enabling them to assess the development status of specific dairy industry.

PSO3. Individual and Teamwork: Effectively collaborate as individuals and as members or leaders in diverse teams and multidisciplinary settings.

PSO4. Application of Modern Instruments: Apply various modern instruments and equipments for analysis of data on various parameters.

PSO5. Effective human interaction: Learn to establish effective interactions between the people of same fraternity to create strong network.

PSO6. Critical Thinking: Demonstrate the ability to understand and address critical issues in technological research and developments.

PSO7. Development of Observation Skills: Through practical knowledge, industrial experiences, students will develop strong observational skills and the ability to identify the field of work.

PSO8. Human perception and behavior: Learning human perception and behavior to acquire the industrial knowledge overtime, is essential to improve decision making process.

PSO9. Effective Citizenship: Exhibit empathetic social concern, an equity-centered approach to national development, and actively engage in civic life through volunteering.

PSO10. Management Skills: Understand and apply management principles to their work, functioning effectively as individuals and as members or leaders in diverse, multidisciplinary teams.

PSO.11 Ethics: Recognize different value systems, including their own, understand the moral dimensions of their decisions, and take responsibility for their actions.

PSO12.Professional Ethics and Sustainability: Comprehend the societal and environmental impact of their knowledge and exhibit an understanding of the need for sustainable development.

PSO13. Identification of critical problems and issues: Detection and identification of the critical problems and spatial issues are essential for sustainable development.

Anekant Education Society's

Tuljaram Chaturchand College, Baramati

(Autonomous)

BoardofStudies(BOS)in Dairy Technology

From2022-23to2024-25

Sr.No.	Name	Designation
1.	**Ms. Patwardhan Shubhada S.**	Chairman
2.	**Ms. More Nikita Baban**	Member
3.	**Ms. Khomane Vaishnavi B.**	Member
4.	**Ms. Pranoti Anagal**	Expert from University
5.	**Dr. Khojare Ajit S.**	Expert from other University
6.	**Dr. Sahoo A. K.**	Expert from other University
7.	**Mr. Chavan Ganesh**	Industry Expert
8.	**Mr. Vhorkate Karan Dayaram**	Meritorious Alumni
9.	**Ms. Taware Shravani Rajesh**	Student Representative
10.	**Mr. Gavali Saurabh Anil**	Student Representative

CreditDistributionStructureforF.Y.B. Voc. – 2023 – 2024(Dairy Technology)

Level	Semester	Major		Minor	OE	VSC,SEC, (VSEC)	AEC,VEC,IKS	OJT, FP,CEP, CC,RP	Cum. Cr/Sem	Degree/Cum.Cr.
		Mandatory	Electives							
4.5										UG Certificate 44credits
	I	DRT-101-MJM: Dairy Farm Management (2credits)	--	--	DRT -116-OE: Food adulteration – I(2credits)	DRT -121-VSC: Waste management and effluent treatment – I (2 credits)	ENG-131-AEC Functional English-I(2credit)	CC1 (2credit)	22	
		DRT -102-MJM: Dairy Chemistry (2credits)			DRT -117-OE: Diet Management -I(2 credits)	DRT -126-SEC: Soft skill Development (2credits)	ENV -135-VEC: Environmental Science interaction(2credits)			
		DRT -103-MJM: Practical Chemical analysis of milk (2credits)					DRT -137-IKS: Milk and ancient Indian therapy(2credits)			
	II	DRT-151-MJM: Market milk (2 credits)	--	DRT-161-MN: Food Preservation	DRT -116-OE: Food adulterant-II(2credits)	DRT -171-VSC: Food Safety, Hygiene and Sanitation (2 credits)	ENG-181-AEC Functional English-II(2credit)	CC2 (2 credit)	22	
		DRT-152-				DRT-176-SEC	DRT-185-VEC:			

		MJM: Dairy Microbiology (2 credits)		Technology (2credits)	DRT -117-OE: Detection of Food Adulteration (2 credits)	Computer skills (2credits)	Digital and Technological Solutions			
		DRT-152-MJM: Practical Microbial analysis of milk (2 credits)								
	Cum Cr.	**12**	--	2	8	8	10	4	44	

CourseStructure for F. Y. B. Voc.Dairy Technology (2023 Pattern)

