

Summary of courses

Table 1: Courses offered in the Semester I of the First Year <i>(A student must earn a minimum of 16 credits)</i>				
Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 11201	Mechanics and Properties of Matter	2	Compulsory	
PST 11202	Introduction to Electricity and Magnetism	2	Compulsory	
PST 11103	Physics Laboratory 1-I	1	Compulsory	
PST 11204	General Chemistry	2	Compulsory	
PST 11205	Fundamentals of Organic Chemistry	2	Compulsory	
PST 11106	Inorganic Chemistry Laboratory I	1	Compulsory	
PST 11107	Structured Programming	1	Compulsory	
PST 11208	Computer Hardware and Software	2	Compulsory	
PST 11109	Computer Laboratory 1-I	1	Compulsory	
PST 11210	Calculus and Differential Equations	2	Compulsory	
PST-EGP-1101	General English I	0	Compulsory	
	Total	16		
Table 2: Courses offered in the Semester II of the First Year <i>(A student must earn a minimum of 16 credits)</i>				
Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 12201	Physics of Heat and Waves	2	Compulsory	
PST 12102	Semi-Conductor Physics	1	Compulsory	
PST 12103	AC Theory & Circuits	1	Compulsory	
PST 12104	Physics Laboratory 1-II	1	Compulsory	
PST 12205	Fundamentals of Physical Chemistry	2	Compulsory	
PST 12206	Fundamentals of Analytical Chemistry	2	Compulsory	PST11204
PST 12107	Organic Chemistry Laboratory I	1	Compulsory	PST11106
PST 12108	Object Oriented Programming	1	Compulsory	PST11107
PST 12209	Fundamentals of Statistics	2	Compulsory	
PST 12110	Computer Laboratory 1-II	1	Compulsory	PST11109
PST 12211	Database Management Systems	2	Compulsory	
PST-EGP-1201	General English II	0	Compulsory	
	Total	16		

Table 3: Courses offered in the Semester I of the Second Year (A student must earn a minimum of 17 credits) Note: Those who are willing to do Chemical Technology must earn a minimum of 18 credits)

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 21201	Electronics	2	Compulsory	
PST 21202	Geometrical and Physical Optics	2	Compulsory	
PST 21103	Physics Laboratory 2-I	1	Compulsory	
PST 21204	Organic Chemistry	2	Compulsory	PST 11205
PST 21205	Industrial Chemistry and Technology I (Organic)	2	Compulsory	PST 11205
PST 21106	Organic Chemistry Laboratory II	1	Compulsory	PST 12107
PST 21207	Data Structures & Algorithms	2	Compulsory	PST 11107, PST 11109
PST 21208	Computer Architecture and Assembly Language	2	Compulsory	PST 11208
PST 21209	Statistics for Experimental Analysis	2	Compulsory	PST12209
PST 21110	Computer Laboratory 2-I	1	Compulsory	
PST 21111	Physical Chemistry Laboratory I	1	Elective (Compulsory for BSc Hons (Chem Tech))	PST 11106, PST 12205, PST 12206
PST-EAP-2101	Academic English I	0	Compulsory	
	Total	18		

Table 4: Courses offered in the Semester II of the Second Year (A student must earn a minimum of 20 credits)

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 22201	Physics of Electromagnetic Radiation and Introduction to Laser	2	Compulsory	
PST 22202	Quantum Physics, Atomic & Nuclear Physics	2	Compulsory	
PST 22103	Physics Laboratory 2-II	1	Compulsory	
PST 22204	Chemistry of Elements	2	Compulsory	PST 11204
PST 22205	Physical Chemistry	2	Compulsory	PST 12205
PST 22106	Inorganic Chemistry Laboratory II	1	Compulsory	PST 11106
PST 22107	Analytical Chemistry Laboratory I	1	Elective (Compulsory for BSc Hons (Chem Tech))	PST 12206, PST 11106
PST 22208	Software Engineering	2	Compulsory	PST 21207
PST 22209	Statistical Methodology	2	Compulsory	PST12209 PST21209

