# SHIVAJI UNIVERSTIY KOLHAPUR



# 'A<sup>++'</sup>Accredited By NAAC (2021) With CGPA 3.52

CHOICE BASED CREDIT SYSTEM WITH MULTIPLE ENTRY AND MULTIPLE EXIT OPTONS AS PER NEP 2020

## **Syllabus for**

T.Y. B.Sc Food Science and Technology (Entire) NEP-2020 Pattern

Syllabus to be implemented from Academic Year- 2024-25

#### Structure of Program and list of courses are as follows: (i)Structure of B.Sc. Food science and Technology (Entire) Programme Sem- I & II

								SEM	ESTER-I	(Durati	on –	- 6 N	lont	hs)										
S	Cour	·se(subj			TI	EACH	ING	SCHEN	ЛE						EXAN	MINAT	<b>FION S</b>	CHEN	1E					
r	e	ect)		Т	HEORY	7		P	RACTICA	<b>\L</b>					THEO	RY			PR	ACTI	CAL			
n	Т	litle				1			1			]	Inter	nal		U	niversit	у			-			
0			Cro	edi	No. of	Hou		Credi	No. of	Hou		Ma	ax	Min	Hou	Ma	total	mi	hou	ma	mi			
			t	S	lectur	rs		ts	lectur	rs					rs	X	mar	n	rs	X	n			
1	DSC	EST A1	-	,	es	4	_	2	es	2.2	-	1/	0	4	2	40	KS							
1	DSC-	$\frac{FST-AI}{FST A2}$	2	,	3	4			4	5.2		1(		4	2	40	80	28						
2	DSC-	FST-A3	2	)	5	4	_	2	4	32	-	1(		4	2	40	00	20						
4	DSC-	FST-A4	2	2	5			2		5.2		1(	0	4	2	40	80	28	PR	ACTIC	CAL			
5	DSC-	FST-A5	2	2	5	4		2	4	3.2		10	0	4	2	40			EXA	AMIN/	ATIO			
6	DSC-	FST-A6	2	2	-							1(	0	4	2	40	80	28	N IS	S ANN	UAL			
7	DSC-	FST-A7	2	2	5	4		2	4	3.2		10	0	4	2	40								
8	DSC-	FST-A8	2	2								1(	0	4	2	40	80	28						
9	AE	CC-A	4	ł	4	3.2						1(	0	4	2	40	50	18						
1	SI	EC-I	2	2	Electio	on, Den	nocr	acy & G	ood Gover	nance														
0	(V	BC-I)				(On-lin	e &	Self-Stu	dy Mode)				-		1	50	50	18						
	Com	pulsory	2	2	24	10.2		0	16	12.0							500	+						
	IU	JIAL	Ζ.	Ζ	24	19.2		8	10	12.8							500							
								SEN	<b>IESTER-</b>	II (Dura	atio	n — 6	6 Mo	nths)										
1	DSC	-FST-	2	5	4		2	4	3.2		10	0	4	2	40									
	B1	FOT	2							-	1.	<u> </u>	4		10	80	28			50	18			
2	B2	-FSI-	2								10	)	4	2	40									
3	DSC	-FST-	2	5	4		2	4	3.2		10	0	4	2	40					50	18			
4	B3 DSC	-FST-	2								10	0	4	2	40	80	28							
	B4																							
5	B5	-FST-	2	5	4		2	4	3.2		10	0	4	2	40	80	28	As p	ber	50	18			
6	DSC B6	-FST-	2								10	0	4	2	40				DS elines					
7	DSC B7	-FST-	2	5	4		2	4	3.2		10	0	4	2	40	80	20			50	18			
8	DSC DSC	-FST-	2							-	10	0	4	2	40	- 80	20							
9	AEC	CC-B	4	4	3.2	-					10	0	4	2	40	50	18			200				
1	SE	C-II	2		Consti	tution a	of In	-   dia & Lo	ocal	-				. 1	50	50	18							
0	(VB	C-II)	-		e e no n	Gove	ernm	ient						-			10							
	Com	pulso			(On-li	ne & Se	elf-S	tudy Mo	ode)															
_		ту Тат	22	2/	10		8	16	12.8							500								
		IAL	22	27	10.		0	10	12.0							500								
	GR	AND	44	48	38.		16	32	25.6							100				1				
	TO	TAL			4											0								
		Student	contac	ct ho	urs per w	veek: 32	2 ho	urs (Min	)					Total n	narks fo	r B.Sc	I (inclu	ıding E	nglish	): 1200	)			
		Theory and Practical lectures: 48 minutes each Total credits for B.Sc I (Semester I & II): 60																						
		DSC – Discipline specific core course: All papers are compulsory																						
-		AECC – Ability Enhancement Compulsory Courses and Value Based Courses																						
-		SEU: Skill Enhancement Course includes Skill Based Courses and Value Based Courses.																						
-		There shall be separate passing for theory & Practical courses																						
$\vdash$		(A)Non-Credit Self Study Course: Compulsory Civic Course(CCC)																						
		For Sem I: CCC-I: Democracy, Elections & Good Governance																						
		(B)Non Credit Self Study Course: Skill Development Courses(SDC)																						
							ł	For Sem	II : SDC –	I: Anyc	one I	From	n Foll	lowing	(i) to (v	)								
		i	)	Bu	siness C	ommur	nicat	ion & Pr	esentation.	. ii)Ever	nt M	[anag	geme	ent iii)P	ersonali	ity devo	elopmer	nt iv)Y	oga &	Physic	cal			
								1	nanageme	nt v) Re	sum	e, Ro	epor	t & prop	osal w	riting.								

