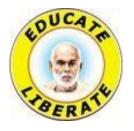
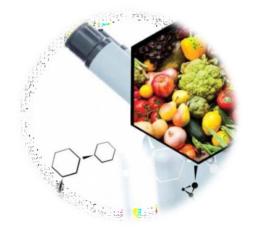
# Sree Narayana College Chengannur, Alappuzha

(Affiliated to University of Kerala NAAC accredited with 'B' Grade)



**POST GRADUATE DEPARTMENT OF** CHEMISTRY





#### ORGANISING COMMITTEE

- SRI.VELLAPPALLY NADESAN (PATRON)
- DR.SHEREEN.K(PRINCIPAL IN CHARGE)
- DR.SMITHA SASIDHARAN (IQAC COORDINATOR)
- **DR.AMBILY CHANDRAN** (COORDINATOR-CERTIFICATE COURSE)
- DR.VENU.S (HEAD DEPARTMENT OF CHEMISTRY)
- **DR.JISHA SREEDHARAN**
- DR.ANJU.K.S
- DR.RESHMI.R

### **Certificate Course on** "Food Science & Technology"

## COURSE DETAILS

- THE COURSE IS OPENED TO ALL PG & **UG STUDENTS** COURSE DURATION:
- 30Hrs(THEORY-24Hrs & PRACTICAL-6Hrs) COURSE FEE:Rs.250/-
- ASSESSMENT: ASSIGN
- MENT AND MCQ

**Course Coordinator Dr. Ambily Chandran Assistant Professor Dept. of Chemistry** S.N.College, Chengannur Contact No.8921743927

Sree Narayana College, Chengannur, named after the great social reformer Sree Narayana Guru, is a major centre for higher education to the rural community in the vicinity. The college was established in 1981. The vision of our College is to provide 'Liberation through Education' and 'Enlightenment through Education'. The college offer five undergraduate and three post graduate courses.

The Post Graduate Department of Chemistry ever since its establishment remains one of the major departments of the college, which offers high quality teaching. The department is equipped with a wide range of facilities to aid the students to do well in their performance. We cordially invite the interested undergraduate and post graduate students to join the Certificate course on 'Food Science and Technology' implemented by the Post Graduate Department of Chemistry in association with IQAC, S N College Chengannur.

The certificate course "Food Science and Technology" is likely to be a valuable asset for anyone who is interested in a career in the food industry. The course will provide students with the knowledge and skills they need to be successful in this growing field. Food science and technology is a multidisciplinary field that encompasses the study of food from its production to its consumption. It involves the application of scientific principles to the understanding of food composition, food safety, food processing, food packaging, food preservation, and food marketing. The field of food science and technology is constantly evolving, as new scientific discoveries and technological advances are made. This makes it a dynamic and exciting field to work in.

NAAC Accredited with B Grade

#### Minutes of the Meeting of Board of Studies

#### Attendees:-

- 1. Smt. Shereen K (Principal)
- 2. Dr. K Sreelatha (Chairman, Board of studies)
- 3. Dr. Smitha Sasidharan (IQAC Coordinator)
- 4. Dr. Venu S (Head, Department of Chemistry)
- 5. Dr. Ambily Chandran (Course Coordinator)

Venue: Principal's Chamber

Date & Time: 20/10/2022 at 2.30pm

#### Agenda:

1. Review of Certificate course proposal

#### Minutes:

1. Reviewed the certificate course proposal submitted by Department of Chemistry.

2. Approved the syllabus and proposal of the certificate course on "Food Science and Technology".

NA COLLEGE



# Sree Narayana College Chengannur

Alapuzha, Kerala

# POST GRADUATE DEPARTMENT OF CHEMISTRY CERTIFICATE COURSE: FOOD SCIENCE AND TECHNOLOGY (CH22FST)

#### Relevance of Food Science and Technology

Food science and technology is a multidisciplinary field that is relevant to our everyday lives in many ways, including:

- Ensuring food safety and security.
- Creating new and innovative food products.
- Improving the nutritional quality of food.
- Making food more sustainable.
- By developing new and innovative food products, they help to improve the variety and availability of food. And by making food more sustainable, they help to protect the environment.
- Food science and technology is a rapidly growing field, in addition to these food science and technology also has a broader impact on our society, by ensuring the safety and quality of food, food technologists help to protect public health. By developing new and innovative food products, they help to improve the variety and availability of food. And by making food more sustainable, they help to protect the environment.

