



Fluid Physics M.Sc. Program

A. Basic Information

Program Title:	Fluid Physics M.Sc. Program
Program Type:	Single
Department:	Physics Department
Coordinator:	Ass. Prof. Dr. Salah Eed Hamza
Assistant Co-ordinator:	Non.
Date of specifications approval:	9/12/2015 (faculty member council meeting no. 390)

B. Professional Information

1. Program Aims

Fluid Physics M.Sc. Program is an academic program produced by Physics Department. It aims to:

- Understand new discipline of theoretical and experimental fluid physics as early on as possipl.
- Extending graduates awareness of fluid physical sciences and their related disciplines, applications.
- Develop graduates knowledge and skills necessary for independent learning and participate effectively in research activities or different areas of work.
- Participate effectively as a member or leader in teamwork recognize and respect the views and opinions of the others.
- Broadcasting the experience through effective interaction to enhance the performance of the profession and promote community development, keeping the ethics of scientific research.



2. Intended Learning Outcomes (ILO's)

a. Knowledge and Understanding

By the end of the fluid M.Sc. program graduates must be able to know and understand the followings:

- a.1 Theories, fundamentals and modern knowledge in fluid physics.
- a.2 The basics and ethics of the scientific research in fluid physics.
- a.3 Legal and ethical principles for professional practice in fluid physics.
- a.4 Principles and fundamentals of quality in professional practice in fluid physics.
- a.5 Knowledge related to the effects of professional practice on the environment and society and ways of development and preservation of the environment

b. Intellectual Skills

The graduate of fluid physics M.Sc. program should be able to:

- b.1 Analyze and evaluate the information in the field of fluid physics.
- b.2 Interpret and correlate data for solve problems in the field of fluid physics.
- b.3 Link between different types of information and data.
- b.4 Formulate scientific research in the field of fluid physics.
- b.5 Evaluate risks during the professional practice in the field of fluid physics, especially during laboratory works.
- b.6 Design experiments in the area of physical sciences and other related sciences.
- b.7 Planning and innovation for the development of performance in the field of fluid physics.
- b.8 Conduct dialog and discussion based on evidences and conclusions in the field of fluid sciences and other related sciences.

c. Professional and practical skills:

By the end of any program in M.Sc. in fluid physics graduate must be able to:

- c.1 Apply perfectly the bases and modern professional skills in fluid physics.
- c.2 Write and evaluate professional report in fluid physical sciences and other related sciences.
- c.3 Use instruments with accuracy in experimental data.
- c.4 Use of technological means to serve the professional practice.
- c.5 Plan to develop the professional practice and the performance of the co-workers during laboratory works.



d. General skills and transition:

By the end of program in M.Sc. in fluid physics graduate must be able to:

- d.1. Communicate effectively by different ways with other experts in the field of fluid physics and other close-related research branches in Egypt and abroad.
- d.2. Use different sources for information and knowledge.
- d.3. Self-evaluation and continuous learning.
- d.4. Teach others and evaluate their performance.
- d.5. Work in team effectively, and command teamwork during laboratory and office works.
- d.6. Lead scientific meeting and management time.

3- Academic standards of the program

The program outcomes are derived from the Egyptian National Academic Reference Standards (NARS) for postgraduate program published by the National Authority of Quality Assurance and Accreditation of Education in (2009).

4- Reference indices (Benchmarks)

The program outcomes are derived from the Egyptian National Academic Reference Standards (NARS) for postgraduate program published by the National Authority of Quality Assurance and Accreditation of Education in (2009).

5- Curriculum structure and contents of program

a- Program duration: 3-5 years.

b- Program structure:

- 15 optional credit hours.
- 24 credit hours for research and preparing the M.Sc. thesis.



c. Program Courses:

▪ Optional courses:

Code No.	Course Title	No. of hours		
		Lectures	Practical	Credit hours
The graduate studies (12 hours)				
601 Ph	Advanced Quantum Physics I	2	---	2
602 Ph	Electromagnetic Theory	2	---	2
603 Ph	Advanced Statistics	2	---	2
604 Ph	Mathematical Physics(1)	2	---	2
615 Ph	Fluid Physics	3	---	3
616 Ph	Continuum Mechanics	2	---	2
617 Ph	Computational Fluid Dynamics	2	---	2
627 Ph	Advanced Fluid Physics	3	---	3

