

Requirements for a Major in the Physics Department

The Department of Physics warmly welcomes all students to the new academic year.

The table below outlines the courses required for a major in the Department of Physics.

Please note that the scheduling is a guide and electives and foundation courses must be accounted for.

MAJORS	YEAR 1		YEAR 2		YEAR 3		ELECTIVES
	SEMESTER 1	SEMESTER 2	SEMESTER 1	SEMESTER 2	SEMESTER 1	SEMESTER 2	
GENERAL PHYSICS			PHYS2300 PHYS2351 PHYS2386	ELET2420	MATH2230 PHYS3386	PHYS2396 PHYS3200 PHYS3351	Any 3 of the following PHYS3399, PHYS3565 (highly recommended) Level 2 or 3 PHYS course Level 2 or 3 ELET course
ENERGY AND ENVIRONMENTAL PHYSICS	MATH1141 MATH1185	ELET 1500 PHYS1421 PHYS1422	PHYS2300 PHYS2351 PHYS2671	ELET2420 PHYS2600 PHYS3661	ELET3600 PHYS2386 PHYS3671	ELET3611 PHYS2396 PHYS3681	
MEDICAL PHYSICS	PHYS1411 PHYS1412		ELET2460 PHYS2300 PHYS2351 PHYS2386	PHYS2200 PHYS2296 PHYS2396	PHYS3300 PHYS3341	PHYS3389	Any 2 of the following MATH2230, PHYS3399 Level 2 or 3 PHYS course Level 2 or 3 ELET course
MATERIALS SCIENCE		PHYS1421 PHYS1422	PHYS2300 PHYS2351 PHYS2386	PHYS2500 PHYS2561 PHYS2671	PHYS3500 PHYS3562	PHYS2396 PHYS3561 PHYS3565	Any 1 of the following MATH2230, PHYS3399 Level 2 or 3 PHYS course Level 2 or 3 ELET course
ELECTRONICS	MATH1141 MATH1185 PHYS1411 PHYS1412 ECNG1009	ELET 1500/ ECNG1000 ELET1405 PHYS1421 PHYS1422 COMP1161	ELET2405 ELET2530 ELET2460 ELET2570	ELET2410 ELET2415 ELET2450 ECNG2009	ELET3405 ELNG3030	ELET3490	Any 5 of the following Level 2 or 3 ELET course Including *ELET2210 / COMP2802 - Speech Processing (new); ELET3211 /COMP3802 - Speech and Language Technology (new) [See website for more details.]
RENEWABLE ENERGY MANAGEMENT (MINOR ONLY)	ECON1005 OR STAT1001 OR SOCI1005	ECON1000 ACCT1005	PHYS2701 MGMT2026	PHYS3701 MGMT2224	ELET3600 MGMT3056		
SPECIAL B.S.C. PROGRAMMES	Biomedical Instrumentation			Electronics and Alternative Energy Systems			See website for more details.
	Climate Science and Electronic Systems			Electronics and Computer Science			

Courses in **bold** are required for a minor.

Physics with Education

A major in Physics/Electronics requires 36 credits of advanced level (level 2 and level 3) courses.

