P.R. Government College
(Autonomous)
Kakinada

(Affiliated to Adikavi Nannaya University)

Department of Food Technology

B. Voc (Food Technology)

Under NSQF Scheme

Board of studies

2024-25

Composition of BOS

The Principal P.R. Government College (A), Kakinada is pleased to constitute U.G.Boards of Studies in Microbiology for framing the Syllabi in Microbiology Subject for all Semesters duly following the norms of the UGC Autonomous guidelines.

1.	Sri.G.P.Chakravarthi	Head of the Department
2.	**Sri S.Sasikanth,** Asst.Professor	University nominee, JNTU,KAKINADA.
3.	I.Vinod kumar	Subject Expert, Ideal College of arts and science, Kakinada
4.	B.Venkata reddy	Industrial nominee, Tata Smart Foods, Sri city
5.	K.Kiran	Member
5.	P.Jasmitha	Student nominee
6.	M.Sai Lavanya	Student nominee

The above members are requested to attend the BOS Meeting on **01 -05-2024** and share their valuable views and suggestions on the following functionaries.

- Prepare syllabi for the subject keeping in view the objectives of the College, interest of the stake holders and National requirement for consideration and approval of the IQAC and Academic Council.
- Suggest methodologies for innovative teaching and evaluation Techniques
- Suggest the panel of names to the Academic council for appointment of Examiners
- Coordinate research, teaching, extension and other activities in the Department of the College

PRINCIPAL
P.R.Govt. College (A)
KAKINADA

VISION AND MISSION OF THE COLLEGE:

Vision

To provide the right academic environment paving way for intellectual excellence, humane feelings and social commitment. The college believes in providing quality education for the socially disadvantaged, economically weaker sections of the society and thereby help them move up the ladder of success and social order.

Mission

- To impart holistic education with special emphasis on character, culture, updated knowledge and skill-oriented learning.
- To make the students enjoy the fruits of globalization without prejudice to their localand cultural environment.
- To impart necessary life skills so as to make them face any challenge in the bigger world – Social, ethical, psychological or professional

Pithapur Rajah's College (A), Kakinada

Department of Food technology

BOS 2024-25 Minutes

Minutes of board of studies (BOS) meeting 2024-25 conducted on 01-05- 2024

Venue: Microbiology dept, Dt: **1-05- 2024**

The BOS meeting of Food technology course is held on 01-05-24 at Department of Microbiology,12:00 pm onwards. The BOS committee members have actively participated in the discussionand following points were focused:

- The university nominee Mr. Sasikanth suggested to remove some repeated topics in Paper-9 of syllabus.
- He also suggested to add some projects to the final semester students replacing the record works and also to teach the basic topics of food in all semesters.
- University nominee also suggested to appoint a guest faculty, as the workload is going to be increased in the coming semesters.
- The industrial nominee Sri B. Venkata Reddy suggested to include the ready to eat foods to be prepared in the laboratory.
- He also expressed his willingness to offer internships and minor projects to the students in the food laboratory.
- The Subject expert Mrs. I.Vinod kumar discussed on the changes made in the semester papers and gave some valid inputs like retaining certain topics like oil seed technology and to include certain topics value added foods.
- The third semester syllabus of Food tech syllabus proposed by APSCHE was discussed and resolve to adapt it without any modification.
- The BOS members have also approved the departmental action plan and suggested to include a workshop.

New Courses Introduced For all the Programs offered By Department of Food Technology During the year 2024-2025

S. No.	Title of the New course Introduced	Program in which it is Introduced	Introduced in I/II/III YR
1.	Nill	Nill	Nill

Chairperson

Board of Studies

Signatures of the members who attended the Board of studies in B. Voc (Food Technology)

Date:01/05/2024 **Time: 12pm**

Mode of conduct of meeting: Offline

Name of themember	Designation	Signature
Sri.G.P.Chakaravarthi	Chairman, Board of Studies. Lecturer In Biotechnology, 9502191501	G P Chakravarthi
Sri S. Sasikanth M. Tech (Food Technology)	University Nominee Food Analyst. National food Laboratory, Navi Mumbai sarangamsasikanth@gmail.com 8008175975	
Mr.I.Vinod Kumar M.sc (Food science,nutrition and dietetics)	Subject Expert Asst. Professor department of food technology, Ideal college of Arts and Science ,Kakinada vinodkumar.ilapanda@gmail.com 7093377101	T. Vinod
Bogolu Venkata Reddy	Industrial nominee , Senior Officer,Tata smart foodz limited venkata.ready@gmail.com 9030729848	01/05/24
K Kiran	Member M.Tech Food technology	Kiran
P. Jasmitha Regd no: 5235706	Student Member II B.Voc Food Tech	Jasmitha
M.Sai Lavanya Regd no: 5235707	Student Member II B.Voc Food Tech	Lavanya

P.R. GOVT. COLLEGE (A), KAKINADA

TENTATIVE ACTION PLAN 2024 - 25

Name of the Department: Food Tech

_S. No	Month & Year	Activity Planned	Tentative Date	Remarks, If Any
1.	June 2024	World Milk Day	June 1st	June 2024
2.	June 2024	National Herb & Spices Day	2st week of June	June 10th 2024
3.	July 2024	National JUNK Food Day	3rd week of November	July 21st 2024
4.	July 2024	Industrial visit / educational tour	3rd week of July	July 2024

Head of the Department

Dept. Of Microbiology

AGENDA:

- To discuss the Semester System and Choice Based Credit System (CBCS) being implemented for the past 06 years, i.e., w.e.f. 2018-19.
- To discuss and approve the Continuation/Modifications of the syllabus

for the Odd & Even Semesters of III, IV & V Years for 2024-25.

- Grant of Extra credits for Online SWAYAM MOOCs etc.
- Syllabus, Model Question Papers and Model Blue Prints for Vand VI Semesters.
- Teaching learning methodology for the present III-Year Studentsand 50:50 (External: Internal) ratio Year Students w.e.f. 2024-25.
- Panel of paper setters and examiners.
- Proposals for Community Service Projects/Extension activities for the benefit of the society.
- To make it mandate to possess 75% of attendance to allow the studentsfor each mid Examination and Semester examinations.
- To make it flexible the semester academic schedule in V & VI semesters keeping in view of availability of Embeded Industrial Aprenticeship.
- Department action plan for 2024-25.
- Any other items with the permission of the chair.

Resolutions:

The meeting of Board of studies in B. Voc (Food Technology) is convened on 01/05/2024 at 12.00 pm in online mode through The Principal Dr. B.V.Tirupayanam, Dr.B.Lakshmi. Chairman, Board of Studies .University Nominee Sri S. Sasikanth, Asst. Professor, School of Food Technology, JNTUK, Kakinada

, I.Vinod kumar Asst. Professor department of food technology ideal college of arts and science ,Subject expert,Venkat reddy ,Industrial expert,Tata smart foods industries and all members of the faculty of Microbiology ,Chemistry and student representatives attended the meeting. Agenda items are discussed and resolutions are made.