Sem	CourseType	Course Code	Course Name	Theory /Practical	Credits
I	Major Mandatory	DRT-101-MJM	Dairy Farm Management	Theory	02
	Major Mandatory	DRT-102-MJM	Dairy Chemistry	Theory	02
	Major Mandatory	DRT-103-MJM	Chemical analysis of milk	Practical	02
	Open Elective(OE)	DRT-116-OE	Food adulteration – I	Theory	02
	Open Elective(OE)	DRT-117-OE	Diet management - I	Theory	02
	Vocational Skill Course(VSC)	DRT-121-VSC	Waste management and Effluent treatment - I	Theory	02
	Skill Enhancement Course(SEC)	DRT- 126-SEC	Soft skill development	Theory	02
	Ability Enhancement Course(AEC)	ENG-131-AEC	Functional English-I	Theory	02
	Value Education Course(VEC)	ENV-135-VEC	Environmental Science	Theory	02
	Indian Knowledge System(IKS)	DRT-137-IKS	Milk and Ancient Indian therapy	Theory	02
	Co-curricular Course(CC)	--	To be selected from the Basket	Theory	02
				Total Credits Semester-I	**22**
II	Major Mandatory	DRT-151-MJM	Market milk	Theory	02
	Major Mandatory	DRT-152-MJM	Dairy Microbiology	Theory	02
	Major Mandatory	DRT-153-MJM	Microbial analysis of milk	Practical	02
	Minor	DRT-161-MN	Food Preservation Technology	Theory	02
	Open Elective(OE)	DRT-166-OE	Food adulterant	Theory	02
	Open Elective(OE)	DRT-167-OE	Detection of Food Adulteration	Theory	02
	Vocational Skill Course(VSC)	DRT-171-VSC	Food Safety, Hygiene and Sanitation	Theory	02
	Skill Enhancement Course(SEC)	DRT-176-SEC	Computer skills	Theory	02
	Ability Enhancement Course(AEC)	ENG-181-AEC	Functional English-II	Theory	02
	Value Education Course(VEC)	COS-185-VEC	Digital and Technological Solutions	Theory	02
	Co-curricular Course(CC)	--	To be selected from the Basket	Theory	02
				Total Credits Semester II	22
				Cumulative Credits Semester I and II	**44**

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme : B. Voc. Dairy Technology

Programme Code : UBDRT

Class : F. Y. B. Voc.

Semester : II

Course Type : Major Mandatory

Course Code : DRT-151-MJM

Course Title : Market Milk

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

- To study the methods of the collection and transportation of milk.
- To study hygiene and sanitation in dairy industry.
- To know the processing and packaging materials and machineries for milk and milk products.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Students will get acquainted with the different milk processes.

CO2. They will learn about different types of milk.

CO3. They will learn about reception & storage of milk.

CO4. They will acquire information on fundamentals of milk processing.

CO5. They will be able to solve processing related errors.

CO6. They will learn about different methods of pasteurizing milk

CO7. They will learn about sterilization of milk and ultra high temperatures for milk processing.

Topics and Learning Points

Unit-1: Milk Reception: Milk Collection and Transportation, Milk Reception at the Dairy Dock, Milk Chilling and Storage **12 Periods**

Unit-2: Processing of milk: Clarification, Separation, Bactofugation and Standardization

Pasteurization and Homogenization **12 Periods**

Unit-3: Sterilization and Ultra-High-Temperature Processing 12 Periods

Definition, Theoretical basis types of sterilization plants, Description of the canning process, Quality of sterilized milk, Ultra-High temperature processing definition, Theoretical basis for UHT processing, Types of UHT sterilization plants, Changes in milk during processing, Aseptic packaging, types of sterilizing medium, Types of packaging materials, Description of aseptic packaging systems,

Unit-4: Special Milks: Sterilized milk, Homogenized milk, Flavored milk, Toned milk, Double toned milk, Standardized milk, rehydrated milk, recombinant milk, UHT milk.

12 Periods

References:

- Outlines of Dairy Technology, (1980) Sukumar De
- The technology of milk processing, (1991) Khan A.Q
- Manual for milk plant operations, (1957) Washington
- Food engineering and Dairy technology (1981) Kessler H.G.

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme : B. Voc. Dairy Technology

Programme Code :UBDRT

Class : F .Y. B. Voc.

Semester : II

Course Type : Major Mandatory

Course Code : DRT-152-MJM

Course Title :Dairy Microbiology

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

- To Know the important genera of microorganisms associated with dairy and their characteristics
- To study the role of microbes in fermentation, spoilage and food borne diseases.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Students will learn about microbial make-up of milk.

CO2. They will understand the microorganisms of commercial importance.

CO3. They will get acquainted with the different methods of microbial analysis.