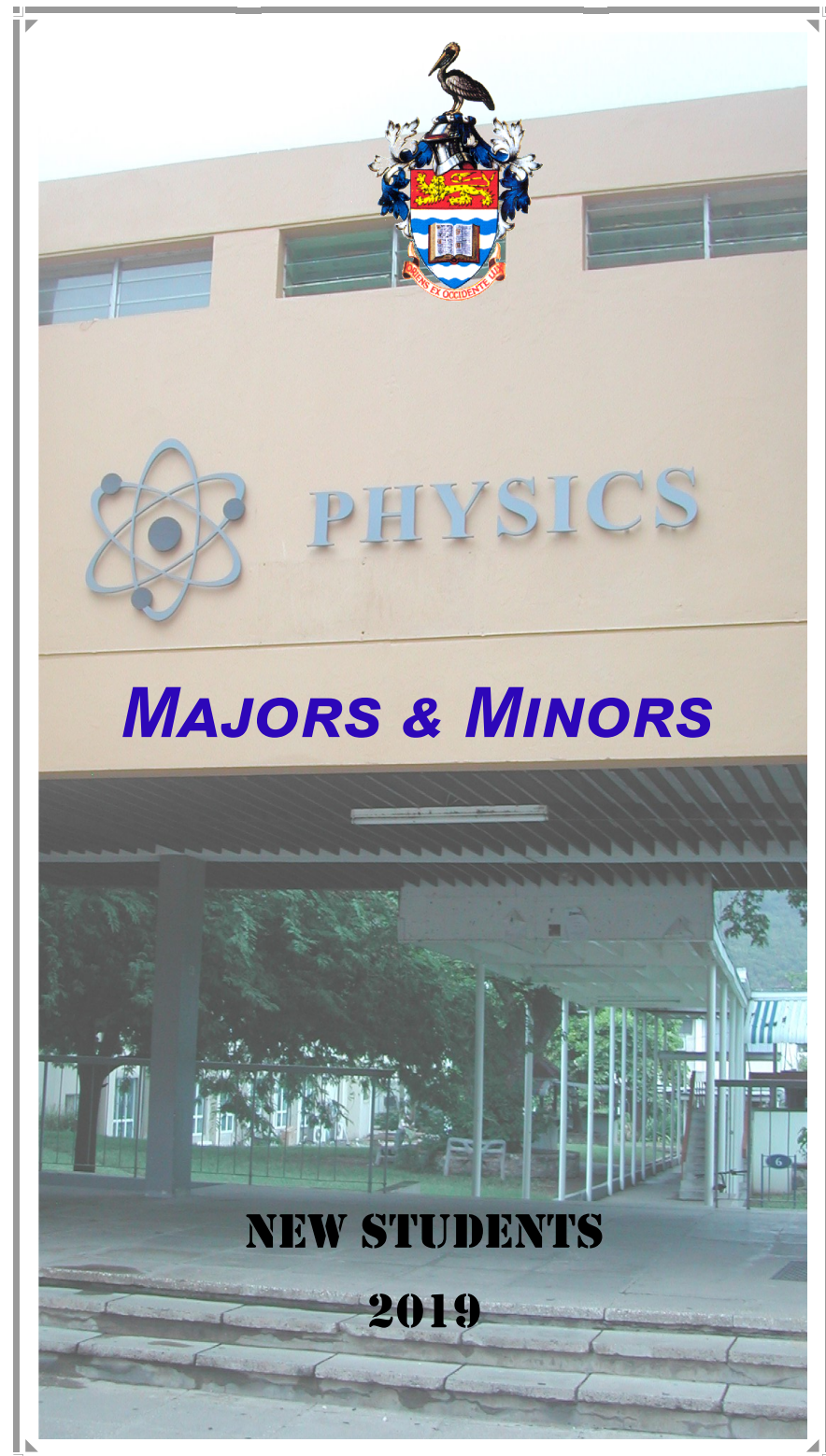
A minor in Physics/Electronics requires 18 credits of advanced level (level 2 and level 3) courses.

Additional Physics/Electronics courses may be needed to complete a major.

If pursuing a double major, a single advanced level course CANNOT count towards 2 majors. Therefore, due to overlapping core courses, a double major within the department MUST have Electives as one of the majors. Note well, ELET2420 is a core course for almost all non-electronics major, so it cannot be counted towards the Electronics major as a free elective.

The Mathematics courses listed are those required to complete Physics majors. For more information on Mathematics courses, please contact the Department on Mathematics. Students pursuing both MATH1142 and MATH1151 otherwise do not need to do MATH1185.

Contact us in the Department of Physics: (876)927-2480; (876)977-1595(Fax); <https://www.mona.uwi.edu/physics/>; Email: physics@uwimona.edu.jm