#### **Objectives**

The students will be trained to understand and discuss the main principles, theories and concepts underlying established knowledge in food chemistry. On completing this course, students will be capable to:

- Describe food preservation methods help to prevent food spoilage and extend the shelf life of food. This is important for ensuring the safety and availability of food, especially in areas where food is scarce or where there is a risk of foodborne illness.
- Explain food processing methods help to improve the taste, texture, and nutritional value of food. They also help to make food more convenient and affordable.
- Explain food packaging methods help to protect food from spoilage, contamination, and damage. They also help to extend the shelf life of food and make it more convenient to store and transport.
- Describe food safety standards help to protect public health by ensuring that food is safe to eat. They are set by government agencies and food industry organizations.

#### FOOD SCIENCE AND TECHNOLOGY

#### UNIT - LINTRODUCTION OF FOOD SCIENCE

Food: sources and classification - food as a source of energy - functions and biological importance of carbohydrates, protein, fat, vitamins and minerals - calorific value of food -

energy requirements of individuals - balanced diet.

### UNIT - II FOOD ADDITIVES AND PRESERVATIVES

Definition, food colourants: natural and artificial - antioxidants, stabilizers, flavours, bleaching and maturing agents - leavening agents.

Definition - classification - methods of food preservation and processing by heat, cold,

radiation, drying and deep freezing.

UNIT - III FOOD ADULTERATION AND QUALITY STANDARDS

Definition - types - detection and analysis of adulterants in foods: milk, chilli powder, coffee powder, turmeric powder, ghee, oil and pulses.

Quality control - specification and standards - FA, WHO standards - packing and labeling of foods, Essential Commodities Act - Consumer Protection Act - AGMARK. Total quality

management, good management practices, HACCP and codex alimentarius commission.

#### UNIT-IV FOOD TECHNOLOGY

(6 Hrs)

(4 Hrs)

(4 Hrs)

(6 Hrs)

Principles and methods of food preservation - Heat processing, pasteurization, canning, dehydration, freezing, freeze drying, fermentation, microwave, irradiation and chemical

preservatives - Aseptic preservation, hurdle technology, hydrostatic pressure technology, microwave processing, microfiltration, bactofugation, ultra-high voltage electric fields, pulse electric fields, high pressure processing, irradiation, thermosonication, dielectric heating,

infrared, induction heating, antibacterial and bacteriocins.

(4 Hrs)

UNIT-V FOOD PACKAGING AND FOOD SAFETY Food fortification. Milling, processing, composition, structure, product development and byproduct utilization of cereals, pulses, millets and oil seeds. Antinutritional factors. Instant

Environment and waste management.

ready mixes. Packaging - materials and methods. Food plant sanitation. Food hygiene.

#### References:

- Food Chemistry David Newton Facts on File, Inc. New York 2004
- Principles of Food Chemistry DeMan JM AVI Publishing Co Inc., 1976
- Swaminathan, M. (2012). Advanced Text book on food and Nutrition, Vol. II.
- Swaminathan, M. (2012). Handbook of Food & Nutrition. 5th Edition.
- Shakuntala, M.N and Shadaksharaswamy, M. (2013). Food Facts and Principles. New Age International.
- Srilakshmi, B. Food science. 3rd Edition. New Age International

#### PRACTICALS

6 hrs

- 1. Analysis of contents in fruit juices- starch, carbohydrates and calcium
- 2. pH analysis of fruits
- 3. Analysis of Vitamin C content in citrus fruits
- Analysis of oxalate content in guava fruit
- 5. Analysis of Chocolates

