

# Sree Narayana College Chengannur, Alappuzha

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



## POST GRADUATE DEPARTMENT OF CHEMISTRY

### Certificate Course on "Pharmaceutical Chemistry"

#### ORGANISING COMMITTEE

- SRI.VELLAPPALLY NADESAN (PATRON)
- DR. SHINY SREEDHAR(PRINCIPAL)
- DR.VENU.S(IQAC COORDINATOR)
- Smt.JISHA SREEDHARAN  
(COURSE COORDINATOR)
- DR.SHEELA FERNANDEZ(HEAD  
DEAPATMENT OF CHEMISTRY)
- DR.REMADEVI.B
- DR.SMITHA SASIDHARAN
- DR.ANJU.K.S
- DR.RESHMI.R

#### COURSE DETAILS

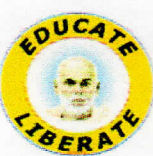
- THE COURSE IS  
OPENED TO ALL PG &  
UG STUDENTS
- COURSE DURATION:  
30Hrs(THEORY-20Hrs  
& PRACTICAL-10Hrs)
- COURSE FEE:Rs.250/-
- ASSESSMENT:ASSIGN  
MENT AND MCQ

Course Coordinator  
Smt.Jisha Sreedharan  
Assistant Professor  
Dept. of Chemistry  
S.N.College,Chengannur  
Contact No.9446754034

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 '**Pharmaceutical Chemistry**' implemented by the Post Graduate Department of Chemistry in association with IQAC, S N College Chengannur.

- The certificate course "**Pharmaceutical Chemistry**" is likely to be a valuable asset for anyone who is interested in a career in the pharmaceutical industry. This course aims to provide students with the knowledge and skills to understand, develop, and manufacture pharmaceutical drugs and it covers a wide range of topics. Students learn about the principles of drug design, synthesis, and testing. This Course helps to prepare students for their careers in the pharmaceutical industry and to promote research in pharmaceutical chemistry. They also gain experience in the laboratory, working with the latest analytical equipment.



# Sree Narayana College

## Chengannur

Affiliated to the University of Kerala

NAAC Accredited with B Grade

### Minutes of the Meeting of Board of Studies

#### Attendees:-

1. Dr.K.Shiny Sreedhar (Principal)
2. Dr. K Sreelatha (Chairman, Board of studies)
3. Dr. Venu.S (IQAC Coordinator)
4. Dr. Sheela S Fernandez (Head, Department of Chemistry)
5. Smt.Jisha Sreedharan (Course Coordinator)

**Venue:** Principal's Chamber

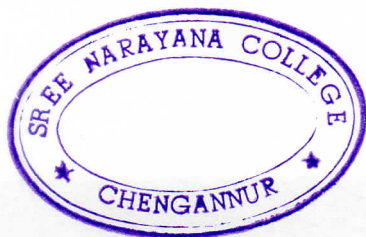
**Date & Time:** 20/09/2018 at 11.00 am


#### Agenda:

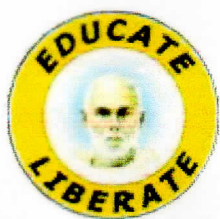
1. Review of Certificate course proposal

#### Minutes:

1. Reviewed the certificate course proposal submitted by Department of Chemistry.
2. Approved the syllabus and proposal of the certificate course on "Pharmaceutical Chemistry"



  
PRINCIPAL  
SREE NARAYANA COLLEGE  
CHENGANNUR



**POST GRADUATE DEPARTMENT OF CHEMISTRY**

**CERTIFICATE COURSE: PHARMACEUTICAL CHEMISTRY(CH18PC)**

**Relevance of Pharmaceutical chemistry:**

Pharmaceutical chemistry is the study of the chemistry of drugs and how they interact with the body. It is a multidisciplinary field that combines chemistry, biology, and pharmacology.

Pharmaceutical chemistry is relevant to a wide range of industries, including:

- Pharmaceutical industry to develop new drugs and to improve the safety and efficacy of existing drugs.
- Biotechnology industry to develop new biotherapeutics, such as vaccines and gene therapy products.
- Food and beverage industry to develop new food additives and to ensure the safety of food products.
- Cosmetic industry to develop new cosmetics and to ensure the safety of cosmetic products.

**Objectives:**

- **Learn about the chemistry of drugs:** Pharmaceutical chemistry will teach you about the different types of drugs, how they are made, and how they interact with the body.
- **Learn about the safety and efficacy of drugs:** Pharmaceutical chemistry will teach you how to assess the safety and efficacy of drugs, and how to ensure that drugs are safe for human use.
- Describe the chemical class, structure and chemical name of the commonly used drugs and pharmaceuticals of both organic and inorganic nature.
- Discuss the pharmacological uses, dosage regimen, stability issues and storage conditions of all such chemical substances commonly used as drugs.
- Describe the quantitative and qualitative analysis, impurity testing of the chemical substances given in the official monographs.
- Identify the dosage form & the brand names of the drugs and pharmaceuticals popular in the marketplace.

