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Doctor of Philosophy Programme in Physics (International Programme)

หลักสูตร ปรัชญาดุษฎีบัณฑิต

สาขาวิชา ฟิสิกส์ (หลักสูตรนานาชาติ) (ภาคปกติ)

Faculty of Science

Department of Physics

คณะวิทยาศาสตร์

ภาควิชา ฟิสิกส์

Expected number of students to be accepted all year round : 15 Students

Admission Requirements

A candidate must:

1. Thai or foreign national without severe health difficulty.
2. Hold a Bachelor's degree in Physics, Chemistry or Mathematics with a minimum grade point average of 3.50 or have a Master's degree in Physics, Chemistry, Mathematics, Geology, General Science, Engineering or related fields with a minimum grade point average of 3.50.
3. Submit a certificate of English proficiency with minimum admission score:
 - IELTS - at least 3 or
 - TOEFL INTERNET BASED - at least 32 or
 - TOEFL ITP (test arranged by Faculty of Graduate Study, Mahidol University) - at least 400

Important Notes:

- English proficiency score must be taken within 2 years up to the admission date.
 - Application without submitting a valid English certificate will NOT be considered.
 - MU English Competence Standards: www.grad.mahidol.ac.th
 - MU English proficiency tests, please contact the Language Center, Faculty of Graduate Studies. Tel. 0-2441-4125 ext. 221-222
4. Exemption from the above conditions may be granted by the Programme Committee under exceptional circumstances.

Written Examination (Applicants must attend the examination date accurately to your admission round)

Subjects for examination	Time (Morning session)
1. Undergraduate level Physics	9.00 - 12.00 a.m.
Examination Place Mahidol University , Salaya , Nakhonpathom more details : www.grad.mahidol.ac.th	

Curriculum Structure

	credit
For students with Master's degree	
Required Courses	6
Elective Courses not less than	6
Dissertation	36
For students with Bachelor's degree	
Required Courses	21
Elective Courses not less than	3
Dissertation	48
	credit
Required Courses	
For students with Bachelor's degree	
SCPY 502 Classical Mechanics	3(3-0-6)
SCPY 503 Quantum Mechanics	3(3-0-6)
SCPY 504 Thermodynamics and Statistical Physics	3(3-0-6)
SCPY 505 Mathematical Methods for Physicists	3(3-0-6)
SCPY 507 Classical Electrodynamics	3(3-0-6)
SCPY 508 Contemporary Physics	3(3-0-6)
SCPY 593 Seminar III	1(1-0-2)
SCPY 594 Seminar IV	1(1-0-2)
SCPY 595 Seminar V	1(1-0-2)
For students with Master's degree	
SCPY 508 Contemporary Physics	3(3-0-6)
SCPY 593 Seminar III	1(1-0-2)
SCPY 594 Seminar IV	1(1-0-2)
SCPY 595 Seminar V	1(1-0-2)
Elective Courses	
SCPY 511 Atomic and Molecular Physics	3(3-0-6)
SCPY 512 Celestial Mechanics	3(3-0-6)
SCPY 513 Computational Physics	3(3-0-6)
SCPY 515 Electrical Materials	3(3-0-6)
SCPY 516 Electronic Devices and Circuits	3(3-0-6)
SCPY 517 Fluid Mechanics	3(3-0-6)
SCPY 518 Numerical Analysis	3(3-0-6)
SCPY 519 Nuclear Physics	3(3-0-6)
SCPY 521 Physics of Semiconductor	3(3-0-6)
SCPY 522 Advanced Quantum Mechanics	3(3-0-6)
SCPY 523 Classical Field Theory	3(3-0-6)
SCPY 524 Fourier Optics	3(3-0-6)
SCPY 531 Cosmic Rays	3(3-0-6)

SCPY 543	Surface and Interface Physics	3(3-0-6)
SCPY 561	Fundamentals of Biophysics	3(3-0-6)
SCPY 562	Modeling and Simulation in Biophysics	3(3-0-6)
SCPY 570	Signal and Image Processing	3(3-0-6)
SCPY 571	Parallel Programming	3(3-0-6)
SCPY 572	Geophysical Prospecting: Theory and Applications	3(3-0-6)
SCPY 573	Geophysical Prospecting: Data Acquisition and Interpretation	3(3-0-6)
SCPY 619	Quantum Theory	3(3-0-6)
SCPY 620	Non-Perturbative Methods in Quantum Field Theory	3(3-0-6)
SCPY 621	Super symmetry in Field Theory and String	3(3-0-6)
SCPY 622	Quantum Optics	3(3-0-6)
SCPY 623	Quantum Information and calculation	3(3-0-6)
SCPY 624	Quantum keys and communication	3(3-0-6)
SCPY 625	Quantum Theory and Applied Quantum Information in Economy	3(3-0-6)
SCPY 626	Physics Education	3(3-0-6)
SCPY 627	Data Analysis in Physics Education	3(3-0-6)
SCPY 629	Special Topics in Physics Education	1(1-0-2)
SCPY 630	Physics of The Solid Earth	3(3-0-6)
SCPY 635	Geology for Physicists	3(3-0-6)
SCPY 636	Optoelectronics	3(3-0-6)
SCPY 637	Molecular Simulation	3(3-0-6)
SCPY 638	Molecular Quantum Mechanics	3(3-0-6)
SCPY 639	Quantum Field Theory	3(3-0-6)
SCPY 640	Theory of Many-Particle Systems	3(3-0-6)
SCPY 641	Astrophysics	3(3-0-6)
SCPY 642	Diffraction Technique	3(3-0-6)
SCPY 643	Thin Film Physics and Technology	3(3-0-6)
SCPY 644	Selected Topics in Thin Film and Surface Physics	3(3-0-6)
SCPY 645	Laser Theory	3(3-0-6)
SCPY 646	Fractals and Chaos	3(3-0-6)
SCPY 647	Nonlinear Waves	3(3-0-6)
SCPY 648	Computational Nonlinear Phenomena	3(3-0-6)
SCPY 649	Plasma Physics	3(3-0-6)
SCPY 650	Technologies and Applications	3(3-0-6)
SCPY 651	Semiconductor Devices	3(3-0-6)
SCPY 652	Superconductivity	3(3-0-6)
SCPY 653	Methods Special in Theoretical Superconductivity	3(3-0-6)
SCPY 654	Radio Astronomy	3(3-0-6)
SCPY 656	Selected Topics in Condensed Matter Physics	3(3-0-6)
SCPY 660	Special Topics in Laser Applications	3(3-0-6)
SCPY 661	Special Topics in Applied Physics I	3(3-0-6)

