



Integral University, Lucknow
Department of Mathematics & Statistics

Curriculum Structure of UG & PG Program with Mathematics, Physics & Computer Science as per NEP 2020

		Subject I (Mathematics)	Subject II (Physics)	Subject III (Computer Science)	Subject IV	Vocational	Co-curricular**	Industrial training Survey/ Research project	Total credit of the year	Cumulative minimum credits (Required for the award of certificates/ diploma/degree)
		Major	Major	Major	Minor Elective	Minor	Minor	Major		
		4/5/6 Credits	4/5/6 Credits	4/5/6 Credits	4/5/6 Credits	3 Credits	2	4 Credits		
Year	Sem.	Own Faculty	Own Faculty	Any Faculty	Other Faculty	Vocational/ Skill development course	Co-curricular (Qualifying)	Inter/Intra Faculty related to main subject		
1	I	B030101T/ MT136 Differential Calculus & Integral Calculus (T-4)	B010101T/ PY113 Mathematical Physics & Newtonian Mechanics(T-4)	B070101T/ CS127 Problem Solving using Computer (T-4)		I030103V/ MT143 Introduction to LaTeX (V-3)	(Z010101T/BE 105) Food Nutrition and Hygiene (T-2)		50 (36+4+6+4)	46 Certificate in Science (Mathematics, Physics, Computer Science)
		B030102P/ MT137 Practical using Mathematica /MATLAB (P-2)	B010102P/ PY114 Mechanical Properties of Matter (P-2)	B070102P/ CS128 Software Lab using Python (P-2)						
	II	B030201T/ MT138 Matrices and Differential Equations & Geometry (T-6)	B010201T/ PY115 Thermal Physics & Semiconductor Devices (T-4)	B070201T/ CS129 Database Management Systems (T-4)	B150101T/ES125 /BM186 Basics of Environmental Sciences / Fundamentals of Management (T-4)	I030202V/ MT144 LaTeX - Scientific Writing (V-3)	(Z020201T/NS 110) First Aid and Health (T-2)			
			B010202P/ PY116 Thermal Properties of Matter & Electronic Circuits(P-2)	B070202P/ CS130 Database Management Systems Lab(P-2)						
2	III	B030301T/ MT228 Algebra & Mathematical Methods (T-6)	B010301T/ PY207 Electromagnetic Theory & Modern Optics (T-4)	B070301T/ CS273 Operating Systems (T-4)		I030302V/ MT234	(Z030301) Human values and Environment Studies (T-2)		50 (36+4+6+4)	92 Diploma in Science (Mathematics, Physics, Computer Science)
			B010302P/ PY208 Demonstrative Aspects of Electricity & Magnetism (P-2)	B070302P/ CS274 Operating Systems Lab (P-2)		Introduction to R (V-3)				
	IV	B030401T/ MT229 Differential Equation & Mechanics (T-6)	B010401T/ PY209 Perspectives of Modern Physics & Basic Electronics (T-4)	B070401T/ CS275 Computer System Architecture (T-4)	LN104/ ME231 Essential Professional Communication / Basic Manufacturing Process (T-4)	I030402V/ MT235 Introduction to SPPSS (V-3)	(Z040401) Physical Education and Yoga (T-2)			
			B010402P/ PY210 Basic Electronics Instrumentation (P-2)	B070402P/ CS276 Computer System Architecture Lab (P-2)						
3	V	B030501T/ MT320 Group and Ring Theory & Linear Algebra (T-5)	B010501T/ PY311 Classical & Statistical Mechanics (T-4)	B070501T/ CS365 Analysis of Algorithms and Data Structures (T-4)			(Z050501) Analytic Ability and Digital Awareness (T-2)	B030505R/MT 333 Mathematics Project-1 (R-3)	50 (40+4+6)	138 Bachelor of Science (Mathematics & Physics with Computer Science)
		B030502T/ MT321 Number Theory & Game Theory/ B030503T/ MT322 Graph Theory & Discrete Mathematics/ B030504T/ MT323 Differential Geometry & Tensor Analysis (T-5)	B010502T/ PY312 Quantum Mechanics & Spectroscopy (T-4)	B070502T/ CS366 Soft Computing (T-4)						