#### (ii) Structure of B.Sc. Food science and Technology (Entire) Programme Sem- III & IV

~	~					SEN	MESTEI	R-III (	Dura	tion – 6	Months)					-		
S	Course		THEO	TEACHIN	IG SCH		E ACTIC	AT		THEORY PRACTIC								<u> </u>
r n	Subject Title		THEO	ОКҮ		PF	KACHC	AL		I4	IHE		I			PKA	CHC	AL
п 0	The	Card	Na	e Herry			Na af	II.			ernal	II.		/ersity		h		
U		Crea ite	INO.	OI HOUR		re its	NO. OI lecture	Hou	r	10	4	H0 rs	u Ma	total		nours	ma v	mi
		105	licitu	105 5		11.5	s					13	<b>A</b>	ks	1			1
1	DSC-	2	3	2.4		4	8	6.4		10	4	2	40				1	
	FST-C1													80	28			
2	DSC-	2	3	2.4						10	4	2	40	1				
	FST-C2															PRA	CTIC	AL
3	DSC-	2	3	2.4	4	4	8	6.4		10	4	2	40			EXAM	INAT	ION
	FST-C3				4					10			- 10	80	28	IS A	NNUA	4L
4	DSC-	2	3	2.4						10	4	2	40					
5	FSI-C4	r	2	2.4	-	1	0	6.4		10	4	2	40					
5	EST-C5	Z	5	2.4		+	0	0.4		10	4	2	40	80	28			
6	DSC-	2	3	2.4	-					10	4	2	40		20			
	FST-C6	_																
7	AECC-	4	4	3.2														
	С																	
8	SEC-III	Any	one fro	m pool of		2							-			2	50	18
	TOTAL	16	cour	se		4	24	10/		(0)			240	250			50	
	IOTAL	16	22	17.6	1	.4	24	19.	2	60			240	350			50	
						CEN	MESTEI		<b>D</b>	tion (	Montha)							
						SEP	VIESTEI	X-1V (	Dura	1011 – 0	viontiis)							
1	DSC-	2	3	2.4	4	8	3 6.4	1	10	4	2	40						
	FST-D1												80	28		100	3	5
2	DSC-	2	3	2.4					10	4	2	40						
3	DSC-	2	3	2.4	4	8	3 64	1	10	4	2	40		28	As per	. 100	3	5
	FST-D3		5	2.7	-		, 0.4	r	10		2		80	20	BUS Guidalin	100	, , , ,	5
4	DSC-	2	3	2.4	1				10	4	2	40	00		Ouldelin	105		
	FST-D4				<u> </u>									•				_
5	DSC-	2	3	2.4	4	8	6.4	ł	10	4	2	40	20	28		100	) 3	5
6	DSC-	2	3	2.4	-				10	4	2	40	80					
	FST-D6	2	5	<i>2</i> .7					10		2							
7	AECC-C							-			3	70	100	25				
	AECC-D										Project	30		10				
6	SEC IV	Δητ	one fra	m nocl	2						110,000				2	50	1	8
C	SEC-IV	Any	of cour	ni pool				-							Z	50		0
	TOTAL	12	18	14.4	14	19	2 24						400			350	)	
	101112		10										-00					
	GRAND	28	40	32	28	38	3.4 48	;					750					
	TOTAL													1 11	DL/C	1100		
Student contact hours per week: <b>36.8 hours</b> (Min)										1	otal mark	tor I	3.Sc-11 (i	ncludir	ng EVS):	1100		
Theory and Practical lectures: <b>48 minutes</b> each										Т	otal credit	ts for I	3.Sc II (S	Semeste	er III & F	V): 56		
	u																	
				DS	$\mathbf{C} - \mathbf{Dis}$	ciplin	ne specifi	ic core	e cours	se: All pa	apers are c	compu	lsory					
	AF	$\mathbf{C}\mathbf{C}\mathbf{C}-\mathbf{A}$	Ability H	Enhancemer	t Comp	ulsor	y Course	e(C): l	Enviro	onmental	Studies: I	EVS(T	heory- 7	0 & Pro	oject- 30	marks)		