1. It is resolved to continue the revised Choice Based Credit System for B. Voc courses scrupulously as per the directions of Andhra Pradesh State Council of Higher Education (APSCHE), Vijayawada and also as per the directions of Adikavi Nannaya University, Rajamahendravaram with effect from the academic year 2024-25
2. It is resolved to continue the revised curricular framework for B. Voc courses scrupulously as per the directions of Andhra Pradesh State Council of Higher Education (APSCHE), Vijayawada and also as per the directions of Adikavi Nannaya University, Rajamahendravaram with effect from the academic year 2024-25
3. It is resolved to choose Life Skill courses and Skill Development Courses in concurrence with the vocational course.
4. It is resolved to conduct industrial visits for B. Voc students to make them acquainted with the industrial environment.

5. It is resolved to organize Guest lectures by eminent professors and Industrial Experts.
6. Resolved to submit proposals to conduct a faculty development programme in instrumentation techniques/ advanced topics with the assistance of industry representatives and university representatives..
7. It is resolved to make it mandatory for the students in the entire V semester to undergo industrial internship for a period of 6 months in a Food Industry according to the opportunity.
8. It is resolved to get the students of B. Voc (Food Technology) registered in NAPS (National Apprenticeship Promotion Scheme).
9. It is resolved that the B. Voc (Food Technology) course is restructured in B. Sc (Professional) (Food Technology). The proposal is put forward to Academic Council and General Body Meeting.
10. It is resolved to follow strictly the guidelines of UGC under NSQF scheme for the recruitment and engagement of faculty and non-teaching staff.
11. It is resolved to follow the same syllabi for English, Second Language, LifeSkill Courses and Skill Development Courses as those prescribed for UG Courses by APSCHE, Vijayawada.
12. It is resolved to follow the same syllabi for main subjects namely Mathematics, Botany and Chemistry as those prescribed for UG Courses by APSCHE, Vijayawada.
13. It is resolved to implement 60% external & 40% internal marks for both theory & practicals from the academic year 2024-2025 for thirdyear students.
14. Resolved to reduce 40 marks of Theory internal to 20 marks for mid exams and20 marks for co-curricular activities (Seminar / Assignment / Quiz / Group Discussion) and reduce 50 marks of theory internal to 25 marks for mid examsand 25 marks for co-curricular activities (Seminar / Assignment / Quiz / GroupDiscussion).
15. Resolve to conduct practical examinations semester wise.

The following paper setters are recommended

i) Dr. Srirangam, Lecturer in Food Technology, Layola college, Vijayawada.

ii) Sri S. Sasikanth, JNTUK, Kakinada.

iii) Dr. M. Srijaya, Associate Professor, Sai Institute of Higher learning, Puttaparti.

PROGRAM OUTCOMES

Aim and objectives of UG program BSc Microbiology

PO1: Graduates will acquire adequate knowledge and leadership skills for a successful career

PO2: Graduates will be able to analyze and solve biology-based problems.

PO3: Graduates will cooperate with each other to solve problems with creative thinking.

PO4: Graduates will acquire practical skills- plan & execute experimental techniques independently as well as to analyze & interpret data.

PO5: Graduates will effectively be able to manage resources & time.

PO6: Graduates will be able to learn independently and develop critical thinking.

PO7: Graduates will accomplish ability to communicate effectively and able to understand ethical responsibility.

PO8: Graduates will get adequate knowledge to use information & communication technology.

PO9: Graduates will carry on to learn and to adapt in a world of constantly evolving technology

QUESTION PAPER SETTERS FOR B. VOC (FOOD TECHNOLOGY)

The following paper setters for Vocational (Food Technology) papers are recommended.

S. NO.	NAME OF THE SUBJECT EXPERT	QUALIFICATION	DESIGNATION	ADDRESS	E- MAIL & MOBILE NO.
1	I.VINOD KUMAR	M.SC (FOOD SCIENCE,NUTRITION AND DIETETICS)	LECTURER IN FOOD TECHNOLOGY	IDEAL COLLEGE OF ARTS AND SCIENCE , KKD, EAST GODAVARI DISTRICT	vinodkumar.ilapanda@gmail.com 7093377101
2	S. SASIKANTH	M. TECH (FOOD TECHNOLOGY)	ASST. PROFESSOR (CONTRACT)	SCHOOL OF FOOD TECHNOLOGY, JNTUK, KAKINADA	sarangamsasikanth@gmail.com 8008175975
3	DR. M. SRIJAYA	M. SC., PH.D	ASSOCIATE PROFESSOR	DEPARTMENT OF FOOD AND NUTRITIONAL SCIENCES, SRI SATHYASAI INSTITUTE OF HIGHER LEARNING, PUTTAPARTI, ANANTHAPUR DIST	msrijaya@sssihl.edu.in 9247242399
4	PROF. K. VISWANATHA CHAITANYA	M. SC., PH.D	HEAD - FOOD SCIENCE& TECHNOLOGY	INSTITUTE OF SCIENCE, GITAM UNIVERSITY, VISAKHAPATNAM	ckolluru@gitam.edu 9493117720

P. R. GOVERNMENTCOLLEGE (AUTONOMOUS) KAKINADA

CURRICULAR FRAMEWORK FOR B. VOC COURSES UNDER NSQF FOR THE YEAR 2024

B.Voc Food Technology (Maths stream/Biology stream)

SUBJECT/ SEMESTER		I		II		III		IV		V		VI		
		H/W	C	H/W	C	H/W	C	H/W	C	H/W	C			
English		4	3	4	3	4	3					Third Phase of Apprenticeship for the entire V/VI Semester	First and Second Phase (2 Spells)of Apprenticeship between1st and2ndyear and between2nd and 3rd year Summer Vacation	
Second Language (Telugu/ Hindi/ Sanskrit)		4	3	4	3	4	3							
Life Skill Courses		2	2	2	2	2+2	2+2							
Skill Development Courses		2	2	2+2	2+2	2	2							
Core Subjects														
Major Subject -1	C1 to C5 Maths/ Botany (Theory & Practicals)	6/ 4+2	4+1	6/ 4+2	4+1	6/ 4+2	4+1	4+2 4+2	4+1 4+1					
Major Subject -2	C1 to C5 Chemistry (Theory & Practicals)	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1					
Vocational	C1 to C14 including SEC Food Technology(Theory &Practicals)	4+2	4+1	4+2	4+1	4+2	4+1	4 +2 4 +2	4 +1 4 +1	4 +2 4 +2 4 +2 4 +2 4 +2 4 +2	4 +1 4 +1 4 +1 4 +1 4 +1 4 +1			
	C2, C4, C6 (Theory and Lab/Institutional/IndustrialTraining) Food Technology	2+2	2+1	2+2	2+1	2+2	2+1							
Total Hrs/Week(Academic Credits)		34	**28**	36	**30**	36	**30**	36	**30**	36	**30**	**12**	**4**	**4**
Extension Activities														
NCC/ NSS/ Sports/ Extra Curricular								**2**						
Yoga						**1**		**1**						
Extra Credits														
Hrs/ W(Total Credits)		34	**28**	36	**30**	36	**31**	36	**33**	36	**30**		**12**	**4**	**4**