			B010503P/ PY313 Demonstrative Aspects of Optics & Lasers (P-2)	B070503P/ CS367 Lab on Algorithms and Data Structures with C++ (P-2)							
	VI	B030601T/ MT324 Metric Space & Complex Analysis (T-4)	B010601T/ PY314 Solid State & Nuclear Physics (T-4)	B070601T/ CS368 Data Communication and Computer Networks (T-4)			(Z060601) Communication Skills and Personality Development (T-2)	B030604R/ MT334 Mathematics Project-2 (R-3)			
		B030602T/ MT325 Numerical Analysis & Operations Research (T-4)	B010602T/ PY315 Analog & Digital Principles & Applications (T-4)	B070602T/ CS369 Cyber Security & Cyber Laws (T-4)							
		B030603P/ MT326 Practical on Numerical Analysis using Mathematica /MATLAB (P-2)	B010603P/ PY316 Analog & Digital Circuits (P-2)	B070603P/ CS370 Lab on Computer Networks (P-2)							
4	VII	B030701T/ MT434 Real & Complex Analysis (T-5)						B030705R/ MT443 Mathematics Research Project-1 (R-6)	26 (20+6)	194	
		B030702T/ MT435 Advanced Modern Algebra (T-5)									
		B030703T/ MT436 Ordinary & Partial Differential Equations (T-5)									
		B030704T/ MT437 Discrete Structures (T-5)									
	VIII	B030801T/ MT438 Advanced Differential Geometry (T-4)			CA453 Fundamentals of Computer and C Programming (T-4)			B030806R/ MT444 Mathematics Research Project-2 (R-6)	30 (20+4+6)		Bachelor (Research) in Mathematics
		B030802T/ MT439 Optimization & Statistical Techniques (T-4)									
		(B030803T/ MT440) Numerical Analysis with Application (T-4)									
		(B030804T/ MT441) Advanced Linear Algebra (T-4)									
		(B030805P/ MT442) Advanced Numerical Analysis Lab (P-4)									
	5	IX	B030901T/ MT538 Geometry of Manifolds (T-5)					B030905R/ MT546 Mathematics Research Project-3 (R-6)	26 (20+6)		246
B030902T/ MT539 Integral Equations with boundary value problem (T-5)											
B030903T/ MT540 Fluid Dynamics with Application (T-5)											
B030904T/ MT541 Special Function (T-5)											
X		B031001T/ MT542 Mechanics with Application (T-5)					B031005R/ MT547 Mathematics Research Project-4 (R-6)	26 (20+6)			
		B031002T/ MT543 Functional Analysis and variational inequality (T-5)									

	B031003T/ MT544 Calculus of Variations with Application (T-5)																		
	B031004T/ MT545 Advanced Topology (T-5)																		



Integral University, Lucknow
Department of Mathematics & Statistics

Evaluation Scheme of Under Graduate & Post Graduate Program as per NEP-2020 Guidelines
w.e.f. Session 2022-23

Certificate in Science (Mathematics, Physics, Computer Science)

Year: First / Semester: First (Odd Semester)

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credits	Attributes							United Nations Sustainable Development Goals (SDGs)			
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics				
1	B030101T/MT136	Differential Calculus & Integral Calculus	Theory	Core Major (Compulsory)	3	1	0	15	10	25	75	100	04	✓		✓								
2	B010101T/PY113	Mathematical Physics & Newtonian Mechanics	Theory		3	1	0	15	10	25	75	100	04	✓										
3	B070101T/CS127	Problem Solving using Computer	Theory		3	1	0	15	10	25	75	100	04	✓		✓								
4	B030102P/MT137	Practical using Mathematica /MATLAB	Practical		0	0	4	15	10	25	75	100	02	✓		✓								
5	B010102P/PY114	Mechanical Properties of Matter	Practical		0	0	4	15	10	25	75	100	02	✓		✓								
6	B070102P/CS128	Software Lab using Python	Practical		0	0	4	15	10	25	75	100	02	✓		✓								
7	I030103V/MT143	Introduction to LaTeX	Theory+ Practical	Vocational	2	0	2	-	-	-	100	100	03	✓		✓								
8	Z010101T	Food Nutrition and Hygiene	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓				
TOTAL					13	3	14	105	70	175	625	800	23											



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w.e.f. Session 2022-23

Certificate in Science (Mathematics, Physics, Computer Science)

Year: First / Semester: Second (Even Semester)

