

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 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	MATH1141 MATH1185 PHYS1411 PHYS1412	ELET 1400 PHYS1421 PHYS1422	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 PHYS1411 PHYS1412	ELET 1400 PHYS1421 PHYS1422	PHYS2300 PHYS2351 PHYS2671	ELET2420 PHYS2600 PHYS3661	ELET3600 PHYS2386 PHYS3671	ELET3611 PHYS2396 PHYS3681	
MEDICAL PHYSICS	MATH1141 MATH1185 PHYS1411 PHYS1412	ELET 1400 PHYS1421 PHYS1422	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	MATH1141 MATH1185 PHYS1411 PHYS1412	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	ELET 1400 ELET1405 PHYS1421 PHYS1422	ELET2405 ELET2430 ELET2470	ELET2410 ELET2415	ELET3405	ELET3490	Any 5 of the following Level 2 or 3 ELET course

There are two streams that some electronics students choose to "specialise" in. These are Telecommunications and Robotics & Instrumentation. There are some courses that need to be done in any of these streams and they are listed below. Please note that these are suggestions and are not meant to restrict your choice of courses or course combinations.

<u>TELECOMMUNICATIONS</u>	MATH1141 MATH1185 PHYS1411 PHYS1412	ELET 1400 ELET1405 PHYS1421 PHYS1422	ELET2405 ELET2430 ELET2450 ELET2460	ELET2410 ELET2415 ELET2480	ELET2470 ELET3405 ELET3470 ELET3480	ELET3450 ELET3460 ELET3490	
<u>ROBOTICS AND INSTRUMENTATION</u>	MATH1141 MATH1185 PHYS1411 PHYS1412	ELET 1400 ELET1405 PHYS1421 PHYS1422	ELET2405 ELET2430 ELET2450 ELET2460	ELET2410 ELET2415 ELET2480	ELET2470 ELET3405 ELET3430 ELET3480	ELET3440 ELET3490	

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

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

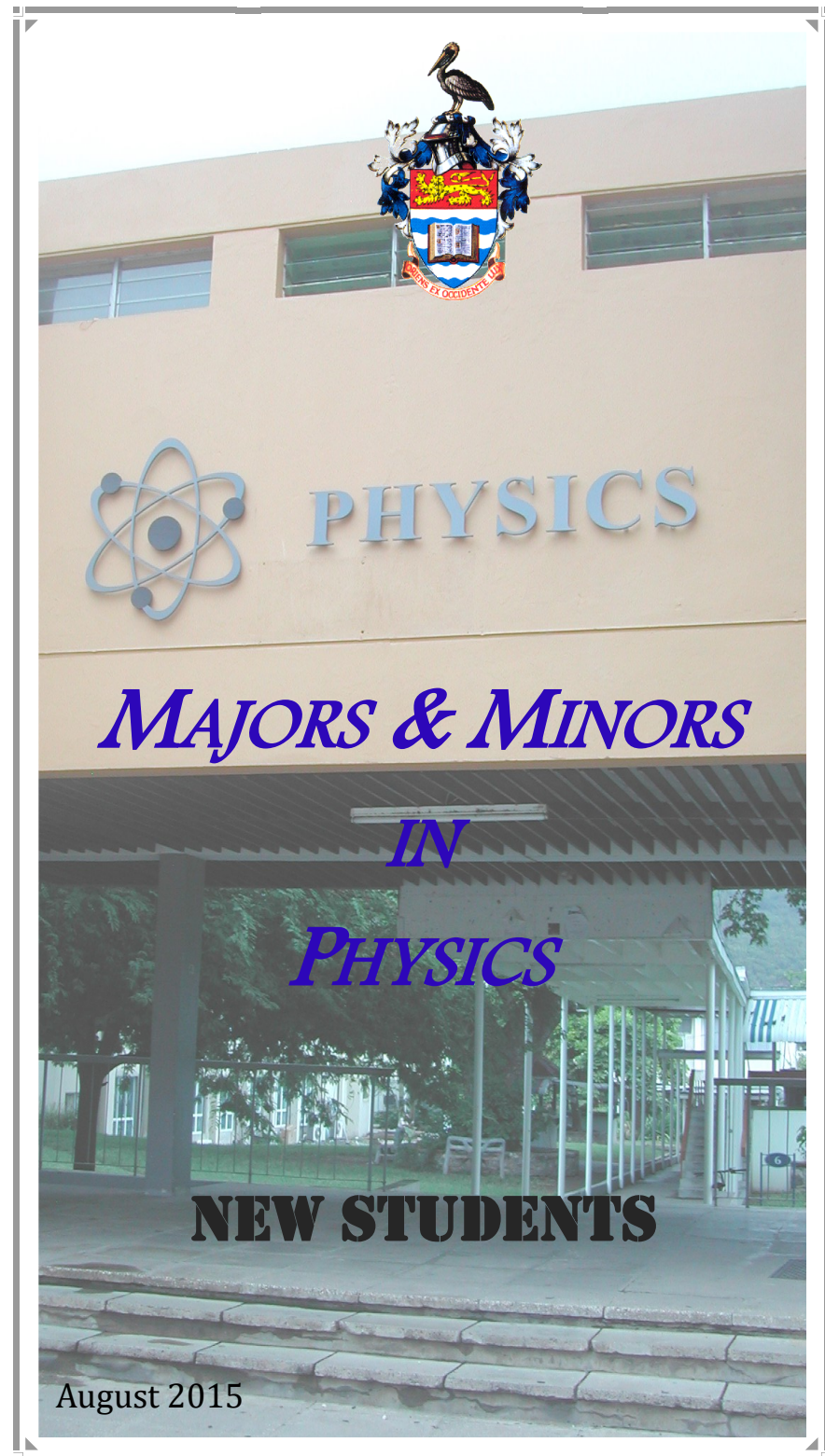
A minor in Physics/Electronics requires 18 credits of advanced level (level 2 and level 3) courses.

