BHARATHIDASAN UNIVERSITY  **TIRUCHIRAPPALLI - 620 024.**

B.Sc. CHEMISTRY

CHOICE BASED CREDIT SYSTEM –

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)

(Applicable to the candidates admitted from the academic year 2022-23 onwards)

(For the 2024-2025 batch, the Naan Mudhalvan scheme has been implemented in the 2nd semester)

Sem.	Part	Course	Title	Ins. Hrs	Credit	Exam. Hours	Marks		Total
							Int.	Ext.	
I	I	Language Course – I (Tamil $/Other Languages + #)		6	3	3	25	75	100
	II	English Course - I		6	3	3	25	75	100
	III	Core Course – I (CC)	General Chemistry I	5	5	3	25	75	100
		Core Practical – I (CP)	Volumetric Analysis	4	4	3	40	60	100
		First Allied Course – I (AC)	Botany I / Computer Science I / Zoology I / Mathematics I	4	4	3	25	75	100
		First Allied Practical – I (AP)	Botany / Computer Science / Zoology	3	-	-	-	-	-
		First Allied Course – I (AC)	Mathematics II						
	IV	Value Education		2	2	3	25	75	100
	TOTAL			**30**	**21**	**-**	**-**	**-**	**600**
II	I	Language Course - II (Tamil $/Other Languages + #)		6	3	3	25	75	100
	II	English Course - II		4	3	3	25	75	100
	III	Core Course – II (CC)	General Chemistry II	5	5	3	25	75	100
		Core Practical – II (CP)	Applied Experiments in Volumetric Analysis	4	4	3	40	60	100
		First Allied Practical (AP)	Botany / Computer Science / Zoology	3	2	3	40	60	100
		First Allied Course – II (AC)	Mathematics II			3	25	75	100
		First Allied Course – II (AC)	Botany II / Computer Science II / Zoology II	4	4	3	25	75	100
		First Allied Course – III (AC)	Mathematics III						
		Add on Course – I ##	Professional English I	6*	4	3	25	75	100
	IV	Environmental Studies		2	2	3	25	75	100
	VI	Naan Mudhalvan Scheme (NMS) @@	Overview of English Language Communication	2	2	3	25	75	100
	TOTAL			**30**	**29**	**-**	**-**	**-**	**900**

III	I	Language Course – III (Tamil $/Other Languages + #)		6	3	3	25	75	100
	II	English Course - III		6	3	3	25	75	100
	III	Core Course – III (CC)	General Chemistry III	5	5	3	25	75	100
		Core Practical - III (CP)	Semimicro Analysis	4	4	3	40	60	100
		Second Allied Course – I (AC)	Physics I	4	4	3	25	75	100
		Second Allied Practical – I (AP)	Physics	3	-	-	-	-	-
		Add on Course – II ##	Professional English II	6*	4	3	25	75	100
	IV	Non-Major Elective I @ - Those who choose Tamil in Part I can choose a non-major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studied in school level **or** b) Special Tamil if Tamil language was studied upto 10th & 12th std.	Drugs and Cosmetics	2	2	3	25	75	100
	TOTAL			**30**	**25**	**-**	**-**	**-**	**700**
IV	I	Language Course –IV (Tamil $/Other Languages + #)		6	3	3	25	75	100
	II	English Course – IV		6	3	3	25	75	100
	III	Core Course - IV (CC)	General Chemistry IV	5	5	3	25	75	100
		Core Practical - IV (CP)	Organic Qualitative Analysis and Organic Preparation	4	4	3	40	60	100
		Second Allied Practical – I (AP)	Physics	3	2	3	40	60	100
		Second Allied Course – II (AC)	Physics II	4	4	3	25	75	100
	IV	Non-Major Elective II @ - Those who choose Tamil in Part I can choose a non-major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studied in school level **or** b) Special Tamil if Tamil language was studied upto 10th & 12th std.	Chemistry in Everyday Life	2	2	3	25	75	100
	TOTAL			**30**	**23**	**-**	**-**	**-**	**700**

V	III	Core Course - V (CC)	Inorganic Chemistry	5	5	3	25	75	100
		Core Course – VI (CC)	Organic Chemistry I	5	5	3	25	75	100
		Core Course – VII (CC)	Physical Chemistry I	5	5	3	25	75	100
		Core Practical -V (CP)	Physical Chemistry	4	4	3	40	60	100
		Major Based Elective – I (Any one)	1. Analytical Chemistry 2. Material and Nano Chemistry	5	4	3	25	75	100
	IV	Skill Based Elective I	Food Chemistry	4	2	3	25	75	100
		Soft Skills Development		2	2	3	25	75	100
	TOTAL			**30**	**27**	**-**	**-**	**-**	**700**
VI	III	Core Course - VIII (CC)	Organic Chemistry II	6	5	3	25	75	100
		Core Course - IX (CC)	Physical Chemistry II	6	5	3	25	75	100
		Core Practical – VI (CP)	Gravimetric Analysis and Determination of Physical Constant	4	4	3	40	60	100
		Major Based Elective - II (Any one)	1. Nuclear, Industrial Chemistry & Metallic State 2. Polymer Chemistry	5	4	3	25	75	100
		Project		4	3	-	20	80	100
	IV	Skill Based Elective – II	Dyeing Techniques and Water Treatment	4	2	3	25	75	100
	V	Gender Studies		1	1	3	25	75	100
		Extension Activities*		-	1	-	-	-	-
	TOTAL			**30**	**25**	**-**	**-**	**-**	**700**
GRAND TOTAL				**180**	**150**	**-**	**-**	**-**	**4300**