Marks and Credits distribution (Maths Stream*/ Biology Stream)**

S.No.	Course Type	No. of Courses	Course wise Teaching Hrs/Week	Credits for each Course	Total Credits	Each Course Evaluation				Total(Theory +Practical)	Total Marks (Maths Stream*/ Biology Stream**
						Theory			Practical (Maths Stream / Biology		
						Continuous Assessment	End Semester	Total			
1	English	3	4	3	9	40	60	100		100	300
2	Second Language	3	4	3	9	40	60	100		100	300
3	Life Skill Courses	4	2	2	8	0	50	50		50	200
4	Skill Development Courses	4	2	2	8	0	50	50		50	200
5	Core/ SE –I Maths/ Botany	5	6/ 4+2	4+1	25	40	60	100	0/ 50	100/ 150	500*/ 750**
6	Core/ SE –II Chemistry	5	4+2	4+1	25	40	60	100	0/ 50	100/ 150	750
7	Vocational Courses(C1 to C14) Food Technology	11	4+2	4+1	55	40	60	100	50	150	1650
	VocationalCourses C2, C4, C6 Food Technology	3	2+2	2+1	9		50	50	50	100	300
8	Summer Vacation Internship	2		4	8					100	200
9	Industrial Internship for one full Semester	1		12	12					200	200
10	Extension Activities(Non Academic Credits)										
	NCC/ NSS/ Sports/ Extra Curricular			2	2						
	Yoga	2		1	2						
	Extra Credits										
	Hrs/ W(Total Credits)&Marks	**43**			**172**						**4600*/ 4850****

P.R. GOVERNMENT COLLEGE (A), KAKINADA DEPARTMENT OFCHEMISTRY

B. VOC (FOOD TECHNOLOGY) (MATHS STREAM)CURRICULAR FRAMEWORK (CREDITS TABLE)

Semester -V

Subject / Paper	Theory / Practical	No of credits	Evaluation
First Phase of Apprenticeship between 1st and 2nd year (Summer Vacation)		**04**	**100**
Second Phase of Apprenticeship between 2nd and 3rd year (Summer Vacation)		**04**	**100**
INDUSTRIAL INTERNSHIP		**12**	**200**
TOTAL		**20**	**400**

P.R. GOVERNMENT COLLEGE (A), KAKINADADEPARTMENT OFCHEMISTRY

B. VOC (FOOD TECHNOLOGY) (MATHS STREAM)CURRICULAR FRAMEWORK (CREDITS TABLE)

Semester –V

Category	Subject / Paper	Course	Theory / Practical	No. of Hrs./ Week	No of credits	Evaluation		
						Internal	External	TOTAL
Vocational	Food Microbiology	C9	Theory	4	4	40	60	100
	Food Microbiology		Practical	2	1	-	50	50
	Pulses and Oil Seed Technology	C10	Theory	4	4	40	60	100
	Pulses and Oil Seed Technology		Practical	2	1	-	50	50
	Processing technology of fruits and vegetables	C11	Theory	4	4	40	60	100
	Processing technology of fruits and vegetables		Practical	2	1	-	50	50
	Food quality and Sensory evaluation	C12	Theory	4	4	40	60	100
	Food quality and Sensory evaluation		Practical	2	1	-	50	50
	Food preservation Technology	C13	Theory	4	4	40	60	100
	Food preservation Technology		Practical	2	1	-	50	50
	Technology of meat , fish and poultry	C14	Theory	4	4	40	60	100
	Technology of meat , fish and poultry		Practical	2	1	-	50	50
			TOTAL	36	30	240	660	900

P.R. GOVERNMENT COLLEGE (A), KAKINADADEPARTMENT OF MICROBIOLOGY

B. VOC (FOOD TECHNOLOGY) (BIOLOGY STREAM)CURRICULAR FRAMEWORK (CREDITS TABLE)

Semester -VI

Subject / Paper	Theory / Practical	No of credits	Evaluation
First Phase of Apprenticeship between 1st and 2nd year (Summer Vacation)		04	100
Second Phase of Apprenticeship between 2nd and 3rd year (Summer Vacation)		04	100
INDUSTRIAL INTERNSHIP		12	200
TOTAL		**20**	**400**

PITHAPUR RAJAH'S GOVERNMENT COLLEGE(AUTONOMOUS), KAKINADA			
B.VOC COURSES UNDER NSQF SCHEME			
STUDENTS ELIGIBILITY AND FACULTY ELIGIBILITY			
S.NO.	NAME OF THE COURSE	STUDENTS ELIGIBILITY (10+2 O EQUIVALENT WITH SPECIFIC GROUP IF ANY)	FACULTY ELIGIBILITY WITH SPECIALIZATION
1	B.VOC(COMMERCIAL AQUACULTURE)	Intermediate/10+2 or equivalent with Bi.P.C/Biology	M. Sc Aquaculture/MarineBiology/Zoologywithfisherybiologyspe
2	B.VOC(HORTICULTURE)	Intermediate/10+2 or equivalent with Bi.P.C/Biology	M.Sc Horticulture/Biology/Botany with Horticulture Specialization
3	B.VOC(PHARMACEUTICAL CHEMISTRY)	Intermediate or 10+2 with MPC/BiPC group	M. Pharm /M.Sc (Pharmaceutical Chemistry)/ M.Sc(Chemistry)
4	B.VOC(FOOD TECHNOLOGY)	Intermediate or 10+2 with MPC/BiPC group	M.Sc(Food Technology)/ M.Sc(Food Processing)/ M.Sc(Food and Nutrition)/ M. Sc (Foods, Drugs & Water)
5	B.VOC(JOURNALISM AND MASS COMMUNICATION)	Intermediate or 10+2 or equivalent	M.A(Journalism)
6	B.VOC(HOTEL MANAGEMENT)	Intermediate/10+2 or equivalent	MBA(Hotel Management/M.Com Hotel Management/M.Comor MBA with Diploma in Hotel Management

SEMESTER - V

	Pithapur Rajah's Government College(Autonomous) Kakinada	Program &Semester III B.Voc, FOOD TECNOLOGY Semester -V Course-9			
Course Code	**FOOD MICROBIOLOGY**				
Teaching	**Hours Allocated: 60 (Theory)**	**L**	**T**	**P**	**C**
		50	**10**	**30**	**4+1**
Pre-requisites:	To be innovative in exploring various traditional and non traditional milk products				

Course Objectives:

Acquire an elementary knowledge about micro organisms.