CHENGAMNUR

PRINCIPAL SREE NARAYANA COLLEGE

# SREE NARAYANA COLLEGE CHENGANNUR DEPARTMENT OF CHEMISTRY

# Certificate Course on "Food Science and Technology" (CH22FSC)

**Duration: 3 months** 

Year: 2022-23

#### **Student Enrolment for the certificate course**

SI No.	Candidate Code	Name	Signature
1	63522128001	ABHINAND S	Abhirans
2	63522128002	ABHIRAMI P	Theran
3	63522128003	AJAY J WILLS	- FAY alike
4	63522128004	AKHILA.A.U.	Millean
5	63522128005	ANAGHA RAJ	Jagurtas
6	63522128006	ARYALAKSHMI G	AND THE REST OF THE PERSON OF
7	63522128007	ASWATHY S	Burelly.
8	63522128008	COLLIN THOMAS EAPEN	ab.
9	63522128009	DANISH V S	QQ-
10	63522128010	DEVIKA A S	(Carl
11	63522128011	JOBIN M R	le
12	63522128012	LEKSHMI M	leteshow
13	63522128013	MEGHA P S	Media
14	63522128014	MUNNU R	Young
15	63522128016	RESHMI C	a diameter
16	63522128017	SONA S	Sm
17	63522128018	SREELEKSHMI SAJI	Bestermi
18	63522128019	VARSHA PRASANNAN	Central

Course Coordinator

THE CHENCHING

Head of the Department

SREE NARAYANA COLLEGE CHENGANNUR

		TIFICA													ON									love			12	2							
	(NAME			2 3					9 10				4																Working	Days	Present	Days	Leave	Remark	ks
	h11:		×	×	×		×		×		X.		13 · · ·	a		X			×			X				<b>K</b> )				4				ALS	and
1.	Abhirand S Abhirami P		X	-	×		X		X	,	(	100		a		X	X		X			×	×			K 3				4				Abh	includ
3.	Bjay T. Wills		a	_	×		X	1	,	( )	4	100		X		×	X	1 1	×	1		a	X		3	( )	5		1	4	12				any-
1.	Akhila A.U.		X	_	×		>		,	( )	K			X	4 3	X	x		×	1			X			K,			1.	4	14		Na		half-
	Anagha Raj		×	_	X		X		y	( )	4			a		X	X	E 18	×	2			X			X	X		1	4	13		plan	Ann	
	Dans laket	7.00	a	_	×		a		X		X	16		X		X	X		X	1		X	X			X	X		1	4	12	100	135	A	140
	Azyalekshmi G		X		X		×		×		X			X		X	X	1	X	14		X	X			X	×	6		14	14	100	1E	Qui	uly
	Aswathy S		X		X		K		,	<	X		100	a		X	X	19	X			X	X			X	×			14	13		1	B	The second
	Collin Thomas Rapen		X		X	8	a			( )			-	X			X		X		100	×	X			X	×			14	13			0	**