CO4. They will know the overall effect of microbial action on milk.

CO5. They will know the types of organisms, beneficial & harmful microorganisms .

CO6. They will learn about different staining methods which is used in microbiology.

CO7. They will be able to demonstrate different isolation of pure culture techniques.

Topics and Learning Points

Unit 1: History & scope of Microbiology: Introduction to microbiology, Historical Contribution of various scientists, scope of microbiology in food, Types of cell – Prokaryotic & Eukaryotic cell, Introduction to various types of micro-organisms, Structure of bacteria

12 Periods

Unit 2: Microbial growth in food, Beneficial microorganisms and Microbial spoilage: Factors affecting growth of micro-organisms, Growth curve, Sources of contamination, causes of spoilage, Food in relation to disease- food borne poisoning, infections and intoxications, Beneficial microorganisms and Microbial spoilage of meat, poultry fish; fruits & vegetables; cereal & cereal products and milk & milk products.

12 Periods

Unit-3: Culture media and Pure culture Techniques: Culture Media & its Composition, Types of culture media Methods for isolation of pure culture- Streak plate, Pour plate and Spread plate **12 Periods**

Unit 4: Microscopy and Staining Procedures: Introduction & types of microscope, Definition of dye & stains, classification of stains- Acidic, Basic and Neutral, principles, procedure, mechanism & applications of staining procedures: simple staining, negative staining, differential staining- gram staining & acid fast staining **12 Periods**

References:

- Food Microbiology (2013) William C Frazier
- Dairy Microbiology (2005) Richard K. Robinsons
- Dairy Microbiology : A Practical approach PhotisPapademas (2014)

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme : B. Voc. Dairy Technology

Programme Code : UBDRT

Class : F .Y. B. Voc.

Semester : II

Course Type : Major Mandatory

Course Code :DRT-153-MJM

Course Title :Microbial analysis of milk

No. of Credits : 02

No. of Teaching Hours : 60

Course Objectives:

- To know basic microbiology laboratory practices and equipment
- To study the preparation of media, culture, identify micro organisms

Course Outcomes:

By the end of the course, students will be able to:

CO1. Students will learn about microbiology in milk

CO2. They will understand the microorganisms of commercial importance & its use for industrial production.

CO3. They will get acquainted with the different methods of microbial analysis & microbial sampling

CO4. They will know the overall effect of microbial action on milk as well as effect on environmental factors on microbial growth.

CO5. They will know the types of organisms, beneficial & harmful microorganisms .

CO6. They will learn about different staining methods which is used in microbiology.

CO7. They will be able to demonstrate different isolation of pure culture techniques.

CO8. They will learn about isolation of pathogenic microorganisms from any food sample.

CO9. They will learn about nutrient requirement of microorganisms.

Topics and Learning Points

1. Introduction to basic microbiology laboratory practices **2P**
2. Study of compound microscope **2P**
3. Study of instruments used in microbiology lab **2P**
4. Study of sterilization of glasswares and other material **2P**
5. Microbiological media preparations (Sabourds, Mac-Conkeys, Nutrient, Blood, Chocolate) **2P**
6. Gram staining **2P**
7. Monochrome staining **2P**
8. Cleaning and methods of sterilization **2P**
9. Cultivation and subculturing of microbes **2P**
10. Microbial sampling **2P**
11. Standard Plate Count method **2P**
12. Isolation of E. coli from food sample **2P**
13. Colony characterization **2P**
14. Industrial quality control lab visit **2P**
15. Activities – Study of swab test

Study the difference between fresh and spoiled food

References:

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme : B. Voc. Dairy Technology

Programme Code : UBDRT

Class : F .Y. B. Voc.

Semester : II

Course Type : Minor

Course Code : DRT-161-MN

Course Title : Food Preservation and Technology

No. of Credits : 02

No. of Teaching Hours : 60

Course Objectives:

- To study methods of preservation of foods
- To study the natural and chemical preservatives i.e. Class I and Class II Preservatives

Course Outcomes:

By the end of the course, students will be able to:

CO1. Students will gather information on preservation of food.

CO2. They will understand about different processes of food preservation.

CO3. They will be able to demonstrate pre-preparation actions.

CO4. They will be able to choose suitable preservation technique.

CO5. They will be able to improve the shelf life of the food.

CO6. They will study about irradiation and mechanism of radiation.

CO7. They will study about drying and effects during drying.