Practical Examination will be conducted annually for 100 marks per course(Subject).

There Shall Be Separate Passing For Theory & Practical Courses. Also For Environmental Studies.

## (iii)Structure of B.Sc. Food science and Technology (Entire) Programme Sem- V& VI

									SE	MEST	ER-V (	Du	ration	- 6 N	Months	s)						
S	Co	urse(s	ub		Т	TEACH	IING	SCI	HEN	1E						E	XAMIN	ATIO	N SCHEM	Е		
r		ject)			<b>FHEO</b>	RY			PR	ACTIC	AL		I	itern	al		TH	EORY	Y	PR	ACTIC	CAL
n		Title		Cred	No.	Ho	u	Cr	ed	No.	Hou		Max	Ι	Min		Hou	Max	lax min hour ma			min
U				its	lectu	ı rs			ts.	of lectu res	rs		k k	m	ark s		rs	mar s	k mark s	S	x ma rks	mar ks
1	DS	SC-FS E1	Г-	2	3	2.4	1			105			10		4		2	40	14		IKS	
2	DS	SC-FS	Г-	2	3	2.4	1						10		4		2	40	14	PR EXA	PRACTICAL EXAMINATIO	
3	DS	E2 SC-FS E3	Г-	2	3	2.4	1	8		20	16		10		4		2	40	14	IS ANNUAL		AL
4	DS	SC-FS	Г-	2	3	2.4	1						10		4		2	40	14			
5	А	E4 ECC-I	E	2	4	3.2	2	-					10		4		2	40	14			
6	5	SEC-V		Any o	ne fron cours	n pool c e	of		2											2	50	18
	Т	OTAL		12	16	12.	8	1	0	20	16		50					200				
	SEMESTER-VI (Duration – 6 Months)																					
		1 D F	DSC-F	FST-	2	3	2.4						10	4	2	40	1	14				
		2 D F	OSC-I 2	FST-	2	3	2.4						10	4	2	40	1	4	as per BOS			
		3 D F	DSC-F 3 DSC-F	FST-	2	3	2.4	_	8	20	16		10	4	2	40	1	4	Guidelines	200	70	
		- E F 5	4 AEC	C-F	4	4	3.2	_				_	10	4	2	40	1	4				
		6	SEC	-VI	Any o	ne fron	 1 pool		2			_							2	50	18	
			тот	TAT	0	f course	e	,	10		16	-	50			200						
			GRA TOT	ND TAL	24	32	25.0	, ,	20	40	32		30		400	800	)					
		Stud	lent c	contact	hours p	er wee	k: <b>28.</b>	8 ho	urs	(Min)			Tota	l mai	rks for	B.Sc-	III (incl	uding	English): 80	0		
		Th	eory	and Pra	actical	lectures	s: <b>48</b> I	ninu	ites	each			Tot	al cre	dits for	r B.Sc	: III (Se	mester	V & VI): 4	4		
							DSE	L - D	Discip	pline spe	ecific e	lecti	ive: A	l pap	ers are	comp	oulsory	1				
			Dre	nation1	Fromin	A ation u	ECC	-A	bility	y Enhan	cement	t Co	mpuls	ory C	ourse(	E & F	) Englis	sh ara rag	uired for no	ssing		
