



Degree Level Bachelor's Grad.Dip. Master's Higher Grad.Dip. Doctoral
TQF2 Bachelor of Science Program in Physics (International Program)

Mahidol University International College
Science Division

แบบรายงานข้อมูลหลักสูตร
MU Degree Profile
Bachelor of Science Program in Physics
(International Program)

1. Curriculum Name		
Thai	วิทยาศาสตร์บัณฑิต สาขาวิชาฟิสิกส์ (หลักสูตรนานาชาติ)	
English	Bachelor of Science in Physics (International Program)	
2. Degree Title		
Full Title	Thai	วิทยาศาสตรบัณฑิต (ฟิสิกส์)
	English	Bachelor of Science (Physics)
Abbreviated	Thai	วท.บ. (ฟิสิกส์)
	English	B.Sc. (Physics)
3. Program Overview		
Curriculum type/ model	Bachelor's Degree (International program)	
Required Credits	At least 174 credits	
Duration	Four year Program	
Status	Under progress	
Degrees offered to the graduate	B.Sc. (Physics)	
Venue to conduct the study	Mahidol University International College, Salaya Campus	
Organization certifying the standard of the program	-	



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4. Specific Data of the curriculum	
Purpose/Goals/Objective	<p>Goals: To produce graduates with Physics skills and work ethics suitable up to and beyond as specified in Thai Qualification Framework (TQF) 1.</p> <p>Objectives: To produce graduates who are able to-</p> <ol style="list-style-type: none"> 1) Work for local and global employment, or pursue higher degree in Physics industry or other fields, such as medicine, engineering, finance. 2) Think critically and solve problems related to scientific applications, and understand the associated underlying theoretical principles. 3) Design and conduct research scientifically and ethically to solve problem in real-life situations.
Distinctive Features	<ol style="list-style-type: none"> 1) International college provides a small class size which enhances learning experience via discussion and group study. 2) The program offers classes that emphasize on hands-on projects where students can develop various research skills. 3) International college also provides liberal arts education aiming to produce graduates who are well-rounded in science, language, literature, arts, and philosophy. 4) The program offers elective course tracks for students who want to specialize in the fields of astrophysics, and computational physics. 5) Students can choose to do minor in various fields.



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Academic system	In class study, trimester system.
5. Advance paths of the graduates	<ol style="list-style-type: none"> 1) Scientists, researchers, developers in research institute, consultants working in technology, medicine, finance, or government sector. 2) Graduate study in physics, astrophysics, material science, engineering. 3) Innovative business start-up entrepreneurs in technological products.
6. Educational Management System	
Philosophy	<p>Mahidol University International College's graduates in Physics are well equipped with skills and basic knowledge in Physics (<u>T-Shaped Breadth and depth</u>), capable of integrating the gained knowledge and applying it fruitfully, and can choose several elective tracks in integrated physics of their interest to work (<u>Globally talented</u>). They are interested in continuously learning and developing (<u>Entrepreneurially minded</u>) their academic knowledge, through processes of scientific investigation in real world contexts, with morality and professional ethics in their mind (<u>socially contributing</u>).</p>
Curriculum strategy and implementation	<ol style="list-style-type: none"> 1) In class lecture with multimedia usage for teaching basic concepts. Student will be given weekly assignments to work by themselves and as a group. 2) Help room by teaching assistants and office hours by instructors for students who need advice for class materials.



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	<ol style="list-style-type: none"> 3) Advisors will encourage students to participate in summer research projects cooperated with outside institutes to enhance working experience. 4) The program will organize field trips to research institutes (for examples, NIMT, NARIT, Synchrotron lab) and invite guest speakers for seminars to broaden students' understanding of the work in the field.
<p>Evaluation</p>	<ol style="list-style-type: none"> 1) Assignments, reports, and Exams will be used to assess students' progress in class along with class participation and attendance. 2) Advisors' observation and discussion with students to ensure students' development as scholars. 3) Senior Project demonstration will be used for evaluating students' overall achievement as graduates. <p>Students are encouraged to create their portfolios to use as self-evaluation.</p>
<p>7. Program Competency</p>	
<p>Generic Competencies</p>	<ul style="list-style-type: none"> - English Communication: Use academic writing skills to express opinion; apply critical and creative thinking through English communication; and develop a voice in written and spoken English that can be adapted to different audiences - Life appreciation: Demonstrate the ability to recognize, respect, and value diverse experiences for a healthy life - Critical thinking: Apply critical thinking to construct well-reasoned solutions or conclusions - Global citizenship: Examine the current state of the world and the connection between local and global issues



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	<p>- Leadership: Demonstrate the ability to take initiatives that bring about change for the well-being of the community</p> <p>- Digital literacy: Demonstrate the ability to use digital technology to manage communicate, and stimulate knowledge and reasoning</p>
Subject-specific competencies	<ol style="list-style-type: none"> 1) Knowledge in 4 mains physics branches (Mechanics, Electromagnetism, Thermodynamics, and Quantum Mechanics. 2) Ability to employ mathematical methods, analytically and numerically, to explain natural phenomena.
8. Program Learning Outcome	
At the end of this program, successful students will be able to	
PLO1	Apply knowledge to solve physics problems in four mains physics branches: 1) classical mechanics 2) quantum mechanics, 3) electromagnetism, and 4) thermodynamics and statistical mechanics.
PLO2	Judge the validity and credibility of scientific information and arguments from sources such as news articles, social media, magazines, and scientific literature.
PLO3	Demonstrate proficiency in oral and written communication of scientific concepts toward colleagues.
PLO4	Use scientific integrity and professionalism in collaboration, research methodology, and publication suitable for academic environment.
PLO5	Conduct experiments independently to answer or provide solutions to real-life situations.