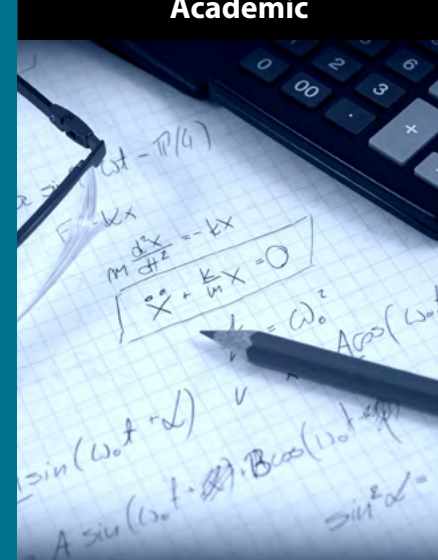



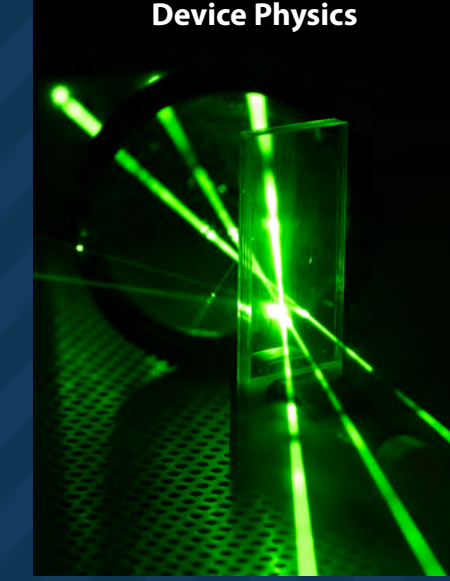
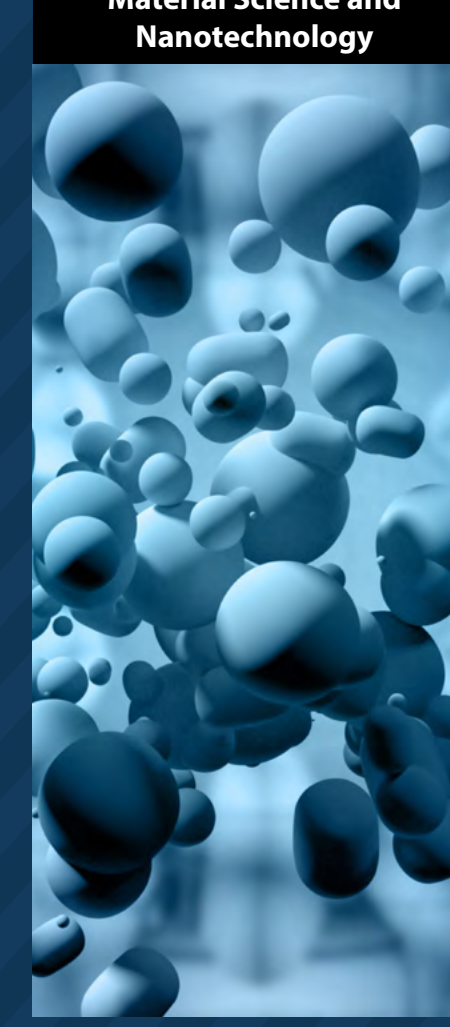
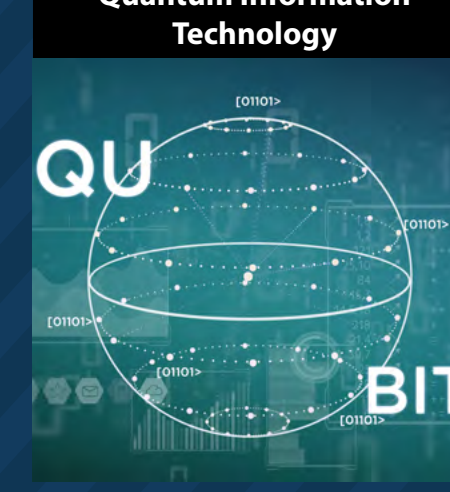



What can I do with a PHYSICS Major?