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credits	Attributes							United Nations Sustainable Development Goals (SDGs)				
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics					
1	B030201T/MT138	Matrices and Differential Equations & Geometry	Theory	Core Major (Compulsory)	4	2	0	15	10	25	75	100	06	✓		✓									
2	B010201T/PY115	Thermal Physics & Semiconductor Devices	Theory		3	1	0	15	10	25	75	100	04	✓											
3	B070201T/CS129	Database Management Systems	Theory		3	1	0	15	10	25	75	100	04	✓		✓									
4	B010202P/PY116	Thermal Properties of Matter & Electronic Circuits	Practical		0	0	4	15	10	25	75	100	02	✓											
5	B070202P/CS130	Database Management Systems Lab	Practical		0	0	4	15	10	25	75	100	02	✓		✓									
6	B150101T/EVS125	Basics of Environmental Sciences	Theory	Minor	3	1	0	15	10	25	75	100	04	✓	✓	✓		✓	✓	✓	✓	✓			
7	I030202V/MT144	LaTeX – Scientific Writing	Theory+ Practical	Vocational	2	0	2	-	-	-	100	100	03	✓		✓									
8	Z020201	First Aid and Health	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓	✓	✓			
TOTAL					17	5	10	105	70	175	625	800	27												



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Evaluation Scheme of Under Graduate & Post Graduate Program as per NEP-2020 Guidelines
w.e.f. Session 2022-23

Diploma in Science (Mathematics, Physics, Computer Science)

Year: Second / Semester: Third (Odd Semester)

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credits	Attributes							United Nations Sustainable Development Goals (SDGs)						
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics							
1	B030301T/MT228	Algebra & Mathematical Methods	Theory	Core Major (Compulsory)	4	2	0	15	10	25	75	100	06	✓		✓								9 SDG Sustainable Development Goals	12 SDG Responsible Consumption & Production		
2	B010301T/PY207	Electromagnetic Theory & Modern Optics	Theory		3	1	0	15	10	25	75	100	04	✓												11 SDG Sustainable Cities & Communities	
3	B070301T/CS273	Operating Systems	Theory		3	1	0	15	10	25	75	100	04	✓		✓										4 SDG Quality Education	
4	B010302P/PY208	Demonstrative Aspects of Electricity & Magnetism	Practical		0	0	4	15	10	25	75	100	02	✓		✓											11 SDG Sustainable Cities & Communities
5	B070302P/CS274	Operating Systems Lab	Practical		0	0	4	15	10	25	75	100	02	✓		✓											4 SDG Quality Education
6	I030302V/MT234	Introduction to R	Theory+ Practical	Vocational	2	0	2	-	-	-	100	100	03	✓		✓										9 SDG Sustainable Development Goals	
7	Z030301	Human values and Environment Studies	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓						10 SDG Reduced Inequalities	
TOTAL					14	4	10	90	60	150	550	700	23														



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Evaluation Scheme of Under Graduate & Post Graduate Program as per NEP-2020 Guidelines
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Diploma in Science (Mathematics, Physics, Computer Science)

Year: Second / Semester: Fourth (Even Semester)

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credits	Attributes							United Nations Sustainable Development Goals (SDGs)					
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics						
1	B030401T/MT229	Differential Equation & Mechanics	Theory	Core Major (Compulsory)	4	2	0	15	10	25	75	100	06	✓		✓										
2	B010401T/PY209	Perspectives of Modern Physics & Basic Electronics	Theory		3	1	0	15	10	25	75	100	04	✓												
3	B070401T/CS275	Computer System Architecture	Theory		3	1	0	15	10	25	75	100	04	✓		✓										
4	B010402P/PY210	Basic Electronics Instrumentation	Practical		0	0	4	15	10	25	75	100	02	✓		✓										
5	B070402P/CS276	Computer System Architecture Lab	Practical		0	0	4	15	10	25	75	100	02	✓		✓										
6	LN104T/ME231	Essential Professional Communication / Basic Manufacturing Process	Theory	Minor elective	3	1	0	15	10	25	75	100	04	✓	✓	✓					✓	✓				
7	I030402V/MT235	Introduction to SPSS	Theory+ Practical	Vocational	2	0	2	-	-	-	100	100	03	✓		✓										
8	Z040401	Physical Education and Yoga	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓			✓	✓	✓					
TOTAL					17	5	10	105	70	175	625	800	27													



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B.Sc. in PMC (Mathematics, Computer Science)

Year: Third / Semester: Fifth (Odd Semester)

