

## PHYSICS - MAJOR (SCIENCE) - BACHELOR OF SCIENCE (HONOURS)

## PHYS-M-BSH

Subject: Administered by the Department of Physics,

Engineering Physics and Astronomy.

Plan: Consists of 72.00 units as described below.

**Program:** The Plan, alone, or in combination with a Minor in another subject, and with sufficient electives to total 120.00 units, will lead to a Bachelor of Science (Honours) Degree.

A. Complete 6.00 units from the following: PHYS 104 Fundamental Physics PHYS 106 General Physics B. Complete the following: PHYS 206 Dynamics 3.00 PHYS 212 Vibrations and Waves 3.00 PHYS 213 Computational Methods in Physics 3.00 PHYS 239 Electromagnetism 3.00 PHYS 242 Relativity and Quanta 3.00 PHYS 250 Foundations of Experimental Physics 3.00 C. Complete 3.00 units from the following: 3.00 MATH 221 Vector Calculus MATH 280 Advanced Calculus D. Complete 3.00 units from the following: 3.00 MATH 221 Vector Calculus MATH 221 Vector Calculus D. Complete 3.00 units from the following: 3.00 MATH 221 Vector Calculus D. Complete 3.00 units from the following: 3.00 MATH 231 Differential Equations E. Complete the following: PHYS 344 Introduction to Quantum Mechanics 3.00 PHYS 345 Quantum Physics of Atoms, Nuclei and Particles PHYS 350 General Laboratory 6.00 PHYS 370 Thermodynamics 3.00 PHYS 371 Methods in Mathematical Physics I and Methods in Mathematical Physics II MATH 228 Complex Analysis & MATH 338 and Fourier Methods for Boundary Value Problems  G. Complete the following: PHYS 432 Electromagnetic Theory 3.00 2. Option	, , , , , , , , , , , , , , , , , , , ,		
A. Complete 6.00 units from the following: PHYS 104 Fundamental Physics PHYS 106 General Physics B. Complete the following: PHYS 206 Dynamics 3.00 PHYS 212 Vibrations and Waves 3.00 PHYS 213 Computational Methods in Physics 3.00 PHYS 239 Electromagnetism 3.00 PHYS 242 Relativity and Quanta 3.00 PHYS 250 Foundations of Experimental Physics 3.00 C. Complete 3.00 units from the following: 3.00 MATH 221 Vector Calculus MATH 280 Advanced Calculus D. Complete 3.00 units from the following: 3.00 MATH 225 Ordinary Differential Equations MATH 231 Differential Equations E. Complete the following: PHYS 344 Introduction to Quantum Mechanics 3.00 PHYS 345 Quantum Physics of Atoms, Nuclei and Particles PHYS 350 General Laboratory 6.00 PHYS 370 Thermodynamics 3.00 F. Complete 6.00 units from the following: 6.00 PHYS 316 Methods in Mathematical Physics I and Methods in Mathematical Physics II MATH 228 Complex Analysis 8 MATH 338 and Fourier Methods for Boundary Value Problems G. Complete the following: PHYS 432 Electromagnetic Theory 3.00 2. Option	Code	Title	Units
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PHYS 242 Relativity and Quanta 3.00 PHYS 250 Foundations of Experimental Physics 3.00 C. Complete 3.00 units from the following: 3.00 MATH 221 Vector Calculus MATH 280 Advanced Calculus D. Complete 3.00 units from the following: 3.00 MATH 225 Ordinary Differential Equations MATH 231 Differential Equations E. Complete the following: PHYS 344 Introduction to Quantum Mechanics 3.00 PHYS 345 Quantum Physics of Atoms, Nuclei and Particles PHYS 350 General Laboratory 6.00 PHYS 372 Thermodynamics 3.00 F. Complete 6.00 units from the following: 6.00 PHYS 316 Methods in Mathematical Physics I and Methods in Mathematical Physics II MATH 228 Complex Analysis & MATH 338 and Fourier Methods for Boundary Value Problems G. Complete the following: PHYS 432 Electromagnetic Theory 3.00 2. Option	PHYS 213	Computational Methods in Physics	3.00