PST 22110	Computer Laboratory 2-II	1	Compulsory	PST 11109
PST 22211	Operating Systems	2	Compulsory	PST 11211
PST 22112	Leadership and Communication	1	Elective	
PST 22213	Biology for Physical Sciences	2	Elective	
PST 22114	Soft Skill Development	1	Elective	
PST 22215	Mathematical Methods	2	Elective (Compulsory for BSc Hons (App Phy))	
PST 22116	Introduction to Astronomy	1	Elective (Compulsory for BSc Hons (App Phy))	
PST 22217	Industrial Metrology	2	Elective	
PST 22218	Management Information Systems	2	Elective (Compulsory for BSc Hons (Com Sc & Tech))	PST 12211
PST 22219	Molecular Spectroscopy	2	Elective (Compulsory for BSc Hons (Chem Tech))	PST11204, PST11205
PST-EAP-2201	Academic English II	0	Compulsory	
	Total	31		

GENERAL DEGREE COURSE B Sc DEGREE IN PHYSICAL SCIENCES

Table 5: Courses offered in the Semester I of the Third Year (A student must earn a minimum of 16 credits)

For BSc Degree in Physical Sciences (Majoring in Physics)				
Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 31201	Solid State Physics	2	Compulsory	PST 12102
PST 31202	Nuclear Physics & Applications	2	Compulsory	PST 22202
PST 31203	Quantum Mechanics	2	Compulsory	PST 22202
PST 31104	Material Physics	1	Compulsory	PST 12102
PST 31205	Special Relativity	2	Compulsory	PST 11201
PST 31206	Optical Fiber & Telecommunication	2	Compulsory	PST 21202
PST 31107	Introduction to Nanotechnology	1	Compulsory	
PST 31108	Physics Laboratory 3-I	1	Compulsory	PST 11103, PST 12103, PST 21103
PST 31209	The Origin and Evolution of the Universe	2	Elective	
PST 31210	Multimedia and Hypermedia	2	Elective	

	Systems Development			
PST 31211	Mathematical Programming	2	Compulsory	
PST 31212	Numerical Methods	2	Elective	
PST 31213	Economics	2	Elective	
PST 31014	Industrial Visit	0	Compulsory	PST 11103 PST 12103, PST21103
PST-EBP-3101	Business English	0	Compulsory	
	Total	23		

Table 6: Courses offered in the Semester I of the Third Year (A student must earn a minimum of 16 credits)

For BSc Degree in Physical Sciences (Majoring Chemical Technology)

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 31107	Introduction to Nanotechnology	1	Elective	PST 11204, PST 12205, PST 22205
PST 31211	Mathematical Programming	2	Elective	
PST 31212	Numerical Methods	2	Elective	
PST 31213	Economics	2	Elective	
PST 31014	Industrial Visit	0	Compulsory	
PST 31216	Biochemistry – I	2	Compulsory	PST 11205
PST 31217	Electroanalytical Techniques	2	Compulsory	PST 11204, PST 12205
PST 31218	Industrial Chemistry and Technology - II (Inorganic)	2	Compulsory	PST 11204, PST 12206
PST 31219	Environmental Chemistry	2	Compulsory	PST 11204, PST 11205, PST 12206
PST 31220	Coordination Chemistry	1	Compulsory	PST 11204, PST 22204
PST 31121	Laboratory Quality Control and Assurance	1	Compulsory	PST 11106, PST 12206
PST 31122	Physical Chemistry Laboratory II	1	Compulsory	PST 11205, PST 21111
PST 31123	Analytical Chemistry Laboratory II	1	Compulsory	PST 12206, PST 22106, PST 22107
PST-EBP-3101	Business English	0	Compulsory	
	Total	19		

Table 7: Courses offered in the Semester I of the Third Year (A student must earn a minimum of 16 credits)

For BSc Degree in Physical Sciences (Majoring Computer Science and Technology)