SCPY 662	Special Topics in Applied Physics II	3(3-0-6)
SCPY 663	Special Topics in Physics I	3(3-0-6)
SCPY 664	Special Topics in Physics II	3(3-0-6)
SCPY 665	Special Topics in Physics III	3(3-0-6)
SCPY 666	Special Topics in Nonlinear Phenomena	3(3-0-6)
SCPY 667	Special Topics in Astronomy	3(3-0-6)
SCPY 668	Contemporary Biophysics	3(3-0-6)
SCPY 670	Inverse Theory and Applications	3(3-0-6)
SCPY 671	Exploration Seismology	3(3-0-6)
SCPY 672	Geophysical Forward Modeling and Inversion	3(3-0-6)
SCPY 684	Selected Topics in Geophysics	3(3-0-6)
Dissertation		
SCPY 699	Dissertation	36(0-108-0)
SCPY 799	Dissertation	48(0-144-0)
* These May Change in Cases Where There are Suggestions for The Improvement he Curriculum		

Details of Scholarships

1. Scholarship of the 60th Year Supreme Reign of His Majesty King Bhumibol Adulyadej.
2. Science Achievement scholarship of Thailand. (ทุนเรียนดีวิทยาศาสตร์แห่งประเทศไทย)
3. Institutional Strengthening Program (ทุนเสริมสร้างนักวิทยาศาสตร์รุ่นใหม่)
4. Teaching Assistantship Development (ทุนพัฒนาผู้ช่วยสอน)

Additional Information for Applicants

There are several research field of interest as can be seen on our website.

Application Process

Application is only available via online application at www.grad.mahidol.ac.th.

Required Documents

Applicants must upload all documents via online admission system. All documents must be in PDF format (maximum size 2 MB). Photograph must be in JPEG format.

- Recent photographs (1x1 inch in size)
- A copy of an applicant's degree certificate or a letter of graduation certification (for an applicant with a degree completion)
- A letter certifying that an applicant is currently in the final year prior to graduation (for an applicant seeking for a degree)
- A detailed transcript of a degree (for an applicant with a degree completion)
- A grade report with course names and grades received from the first to the current semester prior to graduation
- A copy of identification card
- A copy of house registration certification

- A copy of Certificate of English proficiency : IELTS / TOEFL INTERNET BASED / TOEFL ITP
- A copy of proof of payment.

Job option after graduation

1. Research and academic positions in private sectors, government offices and universities.
2. Industrial segments in Applied Physics.
3. SME Businesses in Applied Physics.

Further information may be obtained from Director of Graduate Studies, Physics:

1. **Assoc. Prof. Dr. Weerachai Siripunvaraporn** (E-mail : weerachai.sir@mahidol.ac.th)
Room P.407-A, Physics Building, Floor 4,
Department of Physics, Faculty of Science,
Tel. : 0 2201 5764 Fax. : 0 2354 7159
2. **Asst. Prof. Dr. Charin Modchang** (E-mail : charin.mod@mahidol.ac.th)
Room P.608, Physics Building, Floor 6,
Department of Physics, Faculty of Science,
Tel. : 0 2201 5782 Fax. : 0 2354 7159

Program Coordinator

Miss Nipaporn Suwannawong (E-mail : bum_9577@hotmail.com)
Room P.605, Physics Building, Floor 6,
Department of Physics, Faculty of Science,
Tel. : 0 2201 5770 Fax. : 0 2354 7159

Note 1. For more education information : www.grad.mahidol.ac.th

For more Information please contact The Student Admission Section.
Tel . 0 2441 4125 ext. 208-210 , 0 2441 9129, E-mail : gradthai@mahidol.ac.th



Letter of Recommendation

for Admission to the Physics Graduate Program, Mahidol University

Please complete the form and return it directly to: Head of Ph.D. program

*Department of Physics, Faculty of Science
Mahidol University
272 Rama VI Rd., Ratchathewi
Bangkok 10400*

Applicant's name: _____

Part I: Evaluator's information

Title and name: _____

School or Business: _____

Address: _____

Telephone number: _____

E-mail address: _____

Part II: Please answer the following questions about the applicant.

How do you know the applicant? _____

How long have you known the applicant? _____

In terms of his or her academic ability, how does the applicant rank among other students in his or her group (e.g Top 10% of his or her class)?

Part III: *What qualifies this applicant for the graduate program at Mahidol University? Please explain. Please also give information about his or her past accomplishments, particularly in research.*

Evaluator's signature _____ Date _____

Note that Letter of Recommendation and Statement of Purpose should be returned as soon as possible to the program. Please submit the evaluation forms with your application.

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