NEW STUDENTS

2019

Level	Course Code	Course Title	Pre-requisites	Co-requisites—*can be done prior to the course	Semester	Credits	
0	PHYS0411	Introduction to Mechanics	CXC Physics OR CSEC Physics OR GCE O-Level Physics		1	3-P	
0	PHYS0412	Introduction to Oscillations & Heat			1	3-P	
0	PHYS0421	Introduction to Electricity & Magnetism			2	3-P	
0	PHYS0422	Introduction to Nuclear Physics & Optics			2	3-P	
1	ECNG1009	Introduction to Programming	CAPE Physics (Units I & II) OR GCE A-Level Physics OR PHYS0411, PHYS0412, PHYS0421, PHYS0422 OR CXC Physics/CSEC Physics/GCE O-Level Physics and CAPE Mathematics (Units I & II)/GCE A-Level Mathematics/MATH0100, MATH0110		1	3	
1	ELET1405	Practices in Basic Electronics		ELET1500	2	3	
1	ELET1500	Electrical Circuit Analysis			2	3	
1	PHYS1411	Mechanics			1	3	
1	PHYS1412	Waves, Optics & Thermodynamics			1	3	
1	PHYS1421	Electricity & Magnetism			2	3	
1	PHYS1422	Modern Physics			2	3	
2	ECNG2009	Control Systems		ELET1500, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		2	3
2	ELET2210*	Speech Processing (* also coded as COMP2802)	ELET2460, COMP1126 and COMP1127				
2	ELET2405	Practices in Electronics Design I	ELET1500, ELET1405	Level 2 Electronics or Electronics Engineering course	1	3	
2	ELET2410	Analysis and Design of Analog Circuits	ELET1500, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		2	3	
2	ELET2415	Practices in Electronics Design II	ELET1500, ELET1405	Level 2 Electronics or Electronics Engineering course	2	3	
2	ELET2420	Semiconductor Devices	ELET1500, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		2	3	
2	ELET2450	Embedded Systems			1	3	
2	ELET2460	Signals & Systems			1	3	
2	ELET2530	Digital Circuits and Systems			1	3	
2	ELET2570	Microprocessors			1	3	
2	ELET2480	Communication Systems			2	3	
2	PHYS2200	Practices in Medical Physics 1					
2	PHYS2296	Physics of the Human Body	PHYS1411, PHYS1412, PHYS1421, PHYS1422	PHYS2296	2	3	
2	PHYS2300	General Physics Lab I		PHYS2351, PHYS2386	1	3	
2	PHYS2351	Quantum Mechanics and Nuclear Physics		MATH1185	1	3	
2	PHYS2386	Electromagnetism & Optics			1	3	
2	PHYS2396	Computer Applications in Physics			1, 2	3	
2	PHYS2500	Materials Science Lab I		PHYS2561	2	3	
2	PHYS2561	Fundamentals of Materials Science		PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Chemistry/CAPE Chemistry (Units I & II)/CHEM0901, CHEM0902		2	3
2	PHYS2600	Fluid Dynamics and Environmental Physics Lab		PHYS1411, PHYS1412, PHYS1421, PHYS1422	PHYS2671	2	3
2	PHYS2671	Fluid Dynamics			1, 2	3	
1	PHYS2701	Essentials of Renewable Energy Technologies and Solutions	NONE				
3	ELNG3030	Power Electronics and Protection Circuits	ELET1500, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		1	3	
3	ELET3405	Practical Analysis of Advanced Electronic Circuits and Systems	ELET2405, ELET2415		1	3	
3	ELET3430	Instrumentation and Measurements	ELET2410, ELET2430		1	3	
3	ELET3440	Introduction to Robotics	ELET2430, ELET2450		2	3	
3	ELET3450	Satellite Communication & Global Navigation Satellite Systems	ELET2480		2	3	
3	ELET3460	Digital Signal and Image Processing	ELET2460		2	3	
3	ELET3470	Wave Transmission & Fibre Optics	ELET2480		1	3	
3	ELET3480	Wireless Communication Systems			1	3	
3	ELET3490	Electronics Research Project	ELET2410 OR ELET2450		1, 2	4	
3	ELET3600	Energy Systems Laboratory	PHYS3671, PHYS3681	ELET3611	1	3	
3	ELET3611	Integrating Alternative Energy	ELET2420	PHYS3671, PHYS3681	2	3	
3	PHYS3200	Advanced General Physics Lab	PHYS2300	PHYS3351, PHYS3386	2	3	
3	PHYS3300	Advanced Practices in Medical Physics	PHYS2200		1	3	
3	PHYS3341	Biomedical Optics and Biomechanics	PHYS2296		1	3	
3	PHYS3351	Modern Physics 2	PHYS2351		2	3	
3	PHYS3386	Electromagnetism	ELET2480 OR PHYS2386		1, 2	3	
3	PHYS3389	Medical Radiation Physics & Imaging	PHYS2296		2	3	
3	PHYS3395	Astronomy & Cosmology	PHYS1411, PHYS1412, PHYS1421, PHYS1422		2	3	
3	PHYS3399	Research Project (Non-Electronics)	Head of Department's Permission		1, 2	4	
2 / Sum	PHYS3400	Physics In Practice Internship	At least B in PHYS2386 or ELET2470				
3	PHYS3500	Advanced Materials Science Laboratory	PHYS2500		1	3	
3	PHYS3561	The Physics of Crystalline Materials	PHYS2561		2	3	
3	PHYS3562	The Physics of Non-Crystalline and Amorphous Materials			1	3	
3	PHYS3565	Thermodynamics and Kinetics of Materials			2	3	
3	PHYS3661	Physics of the Atmosphere & Climate		PHYS1411, PHYS1412, PHYS1421, PHYS1422		2	3
3	PHYS3671	Solar Power	PHYS3661		1	3	
3	PHYS3681	Wind & Hydro Power	PHYS2671, PHYS3661		2	3	
2	PHYS3701	Advanced Renewable Energy Technologies and Solutions	PHYS2701				
1	MATH1141	Introduction to Linear Algebra & Analytic Geometry	GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		1	3	
1	MATH1185	Mathematics for Scientists & Engineers			1	3	
2	MATH2230	Engineering Mathematics II		MATH1185, MATH1141		1	3