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MATH 231 Differential Equations  E. Complete the following:  PHYS 344 Introduction to Quantum Mechanics 3.00  PHYS 345 Quantum Physics of Atoms, Nuclei and Particles  PHYS 350 General Laboratory 6.00  PHYS 372 Thermodynamics 3.00  F. Complete 6.00 units from the following: 6.00  PHYS 316 Methods in Mathematical Physics I APHYS 317 and Methods in Mathematical Physics II  MATH 228 Complex Analysis AMATH 338 and Fourier Methods for Boundary Value Problems  G. Complete the following:  PHYS 432 Electromagnetic Theory 3.00  2. Option	D. Complete 3	.00 units from the following:	3.00
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Particles PHYS 350 General Laboratory 6.00 PHYS 372 Thermodynamics 3.00 F. Complete 6.00 units from the following: 6.00 PHYS 316 Methods in Mathematical Physics I and Methods in Mathematical Physics II MATH 228 Complex Analysis & MATH 338 and Fourier Methods for Boundary Value Problems G. Complete the following: PHYS 432 Electromagnetic Theory 3.00 2. Option	PHYS 344	Introduction to Quantum Mechanics	3.00
PHYS 372 Thermodynamics 3.00  F. Complete 6.00 units from the following: 6.00  PHYS 316 Methods in Mathematical Physics I & PHYS 317 and Methods in Mathematical Physics II  MATH 228 Complex Analysis & MATH 338 and Fourier Methods for Boundary Value Problems  G. Complete the following:  PHYS 432 Electromagnetic Theory 3.00  2. Option	PHYS 345		3.00
F. Complete 6.00 units from the following:  PHYS 316 Methods in Mathematical Physics I & PHYS 317 and Methods in Mathematical Physics II  MATH 228 Complex Analysis & MATH 338 and Fourier Methods for Boundary Value Problems  G. Complete the following:  PHYS 432 Electromagnetic Theory 3.00  2. Option	PHYS 350	General Laboratory	6.00
PHYS 316 Methods in Mathematical Physics I & PHYS 317 and Methods in Mathematical Physics II  MATH 228 Complex Analysis & MATH 338 and Fourier Methods for Boundary Value Problems  G. Complete the following:  PHYS 432 Electromagnetic Theory 3.00  2. Option	PHYS 372	Thermodynamics	3.00
& PHYS 317 and Methods in Mathematical Physics II  MATH 228 Complex Analysis  & MATH 338 and Fourier Methods for Boundary Value Problems  G. Complete the following:  PHYS 432 Electromagnetic Theory 3.00  2. Option	F. Complete 6.	.00 units from the following:	6.00
& MATH 338 and Fourier Methods for Boundary Value Problems  G. Complete the following:  PHYS 432 Electromagnetic Theory 3.00  2. Option			
PHYS 432 Electromagnetic Theory 3.00  2. Option	====	and Fourier Methods for Boundary Value	e
2. Option	G. Complete t	he following:	
•	PHYS 432	Electromagnetic Theory	3.00
A Complete 6.00 units from the following: 6.00	2. Option		
A. Complete 0.00 units from the following. 0.00	A. Complete 6	.00 units from the following:	6.00

Physical Processes in Astrophysics

<b>Total Units</b>		120.00
Elective Courses		48.00
Electives		
MATH 123 & MATH 124	Differential and Integral Calculus I and Differential and Integral Calculus II	
MATIL 122	<u> </u>	
MATH 121	Differential and Integral Calculus	
MATH 120	Differential and Integral Calculus	
B. Complete 6.	.00 units from the following:	6.00
MATH 111	Linear Algebra	
MATH 110	Linear Algebra	
A. Complete 6	.00 units from the following:	6.00
3. Supporting		

PHYS at the 400-level or above

## 4. Notes

A. A maximum of 6.00 units from courses offered by other Faculties and Schools may be counted toward the program and/or Plan requirements. This includes courses in BMED, COMM, GLPH, HSCI, LAW, NURS, and courses in the Faculty of Engineering and Applied Science.

**PHYS 315**