

Indian Institute of Technology Palakkad

Curriculum



IIT PALAKKAD

Program : Master of Science

Stream : Chemistry

Year : 2024 Onwards

The credit requirement of the program is as follows:

Credit requirements:

Category of the course	Credits
Program Major Core (PMC)	44
Program Major Electives (PME)	6
Project Based Courses	12
Open Electives (OE)	6
Communication Skills	1
Technical Writing	1
Total	70

The list of PMC's with their credits is given below:

S No.	Course Name	Credits
1	Principles in Chemistry	3
2	Chemistry of Materials	3
3	Mathematics for Chemistry	3
4	Molecular Dynamics and Basic Statistical Thermodynamics	3
5	Symmetry, Group Theory and Spectroscopy	3
6	Elucidation of Molecular Structure	3
7	Reaction Mechanisms	3
8	Structure and Properties of Molecules	3
9	Dynamics of Charge Transport	3

10	Synthetic Approaches in Chemistry	3
11	Atomic and Molecular Structure	3
12	Chemistry of Life	3
13	SED 1 (lab)	2
14	SED 2 (lab)	2
15	Advanced Chemistry Laboratory	2
16	SED 3 (lab)	2

The list of project based courses with their credits is given below:

1	Mini projects	3
2	Major project	9

To guide the students towards arriving at a feasible ordering of courses, a course plan is proposed below. It is not mandatory to follow this plan. Multiple variations of this plan may be possible. However, students need to ensure that the credit requirements as mentioned in the table above are met. While this system allows flexibility for students to take courses in an order different from that mentioned below, the constraint that prerequisites for each course have to be cleared in advance to be able to take it, necessitates a judicious choice to complete the program within the expected time frame.

Semester I

No.	Code	Course Title	L	T	P	C	Category
1	CY5001	Principles of Chemistry	3	0	0	3	PMC
2	CY5003	Mathematics for Chemistry	3	0	0	3	PMC
3	CY5015	Atomic and Molecular Structure	3	0	0	3	PMC
4	CY5005	Symmetry, Group Theory and Spectroscopy	3	0	0	3	PMC
5	CY5009	Structure and Properties of Molecules	3	0	0	3	PMC
6	CY5101	Synthesis, Energetics and Dynamics Lab 1	0	0	3	2	PMC
7	GNXXX	Communication Skills	1	0	0	1	Institute Common Course
8	GNXXX	Technical Writing	1	0	0	1	Institute Common Course
Semester Total			17	0	3	19	

Semester II

No.	Code	Course Title	L	T	P	C	Category
1	CY5002	Chemistry of Materials	3	0	0	3	PMC
2	CY5004	Molecular Dynamics and Basic Statistical Thermodynamics	3	0	0	3	PMC
3	CY5006	Elucidation of Molecular Structure	3	0	0	3	PMC
4	CY5008	Reaction Mechanisms	3	0	0	3	PMC
5	CY5102	Synthesis, Energetics and Dynamics Lab 2	0	0	3	2	PMC
6	CY5104	Synthesis, Energetics and Dynamics Lab 3	0	0	3	2	PMC
Semester Total			12	0	6	16	

Semester III

No.	Code	Course Title	L	T	P	C	Category
1	CY5011	Dynamics of Charge Transport	3	0	0	3	PMC
2	CY5013	Synthetic Approaches in Chemistry	3	0	0	3	PMC
3	CY5017	Chemistry of Life	3	0	0	3	PMC
4	xxxxxx	Elective I **i	3	0	0	3	OE
5	CY5103	Advanced Chemistry Laboratory	0	0	3	2	PMC
6	CY5105	Mini Project	0	0	5	3	Project Based Course
Semester Total			12	0	8	17	

Semester IV

No.	Code	Course Title	L	T	P	C	Category
1	xxxxxx	Elective II **	3	0	0	3	OE
2	xxxxxx	Elective III **	3	0	0	3	PME
3	xxxxxx	Elective IV **	3	0	0	3	PME
4	CY5120	Major Project	0	0	14	9	Project Based Course
Semester Total			9	0	14	18	

A list of approved PME's can be found below:

S No.	Course Name	Credits
1	Electrochemistry and Corrosion	3
2	Industrial Chemistry	3
3	Applications of Spectroscopy to Bio-molecules	3
4	Transition metal Organometallics in Catalysis and Biology (NPTEL)	3
5	Chemistry of Mixing Separation and Analysis	3
6	Advanced Quantum Chemistry	3
7	Principles of Chemical Biology	3
8	Supramolecular Chemistry	3
9	Biophysical Chemistry (NPTEL)	3
10	Bioinorganic Chemistry	3
11	Macromolecular chemistry in material and bio-medical sciences	3
12	Chemistry of Mixing Separation and Analysis	3
13	Electroanalytical Methods and Applications	3
14	Introduction to Reticular Chemistry	3