

PERIYAR MANIAMMAI INSTITUTE OF SCIENCE & TECHNOLOGY

FACULTY OF SCIENCE AND HUMANITIES

DEPARTMENT OF EDUCATION

B.Sc.B.Ed. (Secondary Stage with Major in Chemistry)

CURRICULUM - REGULATIONS 2024

Category of courses and minimum credit requirements of B.Sc.B.Ed. (Secondary Stage with Major in Chemistry) programme as per the National Council for Teacher Education (NCTE) Guidelines of Curriculum Framework for Integrated Teacher Education Programme (ITEP) are outlined below:

Sl. No.	Category of Courses	Minimum Credits Required
1.	Two weeks Student Induction Programme	--
2.	Foundation of Education	30
3.	Disciplinary / Interdisciplinary Courses	64
4.	Stage - Specific Content - cum - Pedagogy Courses	16
5.	Ability Enhancement & Value - Added Courses	28
6.	School Experience	20
7.	Community Engagement and Services	02
Total		160

SEMESTER I

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24BE101	Tamil - I	3	0	0	3
	U24BE102	Hindi - I				
2	U24BE103	English - I	3	0	0	3
3	U24BE104	Evolution of Indian Education	3	1	0	4
4	U24BE105	Matrices and Differential Calculus	3	1	0	4
5	U24BE106	Properties of Matter and Sound	3	0	0	3
6	U24BE107	Periodic Properties and Chemical Bonding	3	0	0	3
Practical						
7	U24BE108	Properties of Matter and Sound Laboratory	0	0	2	1
8	U24BE109	Volumetric Analysis Laboratory	0	0	2	1
9	U24VA003	Holistic Education	0	0	4	2
Total			18	2	8	24

SEMESTER II

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24BE151	Tamil - II	3	0	0	3
	U24BE152	Hindi - II				
2	U24BE153	English - II	3	0	0	3
3	U24BE154	Child Development and Educational Psychology	3	1	0	4
4	U24BE155	Vector Calculus	3	1	0	4
5	U24BE156	Optics and Spectroscopy	3	0	0	3
6	U24BE157	Energy Dynamics and Chemical Equilibria	3	0	0	3
Practical						
7	U24BE158	Optics Laboratory	0	0	2	1
8	U24BE159	Semi-micro Inorganic Qualitative Analysis Laboratory	0	0	2	1
9	U24VA004	Arts in Education	0	0	4	2
Total			18	2	8	24

SEMESTER III

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24BE201	Tamil - III	3	0	0	3
	U24BE202	Hindi - III				
2	U24BE203	English - III	3	0	0	3
3	U24BE204	Assessment and Evaluation	3	0	0	3
4	U24BE215	Functional Group Chemistry and Stereo Isomerism	3	0	0	3
5	U24BE216	Chemistry of Metals and Non-Metals	3	0	0	3
6	U24BE217	States of Matter and Chemical Equilibria	3	0	0	3
7	U24BE208	Basics of Pedagogy	3	1	0	4
Practical						
8	U24BE218	Thermal Dynamics and Phase Transitions Laboratory	0	0	4	2
9	U24BE210	Institution Visit	0	0	0	2
Total			21	1	4	26

SEMESTER IV

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24BE251	Tamil - IV	3	0	0	3
	U24BE252	Hindi - IV				
2	U24BE253	English - IV	3	0	0	3
3	U24BE254	Philosophical and Sociological Perspective of Education - I	3	1	0	4
4	U24BE265	Principles of Metal-Ligand Bonding	3	0	0	3
5	U24BE266	Chemical Dynamics and Energetics	3	0	0	3
6	U24BE257	Content cum Pedagogy of Mathematics - I	2	1	0	3
7	U24BE258	Content cum Pedagogy of Physical Sciences - I	2	1	0	3
Practical						
8	U24BE267	Semi-micro Organic Qualitative Analysis Laboratory	0	0	4	2
9	U24BE268	Gravimetric Analysis Laboratory	0	0	4	2
Total			19	3	8	26

SEMESTER V

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24BE301	Inclusive Education	3	0	0	3
2	U24BE314	Chemistry of Organic Derivatives	3	1	0	4
3	U24BE315	Surface Phenomena	3	1	0	4
4	U24BE316	Analytical Chemistry	3	0	0	3
5	U24BE317	Novel Inorganic Solids	3	1	0	4
6	U24BE306	Content cum Pedagogy of Mathematics - II	2	1	0	3
7	U24BE307	Content cum Pedagogy of Physical Sciences - II	2	1	0	3
Practical						
8	U24BE318	Electrochemical and Thermochemical Analysis Laboratory	0	0	4	2
9	U24VA005	ICT in Education	0	0	4	2
Total			19	5	8	28