	Danish V.S.		X	-	X		×	-		ς :	_		-145	X	7	×	X		X			×	X			X	×			14	14			0	de.
	Devika-A-S		×	market by	X		×	-	100	χ.			100	a	X	X	X		×			X	X			X	×				1			8	ahr
	Johin MR.		X		X		>			χ.	100		18	X		X	X		X			×	×			×	X				14			10	kulm'
	Lekshni-M		100		-		0		_	X	_		1	×	N TO	_	X		X			a	X			X	×				E				hechs
	megha PS		X		X		)	-	-	X	_		18	X	7		X		X			×	×	10		×	×				+ 14		26		dum
	Munnu R.		X	_	XX					X		-	H	X		-	×		7		1 3	×	X			X	_	-			1			AB	10ch
	Reshmi. C.	4.0.00	X	-	( X	1	)	-				-	8	X		-	×		×	4		-	×	-			X			1100	-		BIR	0	Edne
	Sona S.		X		< X			٨		X		1	-	X		+	×		,	-	0	-	1 >	-		+	×			1100	+	7	2	3	Zerest
	Szeelekshni Saji	6.39,6	×	9 10 15	K X			×		*		-	4	×		-	×		-	2			X			-	*	-15		1117	4			,	rails
	Varsha Prasannan		×	,	X X		,	(		X	*		1	^		-			Í											×	0	4			
						1		T	18	P			1										1	1					1	2	4				
		1	П	6			1			16		18																	42	*	-	100	E		
						Ħ				4		1	11						-	ARA	YAN	-							-	Na.	CO	R.		31	
						17				10			11					6	1		-	6				1	-	EN	HEN	GN	Mar		E.		
+					71	1			19				1										G	1								25			
4			-			187		+										1	Co	EMO	ANIA	-		1											
4			-			-						17	-							7	ANIA		1	24		1	4								
	MEG WAR					-		4	10				-				T				7						1	7	1	1					
						1	8		-			-	-											1	1	1	I	T	1	1		1			
		446				16	1		10	1	1	-	-							11			1			1	I		1	1			-		AM
	THE LAKE WILL						14		18	1		1	+	100		-						1	1	1	1	1	1	1	1	1			1		E S
				1			1/4		100			1	4			-	-	1			-	-	-	-	1	1	-		1	1	-				172
				8					100				1				1	1	1					1	1	1	-	-	-	-			1		1
		Marie India		F		1			1 3				1				-	-	1	-	-	-	4	-	+		+		-	-	-	-	-	-	0 5
1		WILL S		100		1/4	1								-	-	-	-	14	-		-		-			1		-	-		-	100	1	-
1		THE REAL PROPERTY.	100				1			13		T				1		1			27		-				-	-	1	-		100	-	-	-
-		V E						T	-		100	-	1		2		4				92	-				1		-	1	1	-	200	-		-
1	Pourse Coordinalos.		0	13	0			1	-	0	0	-	1	2		6	19		186	9			2	0		98	9	(1)							

