

Bachelor of Science (Physics, Chemistry, Mathematics)

Curriculum Version 1.00

(For AY2026-27 onwards)

Credit distribution among baskets (Minimum Credits to be earned = 120)		
Sl. No.	Baskets	Credit Contribution
1	School Core	11
2	Program Core	57
3	Discipline Elective	46
	Common Electives Basket	31
	Specialized Elective Baskets*	15
4	Open Elective	6
	TOTAL CREDITS	120

Specialized Elective Baskets*		
Sl.No.	Name of the Basket	Minimum Credit Requirement
1	Computer Science	3
2	Applied Mathematics	3
3	Applied Statistics	3
	Total*	15

** Remaining Credits, if any, to satisfy Specialized Elective Baskets credit requirement can be taken from any Specialized Elective Basket*

Sl. No.	Course Code	Course Name	L	P	Credits
1. School Core - Minimum Credits to be earned from this basket (A+B+C+D+F+G) =					11
A	CSE1021	Python Programming	0	4	2
B	ENG1004	Functional English	0	2	1
C	ENG1005	Advanced Communicative English	0	2	1
D. BSc Project Basket - Minimum credits to be earned from this basket =					4
1	PHY3009	B.Sc. Physics Project	0	0	4
2	MAT3005	B.Sc. Mathematics Project	0	0	4
3	MAT3006	B.Sc. Computer Science Project	0	0	4
E. Foreign Languages Basket - Minimum credits to be earned from this basket =					1
1	GER1002	Communicative German	0	2	1
2	FRE1002	Communicative French	0	2	1
3	SPA1001	Communicative Spanish	0	2	1
F. Soft Skills Basket - Minimum credits to be earned from this basket =					2
1	SSK3003	Introduction to Soft Skills	0	2	1
2	SSK3001	Problem Solving through Aptitude	0	2	1
3	SSK2002	Being corporate Ready	0	2	1
4	SSK3005	Leadership and Career Acceleration	0	2	1
G. Non-Credit Pass/ Fail Type Courses					0
1	CHE1001	Environmental Studies	2	0	0
2	POS1022	Ethics and Social Responsibility	2	0	0
3	CEA1001	Co-/ Extra-curricular Activities			
2. Program Core - Minimum Credits to be earned from this basket =					57
A. Major -1 - Physics: All courses compulsory					19
1	PHY1010	Oscillations and Waves	3	2	4
2	PHY1011	Electricity and Magnetism	3	2	4
3	PHY2001	Foundations of Quantum Mechanics	3	0	3
4	PHY1012	Introduction to Condensed Matter physics	3	2	4
5	PHY2002	Algorithms of Quantum Computing	3	2	4
B. Major - 2 - Chemistry - All courses compulsory					19
6	CHE1008	Introduction to Organic Chemistry	3	2	4
7	CHE1009	Structure, Bonding and Periodicity	3	0	3
8	CHE1010	Chemistry of Matter and Energy	3	0	3
9	CHE1011	Fundamentals of Analytical Chemistry	3	2	4
10	CHE2001	Analytical Methods in Chemical Science	2	2	3
11	CHE2002	Fundamentals of Quantum Chemistry	2	0	2
C. Major - 3 - Computer Science - All courses compulsory					19
11	MAT1015	Matrix and Linear Algebra	3	2	4
12	MAT1018	Calculus	3	2	4
13	MAT1019	Differential Equations and Applications	3	0	3
14	MAT1020	Numerical Analysis	3	2	4
15	MAT1021	Integral Transforms	3	2	4