SEMESTER VI

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24BE351	School Leadership and Management	3	0	0	3
2	U24BE352	Curriculum Planning and Development	2	1	0	3
3	U24BE364	Chemical Energy and Group Theory	3	1	0	4
4	U24BE365	Stereo Chemistry and Spectroscopy	3	1	0	4
5	U24BE366	Inorganic Solids and Radiation Chemistry	3	1	0	4
6	U24BE367	Polymer Chemistry	3	1	0	4
7	U24BE357	Content cum Pedagogy of Mathematics - III	2	1	0	3
8	U24BE358	Content cum Pedagogy of Physical Sciences - III	2	1	0	3
Audit Course						
9	U24AU003	Cyber Security	--	--	--	--
Total			21	7	0	28

SEMESTER VII

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Practical						
1	U24BE401	Pre - Internship Practice	0	0	0	2
2	U24BE402	School Observation	0	0	0	2
3	U24BE403	School - based Project	0	0	0	2
4	U24BE404	Creating Teaching Learning Material	0	0	0	2
5	U24BE405	Internship in Teaching	0	0	0	10
6	U24BE406	Post - Internship	0	0	0	2
Total			0	0	0	20

SEMESTER VIII

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24BE451	Philosophical and Sociological Perspective of Education - II	3	1	0	4
2	U24BE452	Education Policy Analysis	3	0	0	3
3	U24VA001	Environmental Studies	2	0	0	2
4	U24VA002	Universal Human Values	2	1	0	3
5	U24VA006	Teachers and Society	2	0	0	2
6	U24VA007	Understanding India	2	1	0	3
7	U24BE9XX	Programme Elective - I	3	0	0	3
Practical / Practice						
8	U24VA008	Mathematical and Quantitative Reasoning	0	0	4	2
9	U24VA009	Community Engagement and Service	0	0	4	2
Total			17	3	8	24

Actual Credit allotment for the course categories as per the NCTE / UGC / TANSCHÉ guidelines for the B.Sc.B.Ed.(Secondary Stage with Major in Chemistry) programme are given below:

Sl. No.	Category of Courses	Credits	
		3 Years (B.Sc.)	4 Years (B.Sc.B.Ed.)
1.	Foundation of Education Courses	24	34
2.	Disciplinary Courses	62	62
3.	Interdisciplinary Courses	16	16
4.	Stage - Specific Content - Cum - Pedagogy Courses	22	22
5.	Ability Enhancement Courses	24	24
6.	Value Added Courses	6	18
7.	School Experience	2	22
8.	Community Engagement and Services	--	2
Total		156	200

Semester wise Credit Distribution (In all Categories of Courses)

B.Sc. Chemistry - 3 Years

Sl. No.	Category of Courses	Credits	I	II	III	IV	V	VI
1.	Foundation of Education Courses	24	4	4	3	4	3	6
2.	Disciplinary Courses	62	4	4	11	10	17	16
3.	Interdisciplinary Courses	16	8	8	--	--	--	--
4.	Stage - Specific Content -Cum - Pedagogy Courses	22	--	--	4	6	6	6
5.	Ability Enhancement Courses	24	6	6	6	6	--	--
6.	Value Added Courses	06	2	2	--	--	2	--
7.	School Experience	02	--	--	2	--	--	--
8.	Community Engagement and Services	--	--	--	--	--	--	--
Total		156	24	24	26	26	28	28

Semester wise Credit Distribution (In all Categories of Courses)

B.Sc. B.Ed. (Secondary Stage with Major in Chemistry) - 4 Years

Sl. No.	Category of Courses	Credits	I	II	III	IV	V	VI	VII	VIII
1.	Foundation of Education Courses	34	4	4	3	4	3	6	--	10
2.	Disciplinary Courses	62	4	4	11	10	17	16	--	--
3.	Interdisciplinary Courses	16	8	8	--	--	--	--	--	--
4.	Stage - Specific Content -Cum - Pedagogy Courses	22	--	--	4	6	6	6	--	--
5.	Ability Enhancement Courses	24	6	6	6	6	--	--	--	--
6.	Value Added Courses	18	2	2	--	--	2	--	--	12
7.	School Experience	22	--	--	2	--	--	--	20	--
8.	Community Engagement and Services	02	--	--	--	--	--	--	--	2
Total		200	24	24	26	26	28	28	20	24

The number of credits in each semester is summarized as follows:

Programme	I	II	III	IV	V	VI	VII	VIII
B.Sc.B.Ed. (Secondary Stage with Major in Chemistry)	24	24	26	26	28	28	20	24

Suggested List of Courses for Programme Elective - I

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24BE901	Emerging Technologies in Education	3	0	0	3
2	U24BE902	Guidance and Counselling	3	0	0	3
3	U24BE903	Action Research	3	0	0	3
4	U24BE904	Value and Peace Education	3	0	0	3
5	U24BE905	Life Skill Education	3	0	0	3

List of Courses under Each Category

Foundation of Education

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24BE104	Evolution of Indian Education	3	1	0	4
2	U24BE154	Child Development and Educational Psychology	3	1	0	4
3	U24BE204	Assessment and Evaluation	3	0	0	3
4	U24BE254	Philosophical and Sociological Perspective of Education - I	3	1	0	4
5	U24BE301	Inclusive Education	3	0	0	3
6	U24BE351	School Leadership and Management	3	0	0	3
7	U24BE352	Curriculum Planning and Development	2	1	0	3
8	U24BE451	Philosophical and Sociological Perspective of Education - II	3	1	0	4
9	U24BE452	Education Policy Analysis	3	0	0	3
10	U24BE9XX	Programme Elective - I	3	0	0	3
Total			29	5	0	34