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
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PST 31210	Multimedia and Hypermedia Systems Development	2	Compulsory	
PST 31211	Mathematical Programming	2	Elective	
PST 31212	Numerical Methods	2	Elective	
PST 31014	Industrial Visit	0	Compulsory	
PST 31215	Agile Software Development	2	Elective	PST 22208
PST 31224	Artificial Intelligence & Expert Systems	2	Compulsory	PST 21207
PST 31225	Software Project Management	2	Compulsory	PST 22208
PST 31226	Software Quality Assurances	2	Compulsory	PST 22208
PST 31227	Object Oriented Analysis and Design	2	Compulsory	PST 12108, PST 21207
PST 31128	Computer Laboratory 3-I	1	Compulsory	PST 11109
PST 31229	Advanced Database Management Systems	2	Compulsory	PST 22218
PST 31230	Social and Professional Issues in Computing	2	Elective	
PST-EBP-3101	Business English	0	Compulsory	
	Total	21		

Table 8: Courses offered in the Semester II of the Third Year (A student must earn a minimum of 08 credits)

For BSc Degree in Physical Sciences (Majoring in Physics)

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 32801	Project Work (Industrial Exposure): BSc Thesis in Physical Sciences (Major in Applied Physics)	8	Compulsory	
	Total	8		

Table 9: Courses offered in the Semester II of the Third Year (A student must earn a minimum of 08 credits)

For BSc Degree in Physical Sciences (Majoring Chemical Technology)

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 32802	Project Work (Industrial Exposure): BSc Thesis in Physical Sciences (Major in Chemical Technology)	8	Compulsory	
	Total	8		

Table 10: Courses offered in the Semester II of the Third Year (A student must earn a minimum of 08 credits)

For BSc Degree in Physical Sciences (Majoring Computer Science and Technology)

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 32803	Project Work (Industrial	8	Compulsory	

	Exposure): BSc Thesis in Physical Sciences (Major in Computer Science & Technology)			
	Total	8		

HONOURS DEGREE COURSE
BSC HONOURS DEGREE IN APPLIED PHYSICS/CHEMICAL TECHNOLOGY/
COMPUTER SCIENCE & TECHNOLOGY

Table 11: Courses offered in the Semester I of the Third Year (A student must earn a minimum of 17 credits)

BSc Honours Degree in Applied Physics				
Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 31201	Solid State Physics	2	Compulsory	PST 12102
PST 31202	Nuclear Physics & Applications	2	Compulsory	PST 22202
PST 31203	Quantum Mechanics	2	Compulsory	PST 22202
PST 31104	Material Physics	1	Compulsory	PST 12102
PST 31205	Special Relativity	2	Compulsory	PST 11201
PST 31206	Optical Fiber & Telecommunication	2	Compulsory	PST 21202
PST 31107	Introduction to Nanotechnology	1	Compulsory	
PST 31108	Physics Laboratory 3-I	1	Compulsory	PST 11103, PST 12103, PST 21103
PST 31209	The Origin and Evolution of the Universe	2	Compulsory	PST 22116
PST 31210	Multimedia and Hypermedia Systems Development	2	Elective	
PST 31211	Mathematical Programming	2	Compulsory	
PST 31212	Numerical Methods	2	Elective	
PST 31213	Economics	2	Elective	
PST 31014	Industrial Visit	0	Compulsory	PST 11103, PST 12103, PST21103
PST-EBP-3101	Business English	0	Compulsory	
	Total	23		

Table 12: Courses offered in the Semester I of the Third Year (A student must earn a minimum of 14 credits)

BSc Honours Degree in Chemical Technology				
Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 31107	Introduction to Nanotechnology	1	Elective	PST 11204, PST 12205, PST 22205
PST 31211	Mathematical Programming	2	Elective	