		There Shall Be Senarate Passing For Theory, Internal & Practical																				
		SEC: Any one from pool of course																				
						(4	A)Nor	n-Cre	edit S	Self Stu	dy Cou	rse:	Comp	ulsor	y Civio	c Cou	rse(CC0	C)				
						F	or Se	$\frac{m V}{Crrc}$	: CC	C-II: Co	onstitut	ion	of Ind	a & 1	local se	elf gov	vernmer	nt				
						(B	For	cre r Ser	uit S n VI	SDC -	- II: At	se: : iyor	ne Fro	n Fol	llowing	g (vi)	to (x)	C)				
		vi) l	Interv	view &	person	al prese	entatio	on sk	cill, v	vii) Entr	eprene	ursh	nip dev	elopr	nent sk	cill, vi	ii) Trav	el & to	ourism, ix)E	-Bankiı	ng &	
						finan	cial se	ervic	es, x	() RTI &	t huma	n Ri	ight Ec	lucati	on(HR	E), IF	YR & Pa	tents.				

NEP-2020, B.Sc : Food Science & technology(Entire): List of Courses:

i)B.Sc FST Part 1, Sem I & II

Course Code	Name of Course	Course Code	Name of Course		
Se	ml	Sem II			
DSC FST-A1	Food Chemistry I	DSC FST-B1	Food Biochemistry I		
DSC FST-A2	Food Chemistry II	DSC FST-B2	Food Biochemistry II		
DSC FST-A3	Food Microbiology I	DSC FST-B3	Dairy Technology I		
DSC FST-A4	Food Microbiology II	DSC FST-B4	Dairy Technology II		
DSC FST-A5	Principles of Food Preservation I	DSC FST-B5	Human Nutrition I		
DSC FST-A6	Principles of Food Preservation II	DSC FST-B6	Human Nutrition II		
DSC FST-A7	Human Physiology I	DSC FST-B7	Computer Basics application I		
DSC FST-A8	Human Physiology II	DSC FST-B8	Computer Basics application II		
AECC-A	English I	AECC-B	English II		
SEC-I	Election, Democracy & Good Governance	SEC-II	Constitution of India & Local Government		

#### Practical

		1 i ucticui	
DSC FST-P1	Lab Course I (Based on	DSC FST-P3	Lab Course III(Based
	DSC FST A3 DSC FST		on DSC FST B3 & DSC
	A4)		FST B4)
DSC FST-P2	Lab Course II(Based on	DSC FST-P4	Lab Course IV(Based
	DSC FST A1 & DSC		on DSC FST B7 & DSC
	FST A2)		FST B8)

DSC FST: - Discipline Specific Core Course Food Science & technology

AECC : - Ability Enhancement Compulsory Course : Compulsory English.

