

## Bachelor of Science (Physics, Mathematics, Computer Science)

**Curriculum Version 1.00**

(For AY 2026-27 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
	<b>TOTAL CREDITS</b>	<b>120</b>

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
<b>1. School Core - Minimum Credits to be earned from this basket (A+B+C+D+F+G) =</b>					<b>11</b>
A	CSE1021	Python Programming	0	4	2
B	ENG1004	Functional English	0	2	1
C	ENG1005	Advanced Communicative English	0	2	1
<b>D. BSc Project Basket - Minimum credits to be earned from this basket =</b>					<b>4</b>
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
<b>E. Foreign Languages Basket - Minimum credits to be earned from this basket =</b>					<b>1</b>
1	GER1002	Communicative German	0	2	1
2	FRE1002	Communicative French	0	2	1
3	SPA1001	Communicative Spanish	0	2	1
<b>F. Soft Skills Basket - Minimum credits to be earned from this basket =</b>					<b>2</b>
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
<b>G. Non-Credit Pass/ Fail Type Courses</b>					<b>0</b>
1	CHE1001	Environmental Studies	2	0	0
2	POS1022	Ethics and social responsibility	2	0	0
3	CEA1001	Co-/ Extra-curricular Activities			
<b>2. Program Core - Minimum Credits to be earned from this basket =</b>					<b>57</b>
<b>A. Major -1 - Physics: All courses compulsory</b>					<b>19</b>
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>B. Major - 2 - Mathematics - All courses compulsory</b>					<b>19</b>
6	MAT1015	Matrix and Linear Algebra	3	2	4
7	MAT1018	Calculus	3	2	4
8	MAT1019	Differential Equations and Applications	3	0	3
9	MAT1020	Numerical Analysis	3	2	4
10	MAT1021	Integral Transforms	3	2	4
<b>C. Major - 3 - Computer Science - All courses compulsory</b>					<b>19</b>
11	CSE1023	Web Programming	3	2	4
12	CSE1022	Fundamentals of Data Structure and Algorithms	3	2	4
13	CSE1027	Introduction to Operating Systems	3	2	4
14	CSE2052	Introduction to AI and ML	3	2	4
15	CSE3053	B.Sc. Computer Science Internship	0	0	3

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
<b>(i) Physics Courses</b>							
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		
<b>(ii) Mathematics Courses</b>							
13	MAT1009	Discrete Mathematics	3	0	3		
14	MAT2008	Graph Theory and its Applications	3	0	3		
15	MAT2009	Real and Complex Analysis	3	0	3		
16	MAT2010	Special Functions and Number Theory	3	0	3		
17	MAT2011	Mathematical Modeling	2	2	3		
18	MAT2012	Group theory	3	0	3		
19	MAT2013	Algorithm and Complexity	2	2	3		
20	MAT2014	Operations Research	3	0	3		
21	MAT2015	Dynamics & Statics	3	0	3		
22	MAT2028	Vedic Mathematics	2	0	2		
23	MAT2016	Calculus of Variations	3	0	3		
<b>(iii) Computer Science courses</b>							
24	CSE1019	Programming in C	0	4	2		
25	CSE1020	Java Programming	0	4	2		
26	CSE2051	Introduction to Database Management Systems	3	2	4		
27	CSE1028	Introduction to Software Engineering	3	0	3		
28	CSE1029	Programming in C++	0	4	2		
29	CSE1031	C# Programming and .NET framework	0	4	2		
30	CSE1032	Linux Fundamentals	2	2	3		
31	CSE2049	Analysis and Design of Algorithms	3	2	4		
32	CSE2050	Computer Networks	3	2	4		
33	CSE2056	Data Communications	2	2	3		
34	CSE2057	Fundamentals of UI/UX	2	2	3		
35	PHY1009	Introduction to Quantum Computing	3	0	3		
36	CSE2053	Introduction to Data Analytics	3	2	4		
37	CSE3038	Digital Image Processing Techniques	2	2	3		

<b>(iv) common courses basket</b>					
38	KAN1005	Kannada Kali	0	2	1
39	MAT1013	Statistics and Probability	2	2	3
40	PSY1001	Understanding Self for Effectiveness	0	2	1
41	PSY1002	Dynamics of Human Behaviour	0	2	1
42	BIT1002	Basic Human Nutrition	2	0	2
43	MGT1101	Digital Entrepreneurship	2	0	2
<b>Specialized Electives Baskets - Minimum Credits to be earned from any one of these baskets =</b>					<b>15</b>
<b>B. Applied Physics Basket - Minimum Credits to be earned from any one of this basket =</b>					<b>3</b>
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
<b>C. Applied Mathematics Basket - Minimum Credits to be earned from any one of this basket =</b>					<b>3</b>
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
<b>D. Computer Science Basket - Minimum Credits to be earned from any one of this basket =</b>					<b>3</b>
1	CSE2062	AI Applications	2	2	3
2	CSE2063	Fundamentals of Deep Learning	2	2	3
3	CSE2064	Introduction to Reinforcement Learning	3	0	3
4	CSE2065	Introduction to Natural Language Processing	2	2	3
5	CSE2083	Elements of Cyber Security	2	2	3
<b>4. Open Elective basket - Minimum Credits to be earned from this basket</b>					<b>6</b>
Any course from <b>another</b> 'eligible' curriculum					
Any <b>unused</b> Discipline Elective from his/ her 'own' curriculum					
Any <b>stand-alone</b> course declared as "Open Elective" by School/ Dept. for a specific 'eligible' degree program					
School approved <b>NPTEL/Swayam</b> courses for a maximum of 3 credits					