Topics and Learning Points

Unit-1: Introduction to preservation: Definition, Introduction to preservation, History of preservation, general principles of food preservation, Need & benefits of industrial food preservation **10 Periods**

Unit-2: Food Preservation by drying: Types of drying, changes during drying, effect of drying on food, advantaged and disadvantages of drying **15 Periods**

Unit-3: Food preservation by High & Low temperature: Preservation by high temperature: Blanching, pasteurization & Canning, Effect of heat on food and micro-organisms Preservation

by low temperature: Chilling, Refrigeration & freezing Effect of low temperature on food & microorganisms **15 Periods**

Unit-4: Food preservation by irradiation: Introduction & units of irradiation, mechanism of action of radiation, radiation process, effect of radiation on food, effect of radiation on micro-organisms **10 Periods**

Unit-5: Food preservation by other methods: Definition of preservative, Types of preservatives - Class I & Class II, Carbonation, Antibiotics, Fermentation & Filtration **10 Periods**

References:

- Handbook of Food preservation (1999) M. Shafiur Rahman CRC Press
- Food Preservation techniques (2003) Peter Zeuthen
- The Technology of food preservation 4th Edition (2006) Norman W. Desroier

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme : F. Y. B Voc. Dairy Technology

Programme Code : UBDRT

Class : F. Y. B Voc.

Semester : II

Course Type : Open Elective (OE)

Course Code :DRT-166-OE(T)

Course Title : Food Adulterant

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

- To learn about adulteration in variety of food and food products.
- To know about methods, detection, and prevention of food adulteration.
- To develop knowledge about harmful effects of food adulteration.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Define Adulteration, adulterants, and contamination.

CO2. Identify difference between adulteration and contamination.

CO3. Identify common adulterants of various food commodities.

CO4. Identify the difference between adulterated and unadulterated foods.

CO5. Evaluate level of adulteration.

CO6. Create methods of prevention of adulteration.

CO7. They will study about PFA and FSSAI Act.

Topics and Learning Points

Unit 1: **03 Periods**

Introduction: Introduction, concept of adulteration, definition of adulterant

Unit 2: **03 Periods**

Difference between adulteration and contamination, Common food adulterants

Unit 3: **03 Periods**

Methods of food adulteration, Harmful effects of food adulteration

Unit 4: **03 Periods**

Prevention of food adulteration, FSSAI act, objectives, penalties

References:

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme	**:** F. Y. B Voc. Dairy Technology
Programme Code	**:**UBDRT
Class	**:** F. Y. B Voc.
Semester	**:** II
Course Type	**:** Open Elective(OE)
Course Code	**:**DRT-167-OE (P)
Course Title	**:**Detection of food adulteration
No. of Credits	**:** 02
No. of Teaching Hours	**:** 30

Course Objectives:

- To learn about adulteration in variety of food and food products.
- To know about methods, detection, and prevention of food adulteration.
- To develop knowledge about harmful effects of food adulteration.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Define Adulteration, adulterants, and contamination.

CO2. Identify difference between adulteration and contamination.

CO3. Identify common adulterants of various food commodities.

CO4. Identify the difference between adulterated and unadulterated foods.

CO5. Evaluate level of adulteration

CO6. Create methods of prevention of adulteration.

CO7. Identify adulteration in different spices and other miscellaneous product.

Topics and Learning Points

Practical:

1. **Detection of milk adulteration** **02 Periods**
2. **Detection of adulteration in Turmeric powder** **02Periods**
3. **Detection of adulteration in Cinnamon** **02Periods**
4. **Detection of adulteration in Cloves** **02Periods**
5. **Detection of adulteration in Chili powder** **02Periods**
6. **Detection of adulteration in Jaggery** **02Periods**
7. **Detection of adulteration in Asafetida** **02Periods**
8. **Detection of adulteration in Coriander seed powder** **02Periods**
9. **Detection of adulteration in Cumin seeds** **02Periods**
10. **Detection of adulteration in Mustard seed** **02Periods**
11. **Detection of adulteration in Black Pepper** **02Periods**
12. **Detection of adulteration in Fats and oils** **02Periods**
13. **Detection of adulteration in Sweets and confectionary** **02Periods**
14. **Detection of adulteration in Cereals and pulses** **02Periods**
15. **Detection of adulteration in Miscellaneous product** **02Periods**

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme : F. Y. B Voc. Dairy Technology

Programme Code : UBDRT

Class : F. Y. B Voc.