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 Electronics 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); www.myspot.mona.uwi.edu/physics; Email: physics@uwimona.edu.jm



Physics Courses

Level	Course Code	Course Title	Pre-requisites	Co-requisites	Semester	Credits
				<i>*can be done prior to the course</i>		
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	ELET1400	Introduction to Electronics	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, 2	3
1	ELET1405	Practices in Basic Electronics		ELET1400	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	ELET2405	Practices in Electronics Design I	ELET1400, ELET1405	Level 2 Electronics or Electronics Engineering course	1	3
2	ELET2410	Analysis and Design of Analog Circuits	ELET1400, 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	ELET1400, ELET1405	Level 2 Electronics or Electronics Engineering course	2	3
2	ELET2420	Semiconductor Devices	ELET1400, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		2	3
2	ELET2430	Digital Circuits & Microprocessors	ELET1400, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		1	3
2	ELET2450	Embedded Systems	ELET1400, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		1	3
2	ELET2460	Signals & Systems	ELET1400, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		1	3
2	ELET2470	Electric Circuit Analysis	ELET1400, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		1	3
2	ELET2480	Communication Systems	ELET1400, PHYS1411, PHYS1412, PHYS1421, PHYS1422, GCE A-Level Mathematics OR CAPE Mathematics (Units I & II) OR MATH0100, MATH0110		2	3
2	PHYS2200	Practices in Medical Physics 1	PHYS1411, PHYS1412, PHYS1421, PHYS1422	PHYS2296	2	3
2	PHYS2296	Physics of the Human Body	PHYS1411, PHYS1412, PHYS1421, PHYS1422		2	3
2	PHYS2300	General Physics Lab I	PHYS1411, PHYS1412, PHYS1421, PHYS1422	PHYS2351, PHYS2386	1	3
2	PHYS2351	Quantum Mechanics and Nuclear Physics	PHYS1411, PHYS1412, PHYS1421, PHYS1422	MATH1185	1	3
2	PHYS2386	Electromagnetism & Optics	PHYS1411, PHYS1412, PHYS1421, PHYS1422		1	3
2	PHYS2396	Computer Applications in Physics	PHYS1411, PHYS1412, PHYS1421, PHYS1422		1, 2	3
2	PHYS2500	Materials Science Lab I	PHYS1411, PHYS1412, PHYS1421, PHYS1422	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	PHYS1411, PHYS1412, PHYS1421, PHYS1422		1, 2	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	ELET2480		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
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	PHYS2561		1	3
3	PHYS3565	Thermodynamics and Kinetics of Materials	PHYS2561		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
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