PST 31212	Numerical Methods	2	Elective	
PST 31213	Economics	2	Elective	
PST 31014	Industrial Visit	0	Compulsory	
PST 31216	Biochemistry – I	2	Compulsory	PST 11205
PST 31217	Electroanalytical Techniques	2	Compulsory	PST 11204, PST 12205
PST 31218	Industrial Chemistry and Technology - II (Inorganic)	2	Compulsory	PST 11204, PST 12206
PST 31219	Environmental Chemistry	2	Compulsory	PST 11204, PST 11205, PST 12206
PST 31220	Coordination Chemistry	1	Compulsory	PST 11204, PST 22204
PST 31121	Laboratory Quality Control and Assurance	1	Compulsory	PST 11106, PST 12206
PST 31122	Physical Chemistry Laboratory II	1	Compulsory	PST 11205, PST 21111
PST 31123	Analytical Chemistry Laboratory II	1	Compulsory	PST 12206, PST 22106, PST 22107
PST-EBP-3101	Business English	0	Compulsory	
	Total	19		

Table 13: Courses offered in the Semester I of the Third Year (A student must earn a minimum of 15 credits)

BSc Honours Degree in Computer Science & Technology

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 31210	Multimedia and Hypermedia Systems Development	2	Compulsory	
PST 31211	Mathematical Programming	2	Elective	
PST 31212	Numerical Methods	2	Elective	
PST 31014	Industrial Visit	0	Compulsory	
PST 31215	Agile Software Development	2	Elective	PST 22208
PST 31224	Artificial Intelligence & Expert Systems	2	Compulsory	PST 21207
PST 31225	Software Project Management	2	Compulsory	PST 22208
PST 31226	Software Quality Assurances	2	Compulsory	PST 22208
PST 31227	Object Oriented Analysis and Design	2	Compulsory	PST 12108
PST 31128	Computer Laboratory 3-I	1	Compulsory	PST 11109
PST 31229	Advanced Database Management Systems	2	Compulsory	PST 22218
PST 31230	Social and Professional Issues in Computing	2	Elective	
PST-EBP-3101	Business English	0	Compulsory	

	Total	21		
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Table 14: Courses offered in the Semester II of the Third Year (A student must earn a minimum of 16 credits)

BSc Honours Degree in Applied Physics				
Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 32201	Statistical Physics	2	Compulsory	PST 12201
PST 32102	Interaction of Radiation with Matter	1	Compulsory	PST 11202, PST 22201
PST 32203	Atmospheric Physics	2	Compulsory	
PST 32104	Advanced Electronics	1	Compulsory	PST 21201
PST 32205	Solid State Devices	2	Compulsory	PST 21201
PST 32206	Astrophysics	2	Compulsory	PST 22116, PST 31209
PST 32207	Atomic and Molecular Spectroscopy	2	Elective	
PST 32108	Current Topics in Physics	1	Compulsory	PST 12102
PST 32109	Human Resource Management	1	Elective	
PST 32210	Statistics in Quality Control	2	Elective	PST21209, PST 22209
PST 32111	Physics Laboratory 3-II	1	Compulsory	PST 11103, PST 12103, PST 21103, PST 22103, PST 31108
PST 32212	Graph Theory	2	Elective	
PST 32213	Resource Efficient and Cleaner Production	2	Elective	
	Total	21		

Table15: Courses offered in the Semester II of the Third Year (A student must earn a minimum of 16 credits)

BSc Honours Degree in Chemical Technology				
Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 32109	Human Resource Management	1	Elective	
PST 32210	Statistics in Quality Control	2	Elective	PST21209, PST 22209
PST32213	Resource efficient & Cleaner Production	2	Elective	
PST 32214	Chemistry of Drug Design and Drug Action	2	Compulsory	PST 11205, PST 21204, PST 11205
PST 32215	Polymer Chemistry & Technology	2	Compulsory	PST 12205, PST 21204