NEP-2020, B.Sc : Food Science & technology(Entire): List of Courses:

ii) B.Sc FST Part 2 Sem III & IV

Course Code	Name of Course	Course Code	Name of Course		
Sei	n III	Sem IV			
DSC FST-C1	Cereal & Legume Technology I	DSC FST-D1	Processing of Fruits & Vegetables I		
DSC FST-C2	Cereal & Legume Technology II	DSC FST-D2	Processing of Fruits & Vegetables II		
DSC FST-C3	Post Harvest Technology I	DSC FST-D3	Oil Seed & Nuts Technology I		
DSC FST-C4	Post Harvest Technology II	DSC FST-D4	Oil Seed & Nuts Technology II		
DSC FST-C5	Bakery & Confectionary Technology I	DSC FST-D5	Food Packaging I		
DSC FST-C6	Bakery & Confectionary Technology II	DSC FST-D6	Food Packaging II		
AECC-C	Environmental Studies(Theory)	AECC-D	Environmental Studies(Project)		
SEC-III	Any one from pool of course	SEC-IV	Any one from pool of course		

#### Practical

DSC FST-P5	Lab Course V (Based on DSC FST C5 & DSC FST C6 )	DSC FST-P7	Lab Course VII(Based on DSC FST D1 & D2)
DSC FST-P6	Lab Course VI(Based		
	on DSC FST C1 & DSC		
	FST C3)		

DSC FST: - Discipline Specific Core Course Food Science & technology

AECC : - Ability Enhancement Compulsory Course : Environmental Studies

NEP-2020, B.Sc : Food Science & technology(Entire): List of Courses:

iii) B.Sc FST Part 3 Sem V & VI

Course Code	Name of Course	Course Code	Name of Course
Se	m V	Ser	n VI
DSC FST-E1	Animal Product Technology I	DSC FST-F1	Animal Product Technology II
DSC FST-E2	Fermentation Technology I	DSC FST-F2	Fermentation Technology II
DSC FST-E3	Food Quality & Safety Management I	DSC FST-F3	Food Quality & Safety Management II
DSC FST-E4	Food Additives & Toxicology I	DSC FST-F4	Food Additives & Toxicology II
AECC-E	English III	AECC-F	English IV
SEC-V	Any one from pool of course	SEC-VI	Any one from pool of course

## Practical

DSC FST-P8	Lab Course VIII (Based on DSC FST E1 & DSC FST E2)	DSC FST-P10	Lab Course X(Based on DSC FST E3 & F3)
DSC FST-P9	Lab Course IX(Based on DSC FST F2 & DSC FST F4)	DSC FST-P11	Project

DSC FST: - Discipline Specific Core Course Food Science & technology

## Sem – V

## Animal Product Technology- Paper- I

(DSC FST-E-1-Animal Product Technology-I)

Unit- I- Meat	Hours Allotted
<ul> <li>A) Introduction to Meat Industry: -</li> <li>Scope of Indian Meat Industry</li> <li>Nutritional Values &amp; Properties of Meat</li> <li>Skeletal Muscle Contraction</li> <li>Slaughter Procedure of Live Stock</li> <li>Pre- Slaughtering Methods</li> <li>Post- Slaughtering Operations</li> <li>Conversion of Muscle to Meat</li> </ul>	
B) Post Mortem Chemistry, Tenderness, Post Mortem Quality Problem, By-Products of Live Stock, Meat Inspection, Meat Grading, Processed Meat Product Meat Cookery, Meat Micro- Biology & Safety Preservation & Storage C) Meat Processing	15
Unit-II- Fish	Hours Allotted
A ) Introduction Classification Of Fish Composition & Nutritive Value Of Fish Smoking Effect On Nutritional Quality Nutritional Benefits Preservation & Processing Of Fish Factors Affecting Quality Of Fish Packaging Fish Spoilage Products Of Fish	15