# PHARMACEUTICAL CHEMISTRY

## UNIT- I Introduction to Pharmaceutical chemistry

(3 Hrs)

Accuracy, precision, significant figures Impurities in Pharmaceuticals: Source and effect of impurities in Pharmacopoeial substances, importance of limit test, Principle and procedures of Limit tests for chlorides, sulphates, iron, heavy metals and arsenic.

## UNIT- II Drugs and Functions

(4 Hrs)

Analgesics- narcotic analgesics- analgesic action, uses and structure activity of morphine. Non-narcotic analgesics –aspirin and paracetamol. Anaesthetics- local anaesthetics –procaine- General anaesthetics- chloroform and halothane. Antibiotics – Therapeutical values of penicillin, tetracyclines, chloramphenicol and streptomycin. Sulpha drugs – sulphanilide, sulphadiazine and cotrimoxazole. Antiseptics and disinfectants – phenols, chloramines and organic mercurials. Antidepressants – barbiturates – mechanism of action and uses. Antipsychotic drugs – piperazine and benzamides.

## UNIT- III Pharmaceutical Analysis

(5 Hrs)

4.1 Titrimetric Methods in Pharmaceutical Methods: Non-aqueous titrations, argentometric titrations, complexometric titrations, redox titrations, iodometric titrations, ion-pair titrations, diazotization titrations and Karl Fischer titrations.

4.2 Applications of AAS, UV-Vis spectroscopy, IR-spectroscopy, NMR spectroscopy, Mass Spectrometry, TLC, GC and HPLC in pharmaceutical Analysis (theory and instrumentation not expected). Capillary Electrophoresis-Instrumentation and applications in pharmaceutical analysis.

4.3 Extraction Methods in pharmaceutical Analysis: Solvent Extraction methods and Solid phase Extraction.

**UNIT-IV Mechanisms, metabolisms and medicinal plants****(4 Hrs)**

Mechanism of drug action – absorption, drug delivery, drug excretion –Metabolism of drugs – chemical pathways of drug metabolism – phase – I (oxidative, reductive and hydrolytic reactions) and phase - II (conjugate reactions). Physiological effects of different functional groups in drugs –biological role of Na, K, Ca, Cu, Zn and iodine. Indian medicinal plants – Tulsi, neem, Keezhanelli, thoothuvalai

**UNIT- V Diseases and Treatment****(4 Hrs)**

Composition of blood – blood grouping and matching – Rh factor. Blood pressure – causes, control and treatment- antihypertension drugs- antianginal agents cardiovascular drugs, cardiacglycosides, vasodilators (one example for each). Anaemia – causes and control – antianemic drugs. Diabetes – causes and control – hypoglycemic drugs – insulin – oral hypoglycemic drugs (tolubutamide and chlorpropamide). Cancer- causes and treatment – cobalt therapy - antineoplastic drugs (chlorambucil, methotrexate, plant products and hormones).

**PRACTICALS:****(10 Hrs)****1. Preparation of organic compounds:**

- Benzoic acid from Benzamide
- Picric acid from Phenol

**2. Assay of the following compounds:**

- Ferrous sulphate- by redox titration
- Calcium gluconate-by complexometric
- Sodium chloride-by Modified Volhard's method
- Ascorbic acid by iodometry
- Ibuprofen by alkalimetry

**3. Systematic Qualitative analysis experiments: (4 substances)****4. Limit test for**

- |              |                |
|--------------|----------------|
| • Chlorides; | • Iron;        |
| • Sulphate;  | • Heavy metals |

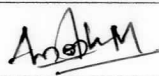
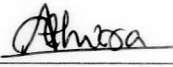
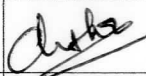

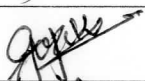
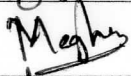
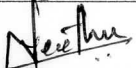
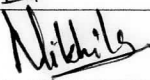
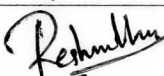
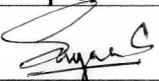

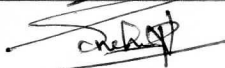
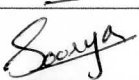

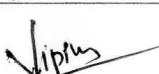
**SREE NARAYANA COLLEGE CHENGANNUR**  
**DEPARTMENT OF CHEMISTRY**

**Certificate Course on "Pharmaceutical Chemistry" (CH22FST)**

**Duration: 3 months**

**Year: 2018-2019**

**Student Enrolment for the certificate course**

Sl No.	Candidate Code	Name	Signature
1.	63517128001	AMRITHA MURALI	
2.	63517128002	ATHIRA C H	
3	63517128003	CHITHRA M	
4	63517128004	DIVYA S	
5	63517128005	GOPIKA KRISHNAN	
6	63517128006	MEGHA P	
7	63517128007	NEETHU P	
8	63517128008	NIGILA P	
9	63517128009	RESHMITHA G RAJEEV	
10	63517128010	SAYANA C	
11	63517128011	SMRUTHY SASI	
12	63517128012	SNEHA P V	
13	63517128013	SOORYA T K	
14	63517128014	SRUTHI P L	
15	63517128015	VIPIN G	