PST 32216	Surface and Colloid Chemistry	2	Compulsory	PST12205
PST 32217	Biochemistry II	2	Compulsory	PST 31216
PST 32118	Advanced Organic Chemistry	1	Compulsory	PST 11205, PST 21204
PST 32219	Introduction to Organic electronics	2	Elective	PST 12205, PST 22205, PST 31217
PST 32220	Structures and Properties of Solids	2	Compulsory	PST 11204
PST 32121	Advanced Inorganic Chemistry Laboratory	1	Compulsory	PST 11106, PST 12106
PST 32122	Biochemistry Laboratory	1	Compulsory	PST 31216
PST 32223	Organometallic Chemistry	2	Elective	PST 11204, PST 11205, PST 21204, PST 22204
	Total	22		

Table16: Courses offered in the Semester II of the Third Year (A student must earn a minimum of 15 credits)

BSc Honours Degree in Computer Science & Technology

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 32109	Human Resource Management	1	Elective	
PST 32210	Statistics in Quality Control	2	Elective	PST21209, PST 22209
PST 32212	Graph Theory	2	Elective	
PST 32224	Artificial Neural Networks	2	Compulsory	PST 31224
PST 32225	Digital Image Processing	2	Compulsory	
PST 32226	Data Mining and Applications	2	Compulsory	
PST 32227	Data Communication and Computer Networks	2	Compulsory	
PST 32228	Computer Graphics and Visualization	2	Compulsory	
PST 32229	Project in Computer Science and Technology (Mini Project)	2	Compulsory	PST 12108, PST 22208, PST 31227
PST 32130	Computer Laboratory 3-II	1	Compulsory	PST 31128
PST 32231	Human Computer Interactions	2	Elective	
PST 32232	Bioinformatics	2	Elective	
PST 32133	Current Topics in Computer Technology	1	Elective	
	Total	23		

Table 17: Courses offered in the Semester I of the Fourth Year (A student must earn a minimum of 19 credits)

BSc Honours Degree in Applied Physics

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 41201	Research Methodology and Scientific Communication	2	Compulsory	
PST 41202	Computational Physics	2	Compulsory	
PST 41203	Robotics	2	Elective	
PST 41204	Remote Sensing & GIS	2	Compulsory	PST 32203
PST 41205	Geophysics	2	Compulsory	
PST 41206	Medical and BioPhysics	2	Compulsory	
PST 41207	Advanced Nanotechnology	2	Elective	
PST 41208	Data Acquisition and Signal Processing Methods	2	Compulsory	PST 21201
PST 41209	Advanced Laser Physics	2	Elective	
PST 41210	Automation	2	Elective	
PST 41211	Astronomical Instruments and Data Reduction & Analysis Techniques	2	Compulsory	PST 32206
PST 41212	Electrochemical Power Conversion	2	Elective	
PST 41013	Literature Search Seminar in Applied Physics	0	Non credited Compulsory	
PST 41014	Independent Research / Project in Applied Physics	0	Non credited Compulsory	
PST 41215	Industrial Management	2	Elective	
PST 41216	Classical Mechanics	2	Compulsory	PST 11201, PST 11210, PST 22215
PST 41235	Critical Thinking	2	Elective	
	Total	30		

Table 18: Courses offered in the Semester I of the Fourth Year (A student must earn a minimum of 22 credits)

BSc Honours Degree in Chemical Technology

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST41201	Research Methodology and Scientific Communication	2	Compulsory	
PST41207	Advanced Nanotechnology	2	Elective	PST 41107
PST41212	Electrochemical Power Conversion	2	Elective	PST 11204, PST 12205, PST 21111, PST 31122, PST 31217
PST41215	Industrial Management	2	Elective	