- 1) Manay S.N & Shadaksharswamy M. (2001); food facts and principles, 2<sup>nd</sup> end, new Age Intrnational (p) limited publishers
- 2) Potter N.N & Hotchkiss J.H. (1966); Food Science, 5<sup>th</sup> edn., CBS Publishers & distributors.
- 3) Shrilakshmi B. (2003); food Science, 3<sup>rd</sup> edn., New age International (P) Limited publishers.
- 4) NIIR Board; preservation of meat & poultry products 1<sup>st</sup>, Asia Pacific Business Press

#### Sem – V

## Fermentation Technology-Paper- I

(DSC FST-E-2- Fermentation Technology-I)

Unit-I-	Hours Allotted
<ul> <li>A) Introduction to Fermentation Technology: - Growth Kinetics of Micro-Organisms Isolation</li> <li>Improvement of Industrially Important Micro-Organism Inoculums Preparation</li> <li>Sterilization of Air &amp; Media</li> <li>Fermentation</li> <li>Definition and importance Fermentation</li> <li>Substrate for Fermentation</li> <li>B) Fermenter: -</li> <li>Design, Type &amp; Construction</li> <li>Basic Function of Fermenter</li> <li>Batch Fermentation</li> <li>Fed- Batch Fermentation</li> <li>Continuous Fermentation</li> <li>Instrument &amp; Control</li> </ul>	15
Unit-II	Hours Allotted
<ul> <li>A) Downstream Processing- Principle and Methodology Instrumentation an Applications of Cell Homogenization Filtration and Ultrafiltration Enzymes &amp; Immobilization of Enzymes Distillation, Biological Waste Treatment Chromatography</li> </ul>	15

- 1) Adams M & Moss M. 2008 RSC Publishing Food microbiology, 2<sup>nd</sup> edition
- 2) William c frazier, Dennis C. Westhoff Food Microbiology, 5<sup>th</sup> edition
- 3) Brian J. Wood. Elsiever Applied Science Publication. 1997
- 4) Stanbury, P. F, Whitekar A. & Hall 1995, pergaman. McNeul & Harvey. (AC) NEW

principles of fermentation Technology

## Sem – V

## Food Quality & Safety Management -Paper- I

(DSC FST-E-3- Food Quality & Safety Management -I)

Unit-I-	Hours Allotted
<ul> <li>A) Food Quality- Introduction Of Food Quality &amp; Safety Important Functions Of Quality Control Classification Of Quality Attributes &amp; Their Role In Food Quality Sensory Evaluation Of Food Quality-Introduction Panel Screening- Selection Of Panel Members Methods Of Sensory Evaluation &amp; Evaluation Cards- Difference/ Decimation Procedures Methods Of Sensory Evaluation &amp; Evaluation Cards-Ranking&amp; Rating Procedure</li> <li>B) Food Assessment- Quality Assessment Of Food Materials- Fruits &amp; Vegetables -Cereals &amp; Legumes , Dairy Products , Meat, Poultry, Egg &amp; Processed Food Products.</li> </ul>	15
Unit-II	Hours Allotted
<ul> <li>A) Food Safety Management- Definitions and importance of Food Safety Hazards and Types of Hazards Factors Affecting Food Safety Importance Of Safe Food Microbiological Consideration In Food Safety Toxicity</li> </ul>	15

- 1) The Food Safety & Standards Act 2006. Professional Book Publishers Delhi
- 2) krammer & Twigg Quality Control For Food Industry
- Norman N-Potter, Joseph H. Hotchkiss, CBS Publishers & distributors, New Delhi, 1997 5<sup>th</sup> edition of Food Science
- 4) Ranganna S. 2012 Handbook of analysis & quality control for fruits & vegetable products, Tata McGraw Hill Education Pvt. Ltd, New Delhi