A   A   A   A   A   A   A   A   A   A	(	Oddina) A	"YPO.	AN	ICE	R	EG	IST	ER	F	OR	TH	1E	1	NO	N'	ТН	OF		1	Dece	imb	ber			20								
## PASSAGEN   S	No.	NAME	Designation	1	2 3	3 4	5	6	7 8	9 9	10	11 12	2 13	14	15	16	17 18	3 19	20 2	1 22	23	24	25	26 2	27 2	28 2	9 3	31	Working	Days	Present	absent	Taken	lemarks
2 PARLADA P 3 ATAL TICOTE  NX X X X X X X X X X X X X X X X X X X		Δει. ω. ε		×	X		×	a 1	(	X		X	(	-																				hound
3 Aray 7 wills  4 Arkina AU  XX X X X X X X X X X X X X X X X X X							X	X	4	×	3	-	-		X	X			X										1	0	10			Ohikar
4 ARKING A U XX	3.	Aray T wille		×	X		×	Xy	4	X			-		X	X				3														Djan
5 Anagha Raj	4.	AKLIO A U		X	X		X	Q x	(	X		×			X	X			X										1	0	9			Akhil
6 Aryalekshmi G				X	X		X	K)	1	X		X			X	X			X	M									1	0	10	100		Angh
# Privately S							X	XX	<	a		×			X	a			X										1	0	8			Bruit
\$ Cellin Themas Exp.	7.	Aswathy S.		X	X		X	X	X	X		×			X	X			X			1								10	10	4		Quan
9. Danish V.S.				X	X		a	X Z	<	X	No.	×			X	X			X		H	1								10	9	2		Colli
Devika A-S	9.	Danish V.S		X	X		X	XX	1	X		_	1		×	X			X	1										10	10	100	11/4	Dinigh
			HALL	X	X		a	XX	(	X					X	X			X		1		1							10	9	88		Duk
12 Lekshmi M.	11.	Jobin M.R.		X	X		X	× 7	1	X	39	X			X	X			a											10	9			John
14. Munnu R. XX AXX XX	2.	Lekshmi . M.		X	X		X	X 7	<	X	8	-	-		X	X			X			1								10	10			lekel
5 Reshmar G XX X X A X X X X X X X X X X X X X X	13	megha. PS		X	X		X	Xy	1	×	8	-	-		X	X			X		l V	V	1							10	10			Mest
15 Reshmic C	4.	Munnu R .		X	X		a	XX	(	X		X	1		X	X			X											10	9			Mun
It Sona S.	5	Reshmi. C								X	8	X	(		X	X			X		N.	100												Rem
19 Szulckshmi Saju XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX				X	X		X	X >	<	X		X	(		×	K			X												1000			Car
13 Varsha Parasannan X X X X X X X X X X X X X X X X X	4. 6	Suelekshmi Saju		X	X		×	XX		X		×	(		-	-			X	7	10		Ī											Spech
DRINGIPAL DRINGIPAL DRINGIPAL SHE'S SHEE MARAYMA COLLEGE SHENGAMINA CHENGAMINA CHENGAMIN	8	Varsha Prasannan		X	X		K	XX		X	A Prince of the	×		-				18	×							100	1							Vall
DRINGIPAL DRINGI														t																-				
SREE MENGANNIR  GENGANNIR  CERCANNIR  OF CHARGEN AND CHARGEN CHARGEN AND CHARGEN AND CHARGEN CHARGEN AND CHARGEN CHARGEN CHARGEN CHARGEN CHARGEN CHARG	+							-						H											-		1	1		-			1	133
SREE MENGANNIR  GENGANNIR  CERCANNIR  OF CHARGEN AND CHARGEN CHARGEN AND CHARGEN AND CHARGEN CHARGEN AND CHARGEN CHARGEN CHARGEN CHARGEN CHARGEN CHARG													9	1										13		6	VI.	To	3	1			13	
SREE MENGANNIR  GENGANNIR  CERCANNIR  OF CHARGEN AND CHARGEN CHARGEN AND CHARGEN AND CHARGEN CHARGEN AND CHARGEN CHARGEN CHARGEN CHARGEN CHARGEN CHARG					1			4	+				H	1		16	-	21101					-		K		4	1	7		1/2	1		
CERCAMPS -					4				+	-				1		1	MRM	YANA	COL	1					-	PRIN	JCIT YAN	ACC	LLE	GE		1	10	
O DESCRIPTION OF THE PROPERTY									1					1	-	SH CO				101				SRE	2 0	CHEN	(GA	NNU	•					I BES
					1				1					1				er.		1														
								4	-							-	1	ENGA																
									1																	O P							618	
					-																Z						1							
																						3							T	T		BE		3 15
																						100	1		1		T		1	10				
			400														16			101	10		ı		T	1	1	1	T				111	
																	1					1	-	-	-	1	-	10	44	-				
										T			1	1	1	-				-		-	-	5	1		1	1	10	-		1		
									T	T	1		1	1	-		100	-	-		100	-	-		-	-	4	-	1	1		2 18		
	197								-	-			1	1	-		172		10	-	1		-	-	1	-	-	-	-	-		100		
Course Coordination 99 BDR9 @ DD DD		ourse Coordination		0	A	1		00	0	00	1	1		1	A	0 9	-	17/1		1			1		-	2	4		1	-				