  
Course Coordinator

  
Head of the Department



  
SREE NARAYANA COLLEGE  
CHENGANNUR



# ATTENDANCE REGISTER FOR THE

No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	AMRITHA MURALI	63517128001	X			X	X			X			X	X	
2.	ATHIRA C.H	63517128002	X			X	X			X			X	X	
3.	CHITRA.M.	63517128003	X			X	X			X			X	X	
4.	DIVYA.S.	63517128004	X			X	X			a			X	X	
5.	GOPIKA KRISHNAN.	63517128005	X			X	X			X			X	X	
6.	MEGHA.P.	63517128006	X			X	X			X			X	X	
7.	NEETHU.P.	63517128007	X			X	X			X			X	X	
8.	NIGILA.P.	63517128008	X			X	X			X			X	X	
9.	RESHMITHA G RAJEEV	63517128009	X			X	X			X			X	X	
10.	SAYANA C	63517128010	X			X	X			X			X	X	
11.	SMRUTHY SASI	63517128011	X			X	X			X			X	X	
12.	SNEHA.P.V.	63517128012	X			X	X			X			X	X	
13.	SOORYA.T.K.	63517128013	X			X	X			X			X	X	
14.	SRUTHI.P.L	63517128014	X			X	X			X			X	X	
15.	VIPIN.G.	63517128015	X			X	X			X			X	X	





# ATTENDANCE REGISTER FOR THE

No.	NAME	Designation	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	AMRITHA MURALI	63517128001	X			X	X			X			X	X	
2.	ATHIRA C.H	63517128002	X			X	X			X			X	X	
3.	CHITRA.M.	63517128003	X			X	X			X			X	X	
4.	DIVYA.S.	63517128004	X			X	X			a			X	X	
5.	GOPIKA KRISHNAN.	63517128005	X			X	X			X			X	X	
6.	MEGHA.P.	63517128006	X			X	X			X			X	X	
7.	NEETHU.P.	63517128007	X			X	X			X			X	X	
8.	NIGILA.P.	63517128008	X			X	X			X			X	X	
9.	RESHMITHA G RAJEEV	63517128009	X			X	X			X			X	X	
10.	SAYANA C	63517128010	X			X	X			X			X	X	
11.	SM RUTHY SASI	63517128011	X			X	X			X			X	X	
12.	SNEHA.P.V.	63517128012	X			X	X			X			X	X	
13.	SOORYA.T.K.	63517128013	X			X	X			X			X	X	
14.	SRUTHI.P.L	63517128014	X			X	X			X			X	X	
15.	VIPIN.G.	63517128015	X			X	X			X			X	X	



MONTH OF

November

20 18

14	✓ 15	✓ 16	17	18	✓ 19	20	21	✓ 22	23	24	25	✓ 26	27	28	✓ 29	✓ 30	31	Working Days	Days Present	Days absent	Leave Taken	Remarks
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				a			X	X		11	10	1		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			a	X		11	10	1		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		
	X	X			X			X				X			X	X		11	11	0		

*[Signature]*  
 PRINCIPAL  
 SREE NARAYANA COLLEGE  
 CHENGANNUR



# ATTENDANCE REGISTER FOR THE

No.	NAME	Designation	Days												
			1	2	3	4	5	6	7	8	9	10	11	12	13
1.	AMRITHA MURALI				X		X		X			X		X	X
2.	ATHIRA C.H				X		a		X			X		X	X
3.	CHITRA M.				X		X		X			X		X	X
4.	DIVYA S.				X		X		X			X		X	X
5.	GOPIKA KRISHNAN				X		a		X			X		X	X
6.	MEGHA P.				X		X		X			X		X	a
7.	NEETHU P.				X		X		a			X		X	X
8.	NIGILA P.				X		X		X			X		X	X
9.	RESHMITHA G. RAJEEV				a		X		X			X		a	X
10.	SAYANA C.				X		a		X			X		X	X
11.	SMRUTHI SASI				a		X		X			X		X	X
12.	SNEHA P.Y.				X		X		X			X		X	X
13.	SOORYA T.K.				X		X		X			X		X	a
14.	SRUTHI P.L				X		X		X			X		X	X
15.	VIPIN G.				X		X		X			X		X	X

MONTH OF DECEMBER 2018

✓ 14	✓ 15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Working Days	Days Present	Days absent	Leave Taken	Remarks
X	X																	8	8	0		
X	X	X	X															8	7	1		
X	a																	8	7	1		
X	X																	8	8	0		
X	X																	8	7	1		
X	X																	8	7	1		
X	X																	8	7	1		
X	X	X	X															8	8	0		
X	X																	8	6	2		
X	X																	8	7	1		
X	X																	8	7	1		
X	X																	8	8	0		
X	X																	8	7	1		
X	X	X	X															8	8	0		
X	X																	8	8	0		

*em*

PRINCIPAL  
SREE NARAYANA COLLEGE  
CHENGANNUR