#### Sem – V

## Food Additives & Toxicology -Paper- I

(DSC FST-E-4- Food Additives & Toxicology -I)

Unit-I-	Hours Allotted
A) Introduction To Food Additives-	
General Classification and Types	
Uses ,Functions	
Risks and Benefits	
Role Of Food Additives In Food Processing	
B) Preservatives-	
Antimicrobial Agents- Types, Mode Of Action & Their	
Application	
Antioxidants- Types & Mechanism Of Oxidation Inhibition	
Antibrowning Agents- Types, Function & Mode Of Action	15
Chelating Agents & Sequestrants - Types, Uses & Mode Action	
	Hours Allotted
A) Toxicology-	
Definition Scope & General Principles Of Food Toxicology	
Manifestation Of Toxic Effects	
Classification Of Food Toxicants	
Factors Affecting Toxicity Of Compounds	
Safety Of A Food Additives	
	15

- 1) Fennema. O. R Principles of food science Part-I
- 2) potter 3<sup>rd</sup> edition Food Chemistry
- 3) furia T.E. Vol-I & II Food Science Handbook of Food additives
- 4) George A.B Encyclopedia of food colour & additives Vol. 3<sup>rd</sup>

## Sem – VI

## Animal Product Technology -Paper- II

(DSC FST-F-1- Animal Product Technology -II)

Unit-I-	Hours Allotted
A) Eggs:-	
Structure And Composition	
Nutritive Value	
Functional Properties	
B) Quality Of Eggs :-	
Internal Quality Evaluation	
Grading	
Deterioration During Storage	
Microbial Spoilage Of Eggs	
Preservation & Storage Methods For Eggs	15
Packaging & Trans Portation Of Eggs	
Egg Cookery	
	Hours Allotted
A) Poultry :-	
Types Of Poultry	
muscle Structure	
Composition	
Chemical & Nutritive Value Of Poultry Meat	
B) Poultry Dressing & Slaughtering Methods	4.5
Postmortem Changes	15
Preservation	
Grading	
Packaging Of Poultry Meat	

- 1) Manay S.N & Shadaksharswamy M. (2001); food facts and principles, 2<sup>nd</sup> end, new Age Intrnational (p) limited publishers
- 2) Potter N.N & Hotchkiss J.H. (1966); Food Science, 5<sup>th</sup> edn., CBS Publishers & distributors.
- 3) Shrilakshmi B. (2003); food Science, 3<sup>rd</sup> edn., New age International (P) Limited publishers.
- 4) NIIR Board; preservation of meat & poultry products 1<sup>st</sup>, Asia Pacific Business Press

#### Sem – VI

## Fermentation Technology -Paper- II

(DSC FST-F-2- Fermentation Technology -II)

Hours Allotted
15
Hours Allotted
15

1) Adams M & Moss M. 2008 RSC Publishing Food microbiology, 2<sup>nd</sup> edition

2) William c frazier, Dennis C. Westhoff Food Microbiology, 5<sup>th</sup> edition

3) Brian J. Wood. Elsiever Applied Science Publication. 1997

4) Stanbury, P. F, Whitekar A. & Hall 1995, pergaman. McNeul & Harvey. (AC) NEW

principles of fermentation Technology

#### Sem – VI

## Food Quality & Safety Management -Paper- II

(DSC FST-F-3- Food Quality & Safety Management -II)