To know the effects of microbial spoilage of foods and its prevention methods

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	Illustrate the role of microorganisms in food safety
CO2	Compare various physical and chemical methods used in the control of microorganisms
CO3	Gains knowledge on microbial spoilage
CO4	Method and preservation of food preservation

Skill Development			Employability			Entrepreneurship	

Syllabus:

Unit – I

Introduction : Historical development of food microbiology. Scope of food microbiology; Morphology, general characteristics and classification of bacteria, fungi and algae. Viruses: structure and replication with particular reference to food borne viruses. Primary sources of microorganisms in food.

Unit – II

Factors affecting the growth and survival of micro-organisms in foods: Microbial growth; Intrinsic factors (Nutrient content, pH and buffering activity, Redox potential,

Antimicrobial barriers and constituents, Water activity); Extrinsic factors (Relative humidity, Temperature, Gaseous atmosphere); Implicit factors; Predictive food microbiology;

Heat resistance of micro-organisms: Determination of heat resistance (Thermal Death Time), TDT curve, 12Dconcept;

Unit – III

Microbial spoilage of food : Causes of food spoilage; Microbial contamination of water; Spoilage of different group of foods - Milk and milk products; Cereals and cereal products; Fruits, vegetables and their products; Meat and meat products; Fish and fish products; Poultry and eggs; Canned foods.

Unit – IV

Methods and principles of food preservation: Physical: Low temperature; High temperature (pasteurization, canning); Irradiation (UV, microwave, ionization); Drying; High pressure processing

Chemical preservatives and natural antimicrobial compounds; Biobased preservation systems: LAB and bacteriocins;

References :

1. Frazier, W.C. Food Microbiology. 4th edition. Mc Graw Hill. New York, 2008
2. Khetarpaul, N. Food microbiology, Daya publishing house, New Delhi, 2009
3. Narayanan, L.M. and Mani,L. Microbiology.Saras Publications, Nagercoil.
4. Pelzar, H.J. and Rober, D. Microbiology 5th edition Mc Graw Hill. NewYork, 2009
5. Prescott, L.M., Harley, J.P. and Klein, D.A. Microbiology. 4th edition McGraw-Hill, NewYork. 1999;

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V
COURSE – 9: FOOD MICROBIOLOGY

S.No.	Course Content	Essay (10M)	Short (5M)	Total marks	Remarks as per Blooms Taxonomy
1.	UNIT -I	2	2	30	Application and Remembering
2.	UNIT -II	2	2	30	Analysing and evaluation
3.	UNIT -III	1	1	15	Understanding and remembering
4.	UNIT -IV	1	1	15	Applying
	Total	6	6	90	

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V
COURSE – 9: FOOD MICROBIOLOGY

Time 2hrs.30min **Maxmarks-60**

SECTION-A

Answer the following questions **4x10=40 M**

1. One question is to be set from unit-I

   Or

   One question is to be set from unit-I
2. One question is to be set from unit-II

   Or

   One question is to be set from unit-II
3. One question is to be set from unit-III

   Or

   One question is to be set from unit-III
4. One question is to be set from unit-IV

   Or

   One question is to be set from unit-IV

SECTION-B

Answer any FOUR questions **4x5=20M**

One question is to be set from unit-I

5. One question is to be set from unit-I
6. One question is to be set from unit-II
7. One question is to be set from unit-II
8. One question is to be set from unit-III
9. One question is to be set from unit-III
10. One question is to be set from unit-IV
11. One question is to be set from unit-IV

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – VI
COURSE – 9: FOOD MICROBIOLOGY
SECTION A
ESSAY QUESTIONS (10M)

UNIT I

1. Define food microbiology and write the scope of food microbiology(BT-1)
2. Write an essay on general characteristics and classification of bacteria , fungi and algae (BT-3)

UNIT II

1. Write an essay on intrinsic factors of microbial growth (BT-2)
2. Write an essay on extrinsic factors of microbial growth (BT-1)

UNIT III

1. Write an essay on causes and microbial spoilage of milk and milk products (BT-1)
2. Write an essay on microbial spoilage of meat , fish and poultry (BT-4)

UNIT IV

1 Write the following physical methods of food preservation
1) High temperature 2) irradiation (BT-4)

2 Write the following chemical methods of food preservation
1) Anti microbial compounds 2) biobased preservations
(BT-1)

SECTION B
SHORT QUESTIONS (5M)

UNIT I

1. Write a short note on primary sources of microorganisms in food (BT-3)
2. Write a short note on morphology of fungi and algae (BT-1)
3. Write structure and replication of food born virus (BT-2)

UNIT II

1. Write a short note on microbial growth (BT-1)
2. Write a short note on predictive food microbiology (BT-3)
3. Write a note on determination of heat resistance(BT-2)

UNIT III

1. Write a short note on microbial contamination of water (BT-1)
2. Write a short note on spoilage of cereals (BT-3)
3. Write a short note on spoilage of canned foods (BT-2)

UNIT IV

1. Write a short note on high pressure processing (BT-4)
2. Write a short note on low temperature preservations (BT-1)
3. Write a short note on LAB and bacteriocins (BT-2)

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V

COURSE – 9: FOOD MICROBIOLOGY

PROJECT

Identify different types of spoilages of foods and mention the methods to control contamination.

	Pithapur Rajah's Government College(Autonomous) Kakinada	**Program &Semester** **III B.Voc, FOOD TECNOLOGY** **Semester -V** **Course-10**
Course Code	**PULSES AND OIL SEED TECHNOLOGY**	
Teaching	**Hours Allocated: 60 (Theory)**	**L: 50 T: 10 P: 30 C: 4+1**
Pre-requisites:		

Course Objectives:

Students will acquire knowledge about various pulses and oil seed processing method

To know the processing involved in packaging

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	Gains knowledge on pulse based food products
CO2	Gains knowledge on production and processing of oil
CO3	Gains knowledge on fat characterization
CO4	Emerging technologies for pulse processing

Skill Development			Employability			Entrepreneurship	

Syllabus:

Unit – I

Pulse-based food products : Composition and nutritional value of Pulses - Common forms -Green beans, Dry pulses, Canned pulses; Sprouted pulses, traditional fermented products; Developments in pulse products : Quick-cook dehydrated pulses, Extruded pulse products, Snack based products; Value-added pulse based products – roasted pulses, gluten-free products, pulse noodles;

Unit – II

Production and Processing of oil : Crops of oil seeds - Steps involved in oil processing- pressing, methods of oil extraction from oil seeds, degumming, oil refining, hydrogenation, winterization, deodorizing, bleaching, tempering; Major and minor oil seeds, sources, examples, hydrogenated vegetable oils.

Unit – III

Fat Characterization : Functional properties of fats; Importance of fat analysis, refractive index, melting point, solid fat index, cold test, smoke, flash and fire points, iodine value, saponification number, acid value and free fatty acids, polar components in frying fats, lipid oxidation, peroxide value, Thiobarbituric acid test, Schaal Oven test, active oxygen method.