PST41217	Natural Products Chemistry	2	Compulsory	PST 11205, PST 21204
PST41218	Biotechnology	2	Compulsory	PST31216, PST32122
PST41219	Advanced Solid-State Chemistry	2	Compulsory	PST 11106, PST 32220
PST41120	Bioinorganic Chemistry	1	Compulsory	PST 11204, PST 31216
PST41221	Instrumental Analysis	2	Compulsory	
PST41222	Applied Molecular Modelling	2	Elective	PST 11204, PST 11205, PST 21204, PST 22205
PST41223	States of Matter	2	Elective	PST11204, PST 21204, PST 22205
PST41124	Literature Search in Chemistry	1	Compulsory	
PST41225	Independent Research / Project in Chemical Technology	2	Compulsory	
PST41226	Computer Applications in Instrumentation	2	Elective	
PST41235	Critical Thinking	1	Elective	
	Total	27		

Table 19: Courses offered in the Semester I of the Fourth Year (A student must earn a minimum of 16 credits)

BSc Honours Degree in Computer Science & Technology

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST41201	Research Methodology and Scientific Communication	2	Compulsory	
PST 41203	Robotics	2	Elective	
PST 41215	Industrial Management	2	Elective	
PST 41227	Web services	2	Compulsory	PST 21110
PST 41228	Computer System Security	2	Compulsory	
PST 41229	Advanced Computer Networks	2	Compulsory	PST 32227
PST 41230	Internet of Things (IoT)	2	Elective	
PST 41231	Natural Language Processing	2	Elective	
PST 41232	Cloud Computing	2	Compulsory	PST 31229
PST 41233	Business Process Management Systems	2	Elective	
PST 41234	Mobile Computing	2	Elective	
PST 41235	Critical Thinking	2	Elective	
	Total	24		

Table 20: Courses offered in the Semester II of the Fourth Year (A student must earn a minimum of 11 credits)

BSc Honours Degree in Applied Physics

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 42801	Project Work (Industrial Exposure) : BSc Thesis in Applied Physics	8	Compulsory	PST 11103, PST 12103, PST 12103, PST 21103, PST 22103, PST 31108, PST 32111
PST 42102	Literature Search Seminar in Applied Physics	1	Compulsory	PST 11103, PST 12103, PST 12103, PST 21103, PST 22103, PST 31108, PST 32111
PST 42203	Independent Research / Project in Applied Physics	2	Compulsory	PST 11103, PST 12103, PST 12103, PST 21103, PST 22103, PST 31108, PST 32111
	Total	11		

Table 21: Courses offered in the Semester II of the Fourth Year (A student must earn a minimum of 08 credits)

BSc Honours Degree in Chemical Technology

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 42804	Project Work (Industrial Exposure): BSc Thesis in Chemical Technology	8	Compulsory	
	Total	8		

Table 22: Courses offered in the Semester II of the Fourth Year (A student must earn a minimum of 14 credits)

BSc Honours Degree in Computer Science and Technology

Course Code	Course Title	No of Credits	Compulsory or Elective	Prerequisite
PST 41805	Project Work: BSc Thesis in Computer Science & Technology *	8	Compulsory	
PST 42606	Industrial Training	6	Compulsory	
	Total	14		

* The Independent Research Project will be offered as an annual course unit in both semesters I and II, with a total value of 8 credits. Students will be evaluated through regular progress presentations from Semester I to the end of the Semester II.

Summary of credits offered:

The minimum number of credits required for a BSc degree in Physical Sciences in each year.

	Semester I	Semester II	Total
Year 1	16	16	32
Year II	17(18)	20	37(38)
Year III	16	08	24
Total			93(94)

The minimum number of credits required for BSc Hons degree in Applied Physics in each year.

	Semester I	Semester II	Total
Year 1	16	16	32
Year II	17	20	37
Year III	17	16	33
Year IV	19	11	30
Total			132

The minimum number of credits required for BSc Hons degree in Chemical Technology in each year.

	Semester I	Semester II	Total
Year 1	16	16	32
Year II	18	20	38
Year III	14	16	30
Year IV	22	08	30
Total			130

The minimum numbers of credits required for BSc Honours in Computer Science and Technology in each year.

	Semester I	Semester II	Total
Year 1	16	16	32
Year II	17	20	37
Year III	15	15	30
Year IV	16	14	30
Total			129