() (h) (m)	ATTEN	DAN	CE	REG	IST	ERI	FOR	TH	E	N	101	ИТИ	OF			Jan	mat	y	20	22		(230	U		
No. NAME	Designati	ion 1 2		V 4 5	6 7	1	9 10	11 12	13	14	15 16	6 17	18 19	20 2	Onl 21 22 360	23 24	25 2		28 29 24 3		Working	Days	Days	Leave	Remarks
1. April Fathe		X	χ	χx	X A	X	×	XX	X		Par.	Y	χX	0		V	X		XX			321			Arm
2. Amna Fatt		X			XX		X	Xq	X			101	XX			-	X	-	XX		X	3 21	0.0		Amry
3. Amreitha Ja		X	400		XX	100	X	χX	X	-		-3	XX	100	200		X		XX		X o	3 2			Amen's
4. Ayana Su		X	X	x x	ax	X	10 10 10	ax					XX				( X		XX		X	3 21	2	3	Anay
5. Anju Viswa		X	X	XX	x x	X	X	XX	X				XX				X		CXX		-	23 2		0	Any
6 Agumol 7		X	X	XX	XX	×	X	XX	X				XX	-		-	X	-	XX			23 2		0	AWY
7. Arjun P.	1000	X	X	a x	XX	X	X	XX	X				XX	1			X	-	X			23 2		1	Air
8 Amamot S		X	X	X G	XX	X	X	XX	X			1907	XX	750	OK VASA	7	a		×		X	23 2	10	2	Ayanu
9. Devitushna		X	X	XX	XX	X	X	XX	X			da produce	-	+	XX	X	X		X	4		23 2		0	Deviknost
10. Greeshma.		X	X	XX	XX	X	X	XX	X			- 13		1	x X	-	XX		CX.			23 2		0	Grany
11. Reshmi M.	Rajei.	X	X	XX	XX	X		XX				1100	2011	100	XX	-	XX		( X			23 2		1	Reshow
12. Sanyay Kees	hotan S.	X	X	ax	XX	X	X	XX	X			-		2000	XX	-	XX	-	X	-		23 8		1	Sayas
13. Sneha		X	X	XX	XX	X	X	XX	X			a	XX	X	XX		XX	, ,	(x	X		23 8		1	shery
14. Steepith S.		X	X	XX	XX	X	X	XX	X						XX		XX		(X		100	236		0	Snees H
15. Steeleks Am		X	X	XX	XX	X	X	XX	9			1001	100		XX		XX		X	-	-	23 2	-	2	goreleki
16. Sukanya S	ukhadevan	X	X	XX	XX	X		XX				-	-	11/1	XX	1	XX	-	XX	-		23 5		0	Sukary
17. Vinaya Priy	a A.	χ	X	XX	XR	X	X	XX	X						XX		XX	-	XX	2	17211	23 %	30	18	yray
18. Veinda		X	X	XX	XX	X	X	XX	X						XX		XX	-	XX	1	-	23 8	No.	-	Waled
19. Ajil. S. B.		X	X	a X	XX	X	X	XX	9				F/15		XX		XX	-	XX			-		2	All
20. Argana T.V.		X	X	XX	XX	X		XX				-	-	-	XX	-	XX		XX			23 8		×	
al Arugecha A	S	X	X	XX	XX	X		XX				100		-	X)		ax		200	300		23	100.15		Anyan
22. Arabhi A.R		X	X	XX	y X	X	X	XX	X			E 6/0	-25	100	200				XX			23		-	Anagra
23. Chippy Har	sh	X	X	XX	XX	X	X	XX	X			-	-	-	XX	-	XX		XX			23			Mashy
24. Grown Pras	ad.	X			XX	_		XX									XX	1	XX			23		1	Chippy
S. Keeshna S.		X	X	XX	YX	X		XX							X		ax	-	XX			23		1	Crown
26. Meenakshy.		X			XX	-		XX		Н					X		XX		XX	X	X	23	23	0	Kalshn
27. Meeru Rame		×		-	XX	-		XX		-		X	X	rx	X	7	XX		XX	X	X	23	23	0	Mechak
18. Reshma. R.S		X		700	XX			x X		-		X	X	XX	X	1	XX	X	XX	X	X	23	23	0	Meny.
29. Rohini S. P.		X			XX	100		7.18		-		X	X	XX	X	X	X)	1	XX	X	a	23	22	1	Reshma
o Shampa PS	Control of the last of the las	X			XX		Y	XX	A	-		X	X	XX	X	X	XX	(	X>			23		0	Rehuh!
Skadha R		X			XX		٨	XX	X	-		X	X	XX	X	Y	X	X	X			23			ghand
0	. M C	X						XX				X	X	XX	X	X	X	(	X			23	1000	1	god
	110				XX	+		XX							X		X		X						Creele
		X	1		XX	the state of the last		XX					-		X	-	X	_		X	X	23	di	0	THE R. D. LEWIS CO., LANSING
34. Vismaya V		X	X	XX	X X	X	X	XX	X			X	X	X	K X	-	X	V	X		X	23		0 1100	South
									1					1	1	ARAYA	WA OF	1	^ '	X	)	(2	12	30	Vilor
	200 000	100		1							1				(4)	4	1	350	1	X	Shirt .	1944	ME	3"	
		1						1	100						6		100	150	10	17	PRAN	ATHAN	JR /	10	
		1000	-		7		11/6								1.	Chie	- AUSTON	1	100	REE	CHEN	(0)			

### SREE NARAYANA COLLEGE CHENGANNUR ALAPPUZHA, KERALA



AIDED COLLEGE AFFILIATED TO THE UNIVERSITY OF KERALA

NAAC ACCREDITED WITH GRADE B

### **CERTIFICATE**

Dr. Venu S Head, Department of Chemistry

Dr. Shereen K
Principal in Charge