List of Allied Courses

First Allied Course (any one)	**Second Allied Course**
Botany	Physics
Computer Science	
Mathematics	
Zoology	

$ For those who studied Tamil upto 10th +2 (Regular Stream).

+ Syllabus for other Languages should be on par with Tamil at degree level.

Those who studied Tamil upto 10th +2 but opt for other languages in degree level under Part- I should study special Tamil in Part – IV.

The Professional English – Four Streams Course is offered in the 2nd and 3rd Semester (only for 2022-2023 Batch) in all UG Courses. It will be taught apart from the Existing hours of teaching / additional hours of teaching (1 hour /day) as a 4 credit paper as an add on course on par with Major Paper and completion of the paper is must to continue his / her studies further. (As per G.O. No. 76, Higher Education (K2) Department dated: 18.07.2020).

* The Extra 6 hrs / cycle as per the G.O. 76/2020 will be utilized for the Add on Professional English Course.

@ NCC Course is one of the Choices in Non-Major Elective Course. Only the NCC cadets are eligible to choose this course. However, NCC Course is not a Compulsory Course for the NCC Cadets.

** Extension Activities shall be outside instruction hours.

@@ Naan Mudhalvan Scheme.

SUMMARY OF CURRICULUM STRUCTURE OF UG PROGRAMMES

Sl. No.	Part	Types of the Courses	No. of Courses	No. of Credits	Marks
1.	I	Language Courses	4	12	400
2.	II	English Courses	4	12	400
3.	III	Core Courses	8	40	800
4.		Core Practical	7	29	700
5.		Allied Courses I & II	4	16	400
6.		Allied Practical	2	4	200
7.		Major Based Elective Courses	2	8	200
8.		Add on Courses	2	8	200
9.		Project	1	3	100
10.	IV	Non-Major Elective Courses (Practical)	2	4	200
11.		Skill Based Elective Courses	2	4	200
12.		Soft Skills Development	1	2	100
13.		Value Education	1	2	100
14.		Environmental Studies	1	2	100
15.	V	Gender Studies	1	1	100
16.		Extension Activities	1	1	--
17.	VI	Naan Mudhalvan Scheme	1	2	100
	Total		**44**	**150**	**4300**

PROGRAMME OBJECTIVES

The programme enable the students

1. To understand basic facts and concepts in chemistry while retaining the exciting aspects of chemistry to develop interest in the study of chemistry as a discipline.
2. Todemonstrate, solve and understanding the major concept in organic, inorganic, physical, industrial, nuclear, polymer, food, pharmaceutical, cosmetics and environmental chemistry. (All disciplines of chemistry).
3. To develop the skill to solve the problems and think methodically, independently and draw the logical conclusion.
4. To understand the importance of the elements in the periodic table including their physical and chemical nature and role in the daily life.
5. To understand concepts of chemistry and apply scientific information to solve problems in all situation so that they get a strong foundation in chemistry.
6. To understand the concepts of chemistry to inter relate and interact to the other subject like mathematics, physics, biological science etc.
7. To develop skills in the proper handling of apparatus, chemicals and instruments.
8. To be exposed to the different processes used in industries and their applications.
9. To learn the laboratory skills and to transfer and interpret knowledge entirely in the working environment.
10. To achieve the skills required to succeed in graduate school, professional school and the chemical industry like cement industries, agro product, paint industries, rubber industries, petrochemical industries, food processing industries, fertilizer industries.
11. To expand the knowledge in available opportunities related to chemistry in the government services through public service commission particularly in the field of food safety, health inspector, pharmacist etc.
12. To discuss how science and its applications interact with social, economic, political, environmental, cultural and ethical factors.

PROGRAMME OUTCOMES

On successful completion of B.Sc. Chemistry programme, students are expected to

- Gain complete knowledge about all fundamental aspects of chemistry
- Apply chemistry knowledge to solve problems in various fields of chemistry.
- Get a skill for effective and safe handling of apparatus, chemicals and instruments in a laboratory.
- Carry out experiments in the area of organic analysis, Volumetric analysis, inorganic semi-micro analysis, conductometric & potentiometric equipment
- Use technologies and instrumentation together to explore new areas of research.
- Get enormous job opportunities at chemical, pharmaceutical and food product industries.
- Appear in competitive exams conducted by service commissions such as UPSC and TNPSC
- Gain knowledge in the emerging field of nanochemistry and polymer chemistry.

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