3. Discipline Electives - Minimum Credits to be earned from <u>both</u> Common and Specialized elective baskets (3A+3B) =					46	
3A. Common Electives Basket -				Minimum Credits to be earned from this basket =		31
(i) Physics Courses						
1	PHY1013	Mechanics and Properties of Matter	3	2	4	
2	PHY1014	Physics of Materials	3	2	4	
3	PHY1015	Heat and Thermodynamics	3	2	4	
4	PHY1003	Introduction to Nanoscience and Nanotechnology	3	0	3	
5	PHY1016	Elements of Computational Physics	2	2	3	
6	PHY2003	Introduction to Astrophysics	3	0	3	
7	PHY3001	Introduction to Nuclear and Particle Physics	3	0	3	
8	PHY3002	Electrodynamics and Statistical Physics	3	0	3	
9	PHY3003	Mathematics for Physicists	3	0	3	
10	PHY3004	Elements of Atomic, Molecular and Laser Physics	3	2	4	
11	PHY3005	Introduction to Classical Mechanics	2	0	2	
12	PHY3006	Quantum Cryptography and Security	3	2	4	
(ii) Chemistry Courses						
13	CHE1012	Green Chemistry	3	2	4	
14	CHE1013	Chemistry of Polymers	3	0	3	
15	CHE2003	Industrial Chemistry	3	2	4	
16	CHE2004	Chemistry of Metals, Alloys and Complexes	3	0	3	
17	CHE2005	Thermodynamics and Equilibria	3	0	3	
18	CHE2006	Modern Electrochemistry	3	0	3	
19	CHE1014	Basics of Spectroscopy	3	2	4	
20	CHE2010	Introduction to Stereochemistry	2	0	2	
21	CHE1003	Introduction to Nanotechnology	3	0	3	
22	CHE1015	Introduction to Photochemistry	3	0	3	
23	CHE3002	AI for Chemistry	2	2	3	
24	CHE3001	Organic reactions and Mechanism	3	0	3	
25	CHE1016	Chemistry in Everyday Life	3	0	3	
(iii) Mathematics courses						
24	MAT1009	Discrete Mathematics	3	0	3	
25	MAT2008	Graph Theory and its Applications	3	0	3	
26	MAT2009	Real and Complex Analysis	3	0	3	
27	MAT2010	Special Functions and Number Theory	3	0	3	
28	MAT2011	Mathematical Modeling	2	2	3	
29	MAT2012	Group theory	3	0	3	
30	MAT2013	Algorithm and Complexity	2	2	3	
31	MAT2014	Operations Research	3	0	3	
32	MAT2015	Dynamics & Statics	3	0	3	
33	MAT2028	Vedic Mathematics	2	0	2	
34	MAT2016	Calculus of Variations	3	0	3	

(iv) common courses basket					
35	KAN1005	Kannada Kali	0	2	1
36	MAT1013	Statistics and Probability	2	2	3
37	PSY1001	Understanding Self for Effectiveness	0	2	1
38	PSY1002	Dynamics of Human Behaviour	0	2	1
39	BIT1002	Basic Human Nutrition	2	0	2
40	MGT1101	Digital Entrepreneurship	2	0	2
Specialized Electives Baskets - Minimum Credits to be earned from any one of these baskets =					15
B. Applied Physics Basket - Minimum Credits to be earned from any one of this basket =					3
1	PHY2004	Physics of Sound and Music	2	2	3
2	PHY3007	Quantum Information Processing and Computing	3	0	3
3	PHY2005	Physics of Galaxies and Cosmology	3	0	3
4	PHY3008	Physics of Biological Systems	3	0	3
5	PHY2005	Electronic Devices and Circuits	3	2	4
6	PHY2006	Introduction to Medical Physics	2	2	3
C. Applied Chemistry Basket- Minimum Credits to be earned from any one of this basket =					3
1	CHE2007	Applications of Nanomaterials	3	0	3
2	CHE2008	Modern Chemical Applications	3	2	4
3	CHE2009	Biochemistry	3	2	4
4	CHE2011	Pharmaceutical Chemistry	2	2	3
5	CHE1007	Chemistry for Engineering Applications	3	0	3
D. Applied Mathematics Basket - Minimum Credits to be earned from any one of this basket =					3
1	MAT3002	Mathematics of Cryptography	2	2	3
2	MAT2017	Mathematical Game theory	2	2	3
3	MAT2018	Mathematics of Networks and Epidemics	3	0	3
4	MAT3003	Mathematics for Machine Learning and Data Science	2	2	3
5	MAT2019	Mathematical Economics	2	2	3
4. Open Elective basket - Minimum Credits to be earned from this basket					6
Any course from another 'eligible' curriculum					
Any unused Discipline Elective from his/ her 'own' curriculum					
Any stand-alone course declared as "Open Elective" by School/ Dept. for a specific 'eligible' degree program					
School approved NPTEL/Swayam courses for a maximum of 3 credits					