Unit – IV

Products made from fats and oils: Butter, Margarine, Shortenings and Frying oils, Mayonaisse and salad dressings; Fat substitutes;

Emerging technologies for pulse processing : Dielectric heating, Pulse electric field treatment, High-pressure processing; Applications;

References :

1. Manay, N.S, Shadakshara swamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.
2. Meyer, L H-Food Chemistry. CBS publishers & distributors, New Delhi. 2002
4. Nielsen, S.S. Introduction to the chemical analysis of foods. Jones and Bartlett Publishers, Boston, London. 2003
6. Fereidoon Shahidi, Functional properties of proteins and lipids 7. Clyde, E. Stauffer, Fats and oils
7.Tiwari, B, K., et al., Pulse foods processing, quality and Nutraceuticals applications, Elsevier publications, (2011).

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – VI
COURSE – 10: PULSES & OIL SEED TECHNOLOGY

WEIGHTAGE TO CONTENT

S.No.	Course Content	Essay (10M)	Short (5M)	Total marks	Remarks as per Blooms Taxonomy
1.	UNIT -I	2	2	30	Application and Remembering
2.	UNIT -II	2	2	30	Analysing and evaluation
3.	UNIT -III	1	1	15	Understanding and remembering
4.	UNIT -IV	1	1	15	Applying
	Total	6	6	90	

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V
COURSE – 10: PULSES & OIL SEED TECHNOLOGY

Time 2hrs.30min **Maxmarks-60**

SECTION-A

Answer the following questions **4x10=40 M**

1. One question is to be set from unit-I

   Or

   One question is to be set from unit-I
2. One question is to be set from unit-II

   Or

   One question is to be set from unit-II
3. One question is to be set from unit-III

   Or

   One question is to be set from unit-III
4. One question is to be set from unit-IV

   Or

   One question is to be set from unit-IV

SECTION-B

Answer any FOUR questions **4x5=20M**

5. One question is to be set from unit-I
6. One question is to be set from unit-I
7. One question is to be set from unit-II
8. One question is to be set from unit-II
9. One question is to be set from unit-III
10. One question is to be set from unit-III
11. One question is to be set from unit-IV
12. One question is to be set from unit-IV

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V
COURSE – 10: PULSES & OIL SEED TECHNOLOGY
QUESTION BANK
SECTION A
ESSAY QUESTIONS (10M)

UNIT I

1. Write about the following pulse based food products
   1) Dry pulses 2) sprouted pulses 3) green beans (BT-1)
2. Write about the following
   1) roasted pulses 2) pulse noodles 3) gluten free products (BT-2)

UNIT II

1. Write an essay on steps involved in oil processing (BT-3)
2. Write an essay on oil extraction from oil seeds (BT-4)

UNIT III

1. Write the following
   1) Schaal oven test 2) Thiobarbituric acid test (BT-1)
2. Write an essay on functional properties and importance of fat (BT-2)

UNIT IV

1. Write an essay on pulse electric field and its applications. (BT-3)
2. Write an essay on any 3 products made from oils and fats (BT-2)

SECTION B
SHORT QUESTIONS (5M)

UNIT I

1. Write a short note on dielectric heating (BT-1)
2. Write a short note on pulse electric field treatment (BT-4)
3. Write a short note on quick cook dehydrated pulses (BT-2)

UNIT II

1. Write a short note on winterization (BT-1)
2. Write a short note on major and minor oil seeds (BT-4)
3. Write a short note on margarine (BT-3)

UNIT III

1. Write a short note on active oxygen method (BT-1)
2. Write a short note on saponification number (BT-4)
3. Write a short note on iodine value (BT-2)

UNIT IV

1. Write a short note on mayonnaise and salad dressing (BT-4)
2. Write a short note on fat substituent. (BT-1)
3. Write a short note on Dielectric heating. (BT-3)

P.R.GOVT.COLLEGE (A),
KAKINADACHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)THIRD YEAR
SEMESTER – V
COURSE – 10: PULSES & OIL SEED TECHNOLOGY

PROJECT :

Identify different oils available in the market and suggest one oil which is healthy for consumption

	Pithapur Rajah's Government College(Autonomous) Kakinada	Program &Semester III B.Voc, FOOD TECNOLOGY Semester -V Course-11			
Course Code	**POST HARVEST MANAGEMENT OF FRUIT AND VEGETABLES**				
Teaching	**Hours Allocated: 60 (Theory)**	**L**	**T**	**P**	**C**
		50	**10**	**30**	**4+1**
Pre-requisites:	Harvesting of fruits and vegetables				

Course Objectives:

To know about the processing methods of fruits from the time of harvesting tooccurrence of a by-product.

To know the preparation of various processed foods made with fruits andvegetables.

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	To understand the basics of post harvest management of fruits and vegetables
CO2	Gains knowledge on quality storage of fruits and vegetables
CO3	Gains knowledge on canning of fruits and vegetables
CO4	Gains knowledge on processing of vegetables

Skill Development			Employability			Entrepreneurship	

Syllabus:

Unit – I

Introduction : Ripening and quality of fruits, harvesting and transportation, Chemical composition, post harvest changes, cold storage of fruits, selection and preparation of fruits for processing, deskinning, enzyme inactivation, Packaging.

Unit – II

Quality Storage of Fruits and Vegetables: Natural, Ventilated and controlled atmosphere storage, Low temperature storage, Fruit & Vegetable processing plant layout and processing line, Fruit &Vegetable product quality standards & quality control

measures.

Unit – III

Canning of fruits and vegetables: basic requirements, process, machinery, operation. Effect on food. Drying/Dehydration of fruits and vegetables: types, process, machinery, operation, Problems related to storage of dehydrated products

Unit – IV

Definitions, formulation and preparation of fruit juices, Jams, jelly, pickles, tomato products (sauce), potato chips: principle, processing techniques.

Processing of vegetables: Processing of okra (ladies finger), potatoes, onions, carrots, green peas, procuring, transportation, storage, processing, packaging and ware housing.