Disciplinary Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24BE107	Periodic properties and Chemical Bonding	3	0	0	3
2	U24BE109	Volumetric Analysis Laboratory	0	0	2	1
3	U24BE157	Energy Dynamics and Chemical Equilibria	3	0	0	3
4	U24BE159	Semi-micro Inorganic Qualitative Analysis Laboratory	0	0	2	1
5	U24BE215	Functional Group Chemistry and Stereo Isomerism	3	0	0	3
6	U24BE216	Chemistry of Metals and Non-Metals	3	0	0	3
7	U24BE217	States of Matter and Chemical Equilibria	3	0	0	3
8	U24BE218	Thermal Dynamics and Phase Transitions Laboratory	0	0	4	2
9	U24BE265	Chemistry of Metal-Ligand Bonding	3	0	0	3
10	U24BE266	Chemical Dynamics and Energetics	3	0	0	3
11	U24BE267	Semi-micro Organic Qualitative Analysis Laboratory	0	0	4	2
12	U24BE268	Gravimetric Analysis Laboratory	0	0	4	2
13	U24BE314	Chemistry of Organic Derivatives	3	1	0	4
14	U24BE315	Surface Phenomena	3	1	0	4
15	U24BE316	Analytical Chemistry	3	0	0	3
16	U24BE317	Novel Inorganic Solids	3	1	0	4
17	U24BE318	Electrochemical and Thermochemical Analysis Laboratory	0	0	4	2
18	U24BE364	Chemical Energy and Group Theory	3	1	0	4

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
19	U24BE365	Syntheses, Stereo Chemistry and Spectroscopy	3	1	0	4
20	U24BE366	Inorganic Solids and Radiation Chemistry	3	1	0	4
21	U24BE367	Polymer Chemistry	3	1	0	4
Total			45	7	20	62

Interdisciplinary Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24BE105	Matrices and Differential Calculus	3	1	0	4
2	U24BE106	Properties of Matter and Sound	3	0	0	3
3	U24BE108	Properties of Matter and Sound Laboratory	0	0	2	1
4	U24BE155	Vector Calculus	3	1	0	4
5	U24BE156	Optics and Spectroscopy	3	0	0	3
6	U24BE159	Optics Laboratory	0	0	2	1
Total			12	2	4	16

Stage - Specific Content - cum - pedagogy Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24BE208	Basics of Pedagogy	3	1	0	4
2	U24BE257	Content cum Pedagogy of Mathematics - I	2	1	0	3
3	U24BE258	Content cum Pedagogy of Physical Science - I	2	1	0	3

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
4	U24BE306	Content cum Pedagogy of Mathematics - II	2	1	0	3
5	U24BE307	Content cum Pedagogy of Physical Science - II	2	1	0	3
6	U24BE357	Content cum Pedagogy of Mathematics - III	2	1	0	3
7	U24BE358	Content cum Pedagogy of Physical Science - III	2	1	0	3
Total			15	7	0	22

Ability Enhancement Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24BE101	Tamil - I	3	0	0	3
	U24BE102	Hindi - I				
2	U24BE103	English - I	3	0	0	3
3	U24BE151	Tamil - II	3	0	0	3
	U24BE152	Hindi - II				
4	U24BE153	English - II	3	0	0	3
5	U24BE201	Tamil - III	3	0	0	3
	U24BE202	Hindi - III				
6	U24BE203	English -III	3	0	0	3
7	U24BE251	Tamil - IV	3	0	0	3
	U24BE252	Hindi - IV				
8	U24BE253	English - IV	3	0	0	3
Total			24	0	0	24

Value Added Courses

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24VA001	Environmental Studies	2	0	0	2
2	U24VA002	Universal Human Values	2	1	0	3
3	U24VA003	Holistic Education	0	0	4	2
4	U24VA004	Arts in Education	0	0	4	2
5	U24VA005	ICT in Education	0	0	4	2
6	U24VA006	Teachers and Society	2	0	0	2
7	U24VA007	Understanding India	2	1	0	3
8	U24VA008	Mathematical and Quantitative Reasoning	2	0	4	2
9	U24VA009	Community Engagement and Service	2	0	4	2
Total			12	2	20	20

School Experience

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24BE210	Institution Visit	0	0	0	2
2	U24BE401	Pre - Internship Practice	0	0	0	2
3	U24BE402	School Observation	0	0	0	2
4	U24BE403	School - based Project	0	0	0	2
5	U24BE404	Creating Teaching Learning Material	0	0	0	2
6	U24BE405	Internship in Teaching	0	0	0	10
7	U24BE406	Post - Internship	0	0	0	2
Total			0	0	0	22

Community Engagement and Services

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24VA009	Community Engagement Service	0	0	4	2