Unit-I-	Hours Allotted
A) Statistical Quality Control Of Foods:-	
Consumer Studies	
Preference Studies	15
Acceptance Studies	
Factors Affecting Consumer Acceptance	
B) Food Safety Management Tools:-	
Basic Concept Of Food Safety	
pre-requisites- GHPs, GMPs, HACCP, ISO series	
TQM- Concept & need for quality	
Components of TQM (Total quality management)	
Unit-II	Hours Allotted
A) Food laws & standards:-	
AGMARK & Bureau Of Indian Standards	
Additional Food Laws	
Federal Poultry Products Inspection Act Of 1957	
Federal Trade Commission Act	
Infant Formula Act Of 1986	
Nutrition Labeling & Education Act Of 1990	15
Consumer Protection Act	
Food Safety & Standards 2006	
Other Laws & Standards Related To Food	
Control Of Food Quality	

1) The Food Safety & Standards Act 2006. Professional Book Publishers Delhi

2) krammer & Twigg Quality Control For Food Industry

3) Norman N-Potter, Joseph H. Hotchkiss, CBS Publishers & distributors, New Delhi, 1997 5<sup>th</sup> edition of Food Science

4)Ranganna S. 2012 Handbook of analysis & quality control for fruits & vegetable products, Tata McGraw Hill Education Pvt. Ltd, New Delhi

## Sem – VI

## Food Additives & Technology -Paper- II

(DSC FST-F-4- Food Additives & Technology -II)

Unit-I-	Hours Allotted
Acidulants & Ph Control agents-	
Colouring agents	
flavouring agents	
sweetners	
emulsifiers	15
stabilizers	
Unit-II	Hours Allotted
A) Safety Of Toxicants-	
Nature and Dose Of The Compound	
Frequency Of Exposure	
Route Of Exposure	
Dietary Factors	
B) Endogenous Factors	
Dosage	15
L.D(50)	
Virtually Safe Dose	
No Effect Dose	

- 1) Fennema. O. R Principles of food science Part-I
- 2) potter 3<sup>rd</sup> edition Food Chemistry
- 3) furia T.E. Vol-I & II Food Science Handbook of Food additives
- 4) George A.B Encyclopedia of food colour & additives Vol. 3<sup>rd</sup>

## DSC FST – P8 Lab Course VIII (Based on DSC FST E1 & DSC FST E2)

- 1. Demonstration of slaughtering & different types of meat products & their quality.
- 2. Cutting of meat.
- 3. Slaughtering and dressing of neat animals.
- 4. study of post-mortem changes in meat.
- 5. Preservation of meat by different methods.
- 6. Estimation of moisture content of meat.
- 7. Analysis of frozen meat.
- 8. Quality evaluation of fish\prawn (Physical Parameters)
- 9. Formulation Canning of fish products.
- 10. Determination of acidity of brine from canned fish sample.
- 11.Cut out examination of canned fish.
- 12. Determination of moisture content from the different fish samples.
- 13. Determination of sodium chloride from different fish samples.
- 14. Determination of moisture content in fat.
- 15.Determination of Iodine value.
- 16.detection of adulteration in common food products.
- 17. Estimation of moisture content.
- 18. Preparation of Dhokla.
- 19. Preparation of Tofu.
- 20. Preparation of wine.

## DSC FST – P8 Lab Course VIII (Based on DSC FST F1 & DSC FST F2)

- 1. Effect of method of cooking on coagulation property of egg.
- 2. Quality evaluation of egg.
- 3. Preparation of sausages.
- 4. Calculation of shape & Size index of egg.
- 5. Preparation of ready to cook poultry.
- 6. Retail cuts of dressed chicken.
- 7. Determination of effect of temperature on coagulation of egg protein.
- 8. Evaluation of eggs for quality parameters market eggs.
- 9. Evaluation of eggs for quality parameters branded eggs.
- 10.To perform freezing of yolk/albumen.
- 11. To study shelf-life of eggs by different methods of preservation.
- 12.Study of relative sweetness of different sweeteners.
- 13. Qualitative test for detection of presence of non-nutritive sweeteners.
- 14. Sensory evaluation by different methods.
- 15. Preparation of RTS.
- 16.Preparation of Squash.
- 17. Preparation of Cordial.
- 18. Preparation of Nector.