References :

1. Siddappa and Bhatia, Fruits and Vegetable Processing Technology
2. Lea, R. A. W, Fruit juice processing and packaging
3. Hui, Y. H. Processing of fruits
4. Cash J. N. Processing of vegetables
5. Jongen, W. Fruit and vegetable processing

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V
COURSE – 11: POST HARVEST MANAGEMENT OF FRUIT & VEGETABLES

WEIGHTAGE TO CONTENT

S.No.	Course Content	Essay (10M)	Short (5M)	Total marks	Remarks as per Blooms Taxonomy
1.	UNIT -I	2	2	30	Application and Remembering
2.	UNIT -II	2	2	30	Analysing and evaluation
3.	UNIT -III	1	1	15	Understanding and remembering
4.	UNIT -IV	1	1	15	Applying
	Total	6	6	90	

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V
COURSE – 11:POST HARVEST MANAGEMENT OF FRUIT & VEGETABLES

Time 2hrs.30min **Maxmarks-50**

SECTION-A

Answer the following questions **4x10=40 M**

1. One question is to be set from unit-I

   Or

   One question is to be set from unit-I
2. One question is to be set from unit-II

   Or

   One question is to be set from unit-II
3. One question is to be set from unit-III

   Or

   One question is to be set from unit-III
4. One question is to be set from unit-IV

   Or

   One question is to be set from unit-IV

SECTION-B

Answer any FOUR questions **4x5=20M**

5. One question is to be set from unit-I
6. One question is to be set from unit-I
7. One question is to be set from unit-II
8. One question is to be set from unit-II
9. One question is to be set from unit-III
10. One question is to be set from unit-III
11. One question is to be set from unit-IV
12. One question is to be set from unit-IV

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – V
COURSE – 11:POST HARVEST MANAGEMENT OF FRUIT & VEGETABLES
QUESTION BANK
SECTION A
ESSAY QUESTIONS (10M)

UNIT I

1. Write an essay on harvesting and transportation of foods
2. Write an essay on selection and preparation of fruits for processing and packaging

UNIT II

1. Write about the following 1) ventilated and control atmosphere storage
   2) Low temperature storage
2. Write about the product quality standards of fruits and vegetables and its quality control measures

UNIT III

1. Write an essay on process , machinery , operation of fruits and vegetables
2. Write an essay on types ,process , machinery of dehydration fruits and vegetables

UNIT IV

1. Write an essay on formulation and preparation of fruit juices , jams, pickles
2. Write about processing and storage of okra, green peas and onions

SECTION B

SHORT QUESTIONS (5M)

UNIT I

1. Write a short note on post harvest changes
2. Write a short note on enzyme inactivation
3. Write a short note on cold storage of fruits

UNIT II

1. Write a short note on natural storage
2. Write a short note on plant layout
3. Write a short note on processing lane

UNIT III

1. Write a short note on canning of fruits and vegetables
2. Write about problems related to storage of dehydrated products

UNIT IV

1. Write a short note on ware housing
2. Write a short note on transportation of vegetables
3. Write a short note on procuring

P.R.GOVT.COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B. VOC (FOOD TECHNOLOGY)
THIRD YEAR SEMESTER – VI
COURSE – 11: POST HARVEST MANAGEMENT OF FRUIT & VEGETABLES

Practicals

1. Processing of mango squash and mango pickle.
2. Processing of pineapple jam.
3. Manufacture of tomato puree.
4. Manufacture of lemon pickle and lemon juice.
5. Manufacture of tomato ketchup and tomato sauce.
6. Manufacture of tuti fruity.

	Pithapur Rajah's Government College(Autonomous) Kakinada	Program &Semester III B.Voc, FOOD TECNOLOGY Semester - V Course-12			
Course Code	**FOOD QUALITY AND SENSORY EVALUATION**				
Teaching	**Hours Allocated: 60 (Theory)**	**L**	**T**	**P**	**C**
		50	**10**	**30**	**4+1**
Pre-requisites:	Sensory evaluation				

Course Objectives:

Students will understand the basic terms in food quality and sensory evaluation

To understand the odour,texture and colour

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	To understand basics of food quality
CO2	To understand food quality objectives
CO3	To understand the importance of odour and texture in foods
CO4	To know the importance of colour

Skill Development			Employability			Entrepreneurship	

Syllabus:

Unit – I

Food quality – definition and its need in food industry - Quality attributes - Classification of quality attributes.

Quality assessment of Food materials i.e, meat, poultry, egg and processed food products - Sensory evaluation – introduction, panel screening, selection methods, Interaction and thresholds, Statistical quality control.

Unit – II

Food quality objectives, importance and functions of quality control - Methods of Quality control - concepts of Rheology - Quality assessment of food materials i.e, fruits, Vegetables, cereals and dairy products/milk and milk products

Sensory and instrumental analysis in quality control. Consumer measurements: Factors

influencing acceptance and preference, objectives of consumer preference studies, information obtained from consumer study.

Unit – III

Odour : Introduction, definition and importance of odour and flavor - Odour classification, chemical specificity of odour - Odour measurement using different techniques – primitive to recent techniques. Merits and demerits of each method. Olfactory abnormalities;

Texture- classification; Texture measurement – basic rheological models, forces involved in texture measurement;

Unit – IV

Introduction and importance of colour: Dimensions of colour and attributes of colour, appearance factors, gloss etc.; Perception of colour;

Colour abnormalities; Measurement of colour; Munsell colour system, CIE colour system, Hunter colour system, UV – Visible Spectrophotometry and Colorimetry etc.

Sensation of Taste: Chemical dimensions of basic tastes- sweet, salt, sour, bitter and umami; Factors affecting taste quality, reaction time, taste modification, absolute and recognition threshold Taste abnormalities; Taste measurement;

References :

1. Fellows, P. J., Food processing Technology principles and practice, 2nd edition, Wood head publishing, England, 2000.
2. Dincer, I. Heat Transfer Food Cooling Applications. Taylor and Francis Publishers, USA. 1997
3. Heldman, D. R. and Lund, D.B. Handbook of Food Engineering 2nd edition. CRC press, Newyork. 2007.
4. Singh, R.P. Introduction to Food Engineering 3rd edition. Academic Press, London. 2004.
5. Saravacos,G D and Kostarapoulos A E.Handbook of Food Processing Equipment.2006.Brijbasi Art Press Ltd,New Delhi.

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - VI SEMESTER
COURSE- 12: FOOD QUALITY AND SENSORY EVALUATION
WEIGHTAGE TO CONTENT

S.No.	Course Content	Essay (10M)	Short (5M)	Total marks	Remarks as per Blooms Taxonomy
1.	UNIT -I	2	2	30	Application and Remembering
2.	UNIT -II	2	2	30	Analysing and evaluation
3.	UNIT -III	1	1	15	Understanding and remembering
4.	UNIT -IV	1	1	15	Applying
	Total	6	6	90	

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - V SEMESTER
COURSE- 12: FOOD QUALITY AND SENSORY EVALUATION

Time 2hrs.30min **Maxmarks-60**

SECTION-A

Answer the following questions **4x10=40 M**

1. One question is to be set from unit-I

   Or

   One question is to be set from unit-I
2. One question is to be set from unit-II

   Or

   One question is to be set from unit-II
3. One question is to be set from unit-III

   Or

   One question is to be set from unit-III
4. One question is to be set from unit-IV

   Or

   One question is to be set from unit-IV

SECTION-B

Answer any FOUR questions **4x5=20M**

5. One question is to be set from unit-I
6. One question is to be set from unit-I
7. One question is to be set from unit-II
8. One question is to be set from unit-II
9. One question is to be set from unit-III
10. One question is to be set from unit-III
11. One question is to be set from unit-IV
12. One question is to be set from unit-IV