Semester : II

Course Type :Vocational Skill Course (VSC)

Course Code :DRT-171-VSC

Course Title : Food Safety, Hygiene and Sanitation

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

- To identify the HACCP concept.
- To learn properties of food intoxication.
- To identify the food safety standards.
- To understand food laws and regulation.
- To learn waste water treatments.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Understand concept of HACCP.

CO2. Identify the Food borne illnesses and toxins.

CO3. Understand the legal aspects of food Safety.

CO4. Comprehend different regulations of food sector.

CO5. Under Ability to implement suitable standard.

Topics and Learning Points

Unit-1: Introduction to Food Safety: Definition, Types of hazards, biological, chemical, physical hazards, Factors affecting Food Safety, Importance of Safe Foods **06 Periods**

Unit-2: Food Safety Management Tools: Basic concept, Prerequisites- GHPs ,GMPs, SOPs etc, HACCP, ISO series, TQM - concept and need for quality, components of TQM, Kaizen. Risk Analysis, Accreditation and Auditing **06 Periods**

Unit-3: Industrial byproducts and waste utilization: Potential & prospects of byproduct & waste utilization from the food Industries in India Byproduct & waste with special reference to milk & milk products **06 Periods**

Unit-4:Hygiene and Sanitation in Food Service Establishments: Introduction, Sources of contamination, Control methods using physical and chemical agents, Waste Disposal, Pest and Rodent Control, Personnel Hygiene, Food Safety Measures **06 Periods**

Unit-5: Recent concerns: New and Emerging Pathogens, Packaging, Product labeling and Nutritional labeling, genetically modified foods\ Transgenic, Organic foods, New approaches to food safety, Recent Outbreaks.**06 Periods**

References:

1. Quality Control for Food and Agriculture Products
2. Food safety and standards act- 2006 Ministry of food processing industries.
3. Sensory Evaluation Practices- Stone H, and Sidel J. (1993)
4. Modern Food packaging (1998)- Indian institute of packaging

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Name of the Programme :F. Y. B Voc. Dairy Technology

Programme Code :UBDRT

Class :F. Y. B Voc.

Semester : II

Course Type : Skill Enhancement Course (SEC)

Course Code : DRT-176-SEC

Course Title : Computer Skills

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

- To study the computer machine and operating system
- To study the different programmes for development of websites and designing of packaging labels.

Course Outcomes:

By the end of the course, students will be able to:

CO1. Students will get exposed to various aspects of Information technology.

CO2. They will learn about different applications of storing the data.

CO3. They will be able to demonstrate different programmes.

CO4. They will get acquainted with electronic communication.

CO5. They will get complete knowledge of accessing MS excel.

Topics and Learning Points

1. **Introducing Computer and Operating system** **2P**
2. **Introduction to MS Office** **2P**
3. **MS-WORD** **2P**
4. **MS-EXCEL** **2P**
5. **MS-POWERPOINT** **2P**
6. **Introduction to the internet, search engine** **2P**
7. **E-Mails, Google Docs and Forms** **2P**
8. **Introduction to Pagemaker** **2P**
9. **Introduction to Corel Draw** **2P**
10. **Introduction to Photoshop** **2P**
11. **Web development: HTML and Scripting language** **2P**
12. **How to upload content on internet** **2P**
13. **How to search research papers** **2P**

14. How to convert word to PDF and vice-versa 2P

15. Activity – Report preparation 2P

References:

1) Microsoft Office 2000 by Vipra Computers, Vipraprinterspvt. Ltd.
2) Advanced Microsoft Office 2000 by MeredithaFlynin, Nita Rukosky, BPB pub.
3) Teach yourself Windows
4) Fundaments of Computers - V. Rajaraman
5) Computer Fundamentals by P. K. Sinha &Priti Sinha, 4th edition, BPB, publication.

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Nameof the Programme :F. Y. B Voc. Dairy Technology

Programme Code :UBDRT

Class :F .Y .B Voc.

Semester :II

Course Type : Value Education Course(VEC)

Course Code : COS-185-VEC

Course Title : Digital and technological solutions

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

- To gain familiarity with digital paradigms
- To sensitize about role & significance of digital technology.
- To provide know how of communications & networks
- To bring awareness about the e-governance and Digital India initiatives
- To provide a. flavour of emerging technologies - Cloud, Big Data, AI 3D printing

Course Outcomes:

By the end of the course, students will be able to:

CO1. Knowledge about digital paradigm.

CO2. Realisation of importance of digital technology, digital financial tools, e-commerce.

CO3. Know-how of communication and networks.