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credit Points	Attributes							United Nations Sustainable Development Goals (SDGs)																							
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics																								
1	B030501T/MT320	Group and Ring Theory & Linear Algebra	Theory	Core Major (Compulsory)	4	1	0	15	10	25	75	100	05	✓		✓																												
2	(a)B030502T/MT321	Opt any one of the following: (a) Number Theory & Game Theory (b) Graph Theory & Discrete Mathematics (c) Differential Geometry & Tensor Analysis	Theory	Major(Elective)	4	1	0	15	10	25	75	100	05	✓		✓																												
	(b)B030503T/MT322																																											
	(c)B030504T/MT323																																											
3	B070501T/CS365	Analysis of Algorithms and Data Structures	Theory	Core Major (Compulsory)	3	1	0	15	10	25	75	100	04	✓		✓																												
4	B070502T/CS366	Soft Computing	Theory		3	1	0	15	10	25	75	100	04	✓		✓								 																				
4	B070503P/CS367	Lab on Algorithms and Data Structures with C++	Practical		0	0	4	15	10	25	75	100	02	✓		✓																												
6	Z050501	Analytic Ability and Digital Awareness	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓	✓	✓	✓																					
7	B030503R/MT333	Mathematics Project-1	Practical	Core Major	0	0	6	0	0	0	100	100	03	✓		✓		✓			✓																							
TOTAL					16	4	10	90	60	150	550	700	25																															



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B.Sc. in PMC (Physics, Computer Science)

Year: Third / Semester: Fifth (Odd Semester)

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credits	Attributes							United Nations Sustainable Development Goals (SDGs)			
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics				
1	B010501T/PY311	Classical & Statistical Mechanics	Theory	Core Major (Compulsory)	3	1	0	15	10	25	75	100	04	✓										
2	B010502T/PY312	Quantum Mechanics & Spectroscopy	Theory		3	1	0	15	10	25	75	100	04	✓										
3	B070501T/CS365	Analysis of Algorithms and Data Structures	Theory		3	1	0	15	10	25	75	100	04	✓		✓								
4	B070502T/CS366	Soft Computing	Theory		3	1	0	15	10	25	75	100	04	✓		✓								
5	B010503P/PY313	Demonstrative Aspects of Optics & Lasers	Practical		0	0	4	15	10	25	75	100	02	✓		✓								
6	B070503P/CS367	Lab on Algorithms and Data Structures with C++	Practical		0	0	4	15	10	25	75	100	02	✓		✓								
6	Z050501	Analytic Ability and Digital Awareness	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓				
7	B010504R/CS381	Physics/Computer Project-I	Practical	Core Major	0	0	6	0	0	0	100	100	03	✓		✓		✓		✓				
TOTAL					14	4	14	105	70	175	625	800	25											



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B.Sc. in PMC (Mathematics, Physics)

Year: Third / Semester: Sixth (Even Semester)

S. N.	Course Code	Course Title	Theory / Practical	Course Type	Periods/ Per week			Continuous Assessment			End Semester Examination (ESE)	Subject Total	Total Credits	Attributes							United Nations Sustainable Development Goals (SDGs)			
					Lecture (L)	Tutorial (T)	Practical (P)	Class Test (CT)	Teacher Assessment (TA)	Total				Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics				
1	B030601T/MT324	Metric Space & Complex Analysis	Theory	Core Major (Compulsory)	3	1	0	15	10	25	75	100	04	✓		✓								
2	B030602T/MT325	Numerical Analysis & Operations Research	Theory		3	1	0	15	10	25	75	100	04	✓		✓								
3	B010601T/PY314	Solid State & Nuclear Physics	Theory		3	1	0	15	10	25	75	100	04	✓										
4	B010602T/PY315	Analog & Digital Principles & Applications	Theory		3	1	0	15	10	25	75	100	04	✓										
5	B030603P/MT326	Practical on Numerical analysis using Mathematica /MATLAB	Practical		0	0	4	15	10	25	75	100	02	✓		✓								
6	B010603P/PY316	Analog & Digital Circuits	Practical		0	0	4	15	10	25	75	100	02	✓										
7	Z060601	Communication Skills and Personality Development	Theory	Co-curricular (Compulsory)	2	0	0	15	10	25	75	100	02	✓	✓	✓		✓	✓	✓	✓	✓		
8	B030604R/MT334	Mathematics Project-2	Practical	Core Major	0	0	6	0	0	0	100	100	03	✓		✓		✓			✓			
TOTAL					14	4	14	105	70	175	625	800	25											