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - V SEMESTER
COURSE- 12: FOOD QUALITY AND SENSORY EVALUATION
QUESTION BANK
SECTION A
ESSAY QUESTIONS (10M)

UNIT I

1. Write an essay on quality assessment of meat
2. Write an essay on quality assessment of egg
3. Write about classification of quality attributes in food quality control

UNIT II

1. Write an essay on importance and functions of quality control
2. Write an essay on quality assessment of fruits and vegetables
3. Write an essay on quality assessment of milk and milk products

UNIT III

1. Definition and importance of odour and flavor
2. Write an essay on measurement of odour and measurement in different techniques
3. Write about texture classification and forces involved in texture measurement

UNIT IV

1. Explain Munsell colour system and CIE colour system
2. Explain factors effecting quality of taste

SECTION B
SHORT QUESTIONS (5M)

UNIT I

1. Define food quality and need in food industry
2. Write about the role of food quality in food industry
3. Write a short note on panel screening

UNIT II

1. Write a note on food quality objectives
2. Write a note on concept of Rheology
3. Write a note on objectives of consumer

UNIT III

1. Write a note on chemical specificity of odour
2. Write a note on olfactory abnormalities
3. Write a note on odour classification

UNIT IV

1. Write a note on factors effecting appearance of colours
2. Write a note on hunter colour system
3. Write a note on taste abnormalities
4. Write a note on colour abnormalities

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - VI SEMESTER
COURSE- 12: FOOD QUALITY AND SENSORY EVALUATION

Practicals

1. Selection and training of sensory panel
2. Numerical scoring test
3. Ranking test
4. Descriptive test
5. Detection and threshold tests
6. Estimation of colour and texture ,relationship between objective and subjective methods.

	Pithapur Rajah's Government College(Autonomous) Kakinada	Program &Semester III B.Voc, FOOD TECNOLOGY Semester - V Course-13			
Course Code	**FOOD PRESERVATION TECHNOLOGY**				
Teaching	**Hours Allocated: 60 (Theory)**	**L**	**T**	**P**	**C**
		50	**10**	**30**	**4+1**
Pre-requisites:					

Course Objectives:

- To enable the students to acquire knowledge on different preservation techniques used to enhance the shelf span of food product.
- To study the different mode of spoilage in foods and minimize the contaminationby different preservation technology.

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	To understand the basics of food processing
CO2	Gains knowledge on technologies of food preservation
sCO3	Gains knowledge on importance of temperature in food preserving
CO4	Gains knowledge on fermentation technology

Skill Development			Employability			Entrepreneurship	

Syllabus:

Unit – I

Introduction to Food Processing and Preservation: Definition, Objectives, scope of food processing industries, Introduction to Different processes employed in food processing viz. Milling, Cooking, Boiling, Steaming, Braising, Stewing, Roasting, Frying, Grilling, Baking, Fermentation, Pickling, Refining;

Unit – II

Thermal Preservation Technology of foods : Introduction, historical perspectives, principles, classification – cooking, blanching, pasteurization, sterilization;
Food Preservation by Moisture control: Drying and Dehydration - Definition, drying as a means of preservation, differences between solar drying and dehydration (i.e. mechanical drying), heat and mass transfer, factors affecting rate of drying, normal

drying curve, names and types of driers used in the food industry;

Unit – III

Preservation of foods by high-temperature technology: Evaporation, extrusion cooking, infrared, microwave, ohmic heating, dehydration and drying; effect of thermal processing on foods.
Preservation of foods by low-temperature technology: Introduction, methods of freezing – air, plate, liquid-immersion and cryogenic freezing; quality and stability of frozen foods – defects, common storage temperatures, prediction of storage life of frozen foods;

Unit – IV

Food Preservation by Irradiation technology: Introduction, units of radiation, kinds of ionizing radiations used in food irradiation, mechanism of action, uses of radiation processing in food industry, concept of cold sterilization.

Fermentation technology: Curing and Pickling; Smoking Chemical preservatives-(Objectives, principles, types of preservatives, Different types of chemical preservatives, Safety in use and certification levels, adverse affects. Preservation by high osmotic pressure (Pickling, salting, curing – principles)

References :

1. Subalakshmi, G and Udipi, S.A. Food processing and preservation. New Age International Publishers, New Delhi, 2001.
2. Potter, N.N. and Hotchkiss J. H. Food Science. CBS publishers and distributors. 1996.
3. Srivastava, R.PO and Kumar, S. Fruit and vegetable preservation, International Book distribution Company, Lucknow, 1994.
4. MC.Williams, M and Paine, H. Modern Food preservation. Surjeet Publications, Delhi, 1984.
5. Cruess, W.V. Commercial fruits and vegetable products, Anees Offset press, New Delhi.
6. Sahay K.M. & Singh K.K, Unit Operations of Agricultural Processing, Vikas Publication House, New Delhi.

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - VI SEMESTER
COURSE – 13: FOOD PRESERVATION TECHNOLOGY

WEIGHTAGE TO CONTENT

S.No.	Course Content	Essay (10M)	Short (5M)	Total marks	Remarks as per Blooms Taxonomy
1.	UNIT -I	2	2	30	Application and Remembering
2.	UNIT -II	2	2	30	Analysing and evaluation
3.	UNIT -III	1	1	15	Understanding and remembering
4.	UNIT -IV	1	1	15	Applying
	Total	6	6	90	

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - V SEMESTER
COURSE – 13: FOOD PRESERVATION TECHNOLOGY

Time 2hrs.30min **Maxmarks-60**

SECTION-A

Answer the following questions **4x10=40 M**

1. One question is to be set from unit-I

   Or

   One question is to be set from unit-I
2. One question is to be set from unit-II

   Or

   One question is to be set from unit-II
3. One question is to be set from unit-III

   Or

   One question is to be set from unit-III
4. One question is to be set from unit-IV

   Or

   One question is to be set from unit-IV

SECTION-B

Answer any FOUR questions **4x5=20M**

5. One question is to be set from unit-I
6. One question is to be set from unit-I
7. One question is to be set from unit-II
8. One question is to be set from unit-II
9. One question is to be set from unit-III
10. One question is to be set from unit-III
11. One question is to be set from unit-IV
12. One question is to be set from unit-IV

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - V SEMESTER
COURSE – 13: FOOD PRESERVATION TECHNOLOGY
QUESTION BANK
SECTION A
ESSAY MARKS (10M)

UNIT I

1. Define food processing and preservation and write scope and objectives of food processing and preservation (BT-2)
2. Explain the following (BT-1)
   1) streaming
   2) braising
   3) stewing
   4) frying
3. . Explain the following (BT-4)
   1) cooking
   2) milling
   3) boiling
   4) roasting

UNIT II

1. Explain principles of thermal preservation technology (BT-1)
2. Explain different types of thermal preservation of food technology (BT-4)
3. Explain drying , dehydration as a means of preservation (BT-3)