Career	Description – What do they actually do?	Areas of Employment	Degree Name	Duration	Campus Location	Entry Requirement	Point Range	CAO Code
	Physics Academics lecture students and supervise undergraduate and postgraduate internship and research work. They keep abreast of developments in the field by reading current literature, sharing ideas with colleagues, and participating in professional conferences. A Physics Academic performs the following activities: • Supervise student research or internship work. • Stay informed about current developments in field of specialisation. • Attend training sessions or professional meetings to develop or maintain professional knowledge. • Research topics in area of expertise. • Write articles, books or other original materials in area of expertise.	• National and International Universities, Colleges and Schools • National and International Research centres • MERAKA Institute (CSIR)	BSc Mathematics and Physical Science Stream	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	PMB WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies required to PhD level for Academic Professions	30-48	KN-P-B53 KN-W-B53
	Atmospheric Physics is a branch of meteorology and is related to climatology. Atmospheric physicists use mathematical and physical models to study and understand the earth's atmosphere and its weather systems. For example, they apply the theory of fluid dynamics to atmospheric tides. They also use data collected by satellites, meteorological radar and research aircrafts to explore the layers of the atmosphere, weather systems and climatic phenomena like thunderstorms. Atmospheric physicists are usually employed at universities or national labs.	• South African National Space Agency (SANSA) • South African Astronomical Observatory • The Hartebeesthoek Radio Astronomy Observatory • Nuclear Energy Corporation of South Africa (NECSA) • South African Weather Service • National and International Universities, Colleges and Schools • National Institute of Meteorology (NIMS) • Modelling and Digital Sciences (CSIR)	BSc Mathematics and Physical Science Stream	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	PMB WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies to PhD level might be required	30-48	KN-P-B53 KN-W-B53
	Biomedical Physicists use a variety of analytical, computer-aided and bioengineering techniques in their work such as radiotherapy, x-ray imaging, ultrasound, tomography, radiology, nuclear magnetic resonance imaging and lasers. They work with patients and with a wide range of medical, technical and administrative staff. Typical responsibilities of the job include: • Researching, developing and evaluating new analytical techniques. • Planning and ensuring safe and accurate treatment of patients. • Providing advice about radiation protection. • Training and updating healthcare, scientific and technical staff. • Managing radiotherapy quality assurance programmes.	• National and International Universities, Colleges and Schools • National and International Research centres • iThemba LABS • Johnson Matthey (Technology Centre) • CSIR, Nanotech, Materials and Manufacturing • MERAKA Institute (CSIR) • McKinsey South Africa • Arthur Anderson South Africa	BSc Mathematics and Physical Science Stream	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	PMB WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies to PhD level might be required	30-48	KN-P-B53 KN-W-B53
	Computational Physicists study physics and computer science. They spend time doing research in fundamental mathematics and developing computer models of physical processes or phenomena in order to find scientific solutions to incredibly complex problems. Computational Physicists' work revolves around physics, computer science, maths, and theories about how systems react to each other.	• Research (e.g. Computational solid state physics, particle physics, cosmology, fluid dynamics, etc) • Information technology industry • Financial industry • Students with good fundamental skills in computer code development are also starting up their own IT companies	BSc Mathematics and Physical Science Stream	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	PMB WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies to PhD level might be required	30-48	KN-P-B53 KN-W-B53

Career	Description – What do they actually do?	Areas of Employment	Degree Name	Duration	Campus Location	Entry Requirement	Point Range	CAO Code
	Device Physics deals with the fabrications of electronic and photonic devices with a focus on searching for new methods and materials to improve the performance of devices. Particular emphasis is given to solution processable organic electronic devices or organic-inorganic hybrid molecules based electronic devices. This involves the understanding of the functions of devices such as photovoltaics, light emitting diodes and transistors.	• Electronic device companies • CSIR, Nanotech, Materials and Manufacturing • MERAKA Institute (CSIR) • Fraunhofer • ASEA Brown Boveri (ABB)	BSc Mathematics and Physical Science Stream	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	PMB WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies required to PhD level for Academic Professions	30-48	KN-P-B53 KN-W-B53
	Material Science is a multi-disciplinary science that mainly involves physics, chemistry and engineering. Material Science deals with the fundamental understanding of the properties of materials and their applications. While materials scientists also conduct lab tests, they utilise the results to create sample parts for manufacturing processes. The goal is to reduce manufacturing costs, while at the same time streamlining the process. Nanotechnology is a branch of Material Science. Nanotechnologists manipulate matter on the nanoscale (one billionth of a metre) to develop new materials and equipment as well as drugs and diagnostic tools. Nanotechnology encompasses science, physics, chemistry, biology and computer science. Their work involves designing and conducting experiments based around observing Nano-scale systems (either organic or inorganic) in their given field, often with the aid of other researchers across several disciplines.	• South African Bureau of Standards (SABS) • Researcher in Optoelectronic device industries. • Quality control Engineers in electronic device assembly • Mining Industry • General Electric South Africa • National and International Universities, Colleges and Schools • National and International Research centres such as iThemba LABS, Johnson Matthey (Technology Centre) • CSIR, Nanotech, Materials and Manufacturing • MERAKA Institute (CSIR) • Fraunhofer • ASEA Brown Boveri (ABB) • South African National Space Agency (SANSA)	BSc Mathematics and Physical Science Stream	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	PMB WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies to PhD level might be required	30-48	KN-P-B53 KN-W-B53
	The integration of quantum physics and information technology has created a new field in quantum information technology (QIT). Quantum physics has a growing influence on sensor technology, especially in the areas of quantum computer science, quantum communications and quantum sensing. Some examples of QIT in use, are Quantum Cryptosystems that provide guaranteed secure communication and Quantum Computers, which manipulate data quantum mechanically and could thus solve some problems currently encountered by conventional computation programming.	• Banking Institutes • Medical facilities • Research Institutes • Insurance companies • Universities	BSc Mathematics and Physical Science Stream	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies to PhD level might be required	30-48	KN-W-B53
	Theoretical Physicists study theoretical areas like subatomic particles to the evolution of the entire universe. They spend time researching theories with the aim of increasing the scientific knowledge base. Their work sometimes attempts to describe the results of experiments that have not yet been explained. Theoretical Physicists also work to predict the properties of substances and materials. To conduct theoretical physicist research, scientists often use high-tech equipment such as lasers, electron microscopes and particle accelerators.	• South African National Space Agency (SANSA) • South African Astronomical Observatory • South African Bureau of Standards (SABS) • General Electric South Africa • National and International Universities, Colleges and Schools	BSc Mathematics and Physical Science Stream (with modules in Condensed Matter Physics, Quantum Mechanics, Statistical Mechanics, Nuclear Physics & Particle Physics)	Undergraduate degree (3 years) followed by Postgraduate degree (total years of study between 7 – 10 years)	PMB WST	NSC Deg with Math level 5 & English & LO level 4 and either Agric Sci or Life Sci or Phys Sci level 4 Further Postgraduate studies to PhD level might be required	30-48	KN-P-B53 KN-W-B53



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