CO4. Familiarity with the e-governance and Digital India initiatives

CO5. An understanding of use & applications of digital technology.

CO6. Basic knowledge of all machine learning and big data.

CO7. Knowledge about social networking.

Topics and Learning Points

UNIT 1: Introduction & Evolution of Digital Systems: **08Periods**
Role & Significance of Digital Technology. Information &
Communication Technology & Tools.
Computer System & working, Software and its types.
Operating Systems: Types and Functions.
Problem Solving: Algorithms and Flowcharts.
Communication Systems: Principles, Model & Transmission media

UNIT 2: Computer Networks & internet: Concepts & Applicators,07Periods
WWW, Web Browsers, Search Engines, Messaging, Email,
Social Networking.
Computer Based information System: Significance & Types.
E-commerce & Digital Marketing: Basic Concepts, Benefits & challenges

UNIT 3: Digital India & e-Governance: **08Periods**
initiatives, infrastructure, Services and Empowerment.
Digital Financial Tools:
Unified Payment interface, Aadhar Enabled Payment System,
USSD, Credit/Debit Cards, e-Wallet's internet Banking,
NEFT/RTGS and IMPS, Online Bill Payments and pos.

UNIT 4:Cyber Security: Threats, Significance, Challenges, Precautions, **07Periods**
Safety Measures, & Tools
Emerging Technologies & their applications: Overview of
Cloud Computing, Big Data, internet of Things, Virtual Reality,
Blockchain, Robotics, Artificial intelligence, 3-D Printing.
Future of Digital Technologies.

References:

1. Fundamentals of Computers by E Balagurusamy- Tata Mc GrawHill
2. Data Communications and Networking by Behrouz A. Forouzan - McGraw Hill
3. "Cloud Computing- Principals and Paradigms" by Buvya, Broberg, and Gosciniski- Wiley
4. "E commerce" by Laudon.
5. "Artificial lntelligence- A Modern Approach by Russel and Norving" - Pearson Education.
6. "lnternet of Things" by Samuel Greengard - MIT press
7. "lntroduction to Computers by Peter Norton" - Tata McGraw Hill
8. "E-Commerce Concepts, Models, Strategies"- C.S.V. Murthy
9. "Basics of Artificial lntelligence and Machine Learning" by Dheeraj Mehrotra - Notion press.
10. "Big Data for dummies" by Hurwith, Nugent,Halper, Kaufman, Wiley & Sons - Wile

CBCS Syllabus as per NEP 2020 for F. Y. B. Voc. Dairy Technology (2023 Pattern)

Nameof the Programme :F. Y. B Voc. Dairy Technology

Programme Code :UBDRT

Class :F. Y. B Voc.

Semester :II

Course Type : Ability Enhancement Course

Course Code :ENG-181-AEC

Course Title :Functional English - II

No. of Credits : 02

No.ofTeaching Hours : 30

Course Objectives:

- To introduce students to functionality of English language through strong prose articles.
- To introduce students to functionality of English language through good poetry.
- To help students to functionality of English grammar through extensive grammar.
- To help students understand functionality of English composition through practice exercises in paragraph writing.
- To help students understand functionality of English comprehension through
- practice exercises in Newspaper Advertisement.
- To help students enrich their vocabulary through world class English literature.
- To make students think creatively and critically

Course Outcomes:

Bytheendof thecourse,students willbeableto:

CO1. The students understand functionality of English language through strong prose articles.
CO2. The students understand functionality of English language through good poetry.
CO3. The students comprehend functionality of English grammar through extensive grammar.
CO4. The learners understand functionality of English composition through practice exercises in paragraph writing.
CO5. The learners understand functionality of English comprehension through practice exercises in Newspaper Advertisement.
CO6. The students are enriched in their vocabulary through world class English literature.
CO7. The students think creatively and critically.

TopicsandLearning Points

UNIT 1: Prose **06 Periods**

- The Child (Prem Chand)
- Love Across the Salt Desert (K N Daruwala)

UNIT 2: Poetry **08Periods**

- Still I Rise (Maya Angelou)
- Success is Counted Sweetest (Emily Dickinson)

UNIT 3: Grammar **06Periods**

- Active Passive
- Synthesis
- Identification of Noun, Verb, Adjective and Adverb

UNIT 4: Composition and Vocabulary **08Periods**

- Letter Writing
- Email Writing
- Idioms and Phrasalverbs

References:

1. Horizons, A Textbook for College Students (MacMillan Publishers India Private Ltd)
2. English Grammar in Use (Cambridge)