UNIT III

1. Explain evaporation, extrusion ,cooking in preservation of foods (BT-1)
2. Explain different types of preservations of foods by low temperature (BT-2)

UNIT IV

1. Write different types of ionizing radiations used in food irradiation (BT-3)
2. Write different types of chemical preservations (BT-2)

SECTION B
SHORT QUESTIONS (5M)

UNIT I

1. Write a short note on pickling (BT-4)
2. Write a short note on refining (BT-1)

3. Write a short note on fermentation (BT-2)

UNIT II

1. Write the difference between sun drying and dehydration (BT-4)
2. Write factors affecting the rate of drying (BT-1)
3. Write different driers in food industry (BT-2)

UNIT III

1. Write defects in quality and stability of frozen foods (BT-3)
2. Write the effects of thermal processing of food (BT-4)

UNIT IV

1. Write a short note on concept of cold sterilization (BT-1)
2. Write the uses of radiation processing in food industry (BT-2)
3. Write a short note on curing and pickling (BT-2)
4. Explain principles in salting and curing (BT-3)

P.R.GOVERNMENT COLLEGE (A),
KAKINADACHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - V SEMESTER
COURSE – 13: FOOD PRESERVATION TECHNOLOGY

Practicals

1.Preparation of Orange Squash
2.Preparation of Mango pickle
3.Preparation of Grilled foods
4.Preparation of Stewing Foods
5.Preparation of Baked food(cake)

	Pithapur Rajah's Government College(Autonomous) Kakinada	Program &Semester III B.Voc, FOOD TECNOLOGY Semester - V Course-14			
Course Code	TECHNOLOGY OF MEAT, FISH & POULTRY				
Teaching	Hours Allocated: 60 (Theory)	L	T	P	C
		50	10	30	4+1
Pre-requisites:					

Course Objectives:

To provide an extensive description of meat, fish and poultry processing

- To introduce the latest technologies, manufacturing processes and toolsfor effective control of safety and quality during processing.

Course Outcomes:

On Completion of the course, the students will be able to-	
CO1	Gains knowledge on meat processing
CO2	To understand fish processing
CO3	Gains knowledge on egg processing
CO4	Gains knowledge on poultry processing

Skill Development			Employability			Entrepreneurship	

Syllabus:

Unit – I

Meat Processing: Chemical composition & structure of meat, Post-mortem changes in meat, tenderizing, curing; Dry heat and moist heat cooking methods of meat; quality Classification, Meat preservation- chilling, freezing, curing, salting, pickling, smoking and canning; storage of meat;

Unit – II

Fish Processing : Classification, Composition of fish, Preservation methods of fish during processing - Drying, salting and smoking, Chilling and freezing of fish, application of freezing system in fish processing- IQF method, Canning of fish and fish products, Packaging.

Unit – III

Egg Processing: Egg formation and structure, composition, Microbes in eggs. egg processing methods- Freezing, refrigeration, drying. Egg quality parameters: interior and exterior. Effect of thermal process on eggs; Egg foams; various egg products;

Unit – IV

Poultry Processing: Poultry composition, classification, slaughtering techniques, various cooking methods of poultry and its preservation;

References :

1. Manay, N.S, Shadakshara swamy, M., Foods- Facts and Principles, New Age International Publishers, New Delhi, 2004.

2. Potter, N. N, Hotchkiss, J. H. Food Science. CBS Publishers, New Delhi. 2000.

3. Subalakshmi, G and Udipi, S.A. Food processing and preservation. New Age International Publishers, New Delhi, 2001.

4. Srilakshmi, B. Food Science. New Age International Publishers, New Delhi, 2003

5. Warriss P. D, Meat Science: An Introductory Text, Cambridge university press – 2010

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc(Food Technology)
FINAL YEAR - VI SEMESTER
COURSE- 14: TECHNOLOGY OF MEAT, FISH & POULTRY
WEIGHTAGE TO CONTENT

S.No.	Course Content	Essay (10M)	Short (5M)	Total marks	Remarks as per Blooms Taxonomy
1.	UNIT -I	2	2	30	Application and Remembering
2.	UNIT -II	2	2	30	Analysing and evaluation
3.	UNIT -III	1	1	15	Understanding and remembering
4.	UNIT -IV	1	1	15	Applying
	Total	6	6	90	

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc (Food Technology)
FINAL YEAR - V SEMESTER
COURSE- 14: TECHNOLOGY OF MEAT, FISH & POULTRY

Time 2hrs.30min **Maxmarks-60**

SECTION-A

Answer the following questions **4x10=40 M**

1. One question is to be set from unit-I

   Or

   One question is to be set from unit-I
2. One question is to be set from unit-II

   Or

   One question is to be set from unit-II
3. One question is to be set from unit-III

   Or

   One question is to be set from unit-III
4. One question is to be set from unit-IV

   Or

   One question is to be set from unit-IV

SECTION-B

Answer any FOUR questions **4x5=20M**

5. One question is to be set from unit-I
6. One question is to be set from unit-I
7. One question is to be set from unit-II
8. One question is to be set from unit-II
9. One question is to be set from unit-III
10. One question is to be set from unit-III
11. One question is to be set from unit-IV
12. One question is to be set from unit-IV

P.R.GOVERNMENT COLLEGE (A), KAKINADA
CHOICE BASED CREDIT SYSTEM
B.Voc(Food Technology)
FINAL YEAR – V SEMESTER
COURSE- 14: TECHNOLOGY OF MEAT, FISH & POULTRY
SECTION A
ESSAY QUESTIONS (10M)

UNIT I

1. Explain different types of preservations of meat (BT-1)
2. Explain post mortem changes in meat (BT-4)

UNIT II

1. Explain different types of preservation of fish (BT-2)
2. Explain different classification , composition of fish (BT-3)

UNIT III

1. Explain different types of egg processing methods (BT-1)
2. Explain quality parameters of egg (BT-2)

UNIT IV

1. Explain cooking methods of poultry (BT-1)
2. Explain slaughtering techniques in poultry (BT-4)

SECTION B
SHORT QUESTIONS (5M)

UNIT I

1. Write a short note on dry heat cooking method of meat (BT-1)
2. Write a short note on moist heat cooking method of meat (BT-3)
3. Write a short note on storage of meat (BT-2)

UNIT II

1. Write a short note on packaging of fish products (BT-2)
2. Write a short note on IQF method (BT-1)

UNIT III

1. Write about effects of thermal process on egg (BT-3)
2. Write a short note on composition of eggs (BT-4)

UNIT IV

1. Write a short note on composition of poultry (BT-1)
2. Write a short note on classification of poultry (BT-3)

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Practicals

1. Evaluation of eggs for quality parameters (market eggs , branded eggs
2. Preparation of meat based products
3. Preparation of egg based products
4. Preparation of Poultry based products
5. Preparation of chicken pickle

INDUSTRIAL INTERNSHIP FOR THE ENTIRE VI SEMESTER