628 Ph	Advanced Electronics	3	---	3
629 Ph	Advanced Solid State Physics	3	---	3
630 Ph	Advanced Molecular and Atomic Physics	3	---	3
631 Ph	Advanced Elementary Particles	3	---	3
632 Ph	Mathematical Physics(2)	3	---	3
633 Ph	Research Symposium	3	---	3
634 Ph	Biophysics	3	---	3
635 Ph	Theoretical Fluid	3	---	3
636 Ph	Fluid Structure	3	---	3
637 Ph	Advanced Plasma (1)	3	---	3
638 Ph	Advanced Plasma (2)	3	---	3
639 Ph	Advanced Laser (1)	3	---	3
640 Ph	Advanced Laser (2)	3	---	3
641 Ph	Physics of Fluids	3	---	3
642 Ph	Heat and Mass Transfer	3	---	3
643 Ph	Dynamics of Polymers I	3	---	3
644 Ph	Fluid Viscometers	3	---	3

24 credit hours for research and preparing the M.Sc. thesis

799 Ph	Master's thesis	24	-	24
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6- Contents of the Courses

See course specification forms

7- Methods and rules of evaluation of students in rolled in the program:

7.1 Optional courses evaluation:

Method of Assessment		Percent
1-	Final Oral Exam	20 %
2-	Final Term Examination	80 %
Total		100 %

7.2 Master Thesis evaluation:

7.2.1. The senior supervisor reports.

7.2.2. Individual Reports of the Judge Committee

(Three specialist professors including the senior supervisor).

7.2.3. The Public Discussion

7.2.4. The Common Report of the Judge Committee.

7.2.5. Department, Faculty and University Boards.

7.3 Assessment Recommendations:

7.3.1. The Judge Committee has to recommend one of the following:

7.3.2. Accepting the thesis as it is.

7.3.3. Accept the thesis and recommends awarding after correction performing.

7.3.4. Delaying awarding for maximum three months to perform corrections.

7.3.5. Re-displaying the thesis to the judge committee within limited period.

7.3.6. Rejecting the thesis at all.

8- Methods of program evaluation:

Samples	Tool
1- Senior Students	Questionnaire
2- Alumni	Questionnaire
3- External Evaluators	Reports
4- Stakeholders	Questionnaire, workshops, seminars, conferences

Coordinator: Ass. Prof. Dr. Salah Eed Hamza

Head of the Department: Prof. Dr. Mervat el-shaarawy

Date: 2015 / 2016



Laser Physics M.Sc. Program

A. Basic Information

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Program Type:	Single
Department:	Physics Department
Coordinator:	Ass. Prof. Dr. Salah Eed Hamza
Assistant Co-ordinator:	Non.
Date of specifications approval:	9/12/2015 (faculty member council meeting no. 390)

B. Professional Information

1. Program Aims

Laser Physics M.Sc. Program is an academic program produced by Physics Department. It aims to:

- Understand new discipline of theoretical and experimental laser physics as early on as possipl.
- Extending graduates awareness of laser physical sciences and their related disciplines, applications.
- Develop graduates knowledge and skills necessary for independent learning and participate effectively in research activities or different areas of work.
- Participate effectively as a member or leader in teamwork recognize and respect the views and opinions of the others.
- Broadcasting the experience through effective interaction to enhance the performance of the profession and promote community development, keeping the ethics of scientific research.



2. Intended Learning Outcomes (ILO's)

a. Knowledge and Understanding

By the end of the laser M.Sc. program graduates must be able to know and understand the followings:

- a.1 Theories, fundamentals and modern knowledge in laser physics.
- a.2 The basics and ethics of the scientific research in laser physics.
- a.3 Legal and ethical principles for professional practice in laser physics.
- a.4 Principles and fundamentals of quality in professional practice in laser physics.
- a.5 Knowledge related to the effects of professional practice on the environment and society and ways of development and preservation of the environment

b Intellectual Skills

The graduate of laser physics M.Sc. program should be able to:

- b.1 Analyze and evaluate the information in the field of laser physics.
- b.2 Interpret and correlate data for solve problems in the field of laser physics.
- b.3 Link between different types of information and data.
- b.4 Formulate scientific research in the field of laser physics.
- b.5 Evaluate risks during the professional practice in the field of laser physics, especially during laboratory works.
- b.6 Design experiments in the area of physical sciences and other related sciences.
- b.7 Planning and innovation for the development of performance in the field of laser physics.
- b.8 Conduct dialog and discussion based on evidences and conclusions in the field of laser sciences and other related sciences.

c. Professional and practical skills:

By the end of any program in M.Sc. in laser physics graduate must be able to:

- c.1 Apply perfectly the bases and modern professional skills in laser physics.
- c.2 Write and evaluate professional report in laser physical sciences and other related sciences.
- c.3 Use instruments with accuracy in experimental data.
- c.4 Use of technological means to serve the professional practice.
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d. General skills and transition:

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604 Ph	Mathematical Physics(1)	2	---	2
618 Ph	Laser Physics	3	---	3
619 Ph	Laser Spectra	2	---	2
620 Ph	Absorption and Emission Spectra	2	---	2
627 Ph	Advanced Nuclear Physics	3	---	3

628 Ph	Advanced Electronics	3	---	3
629 Ph	Advanced Solid State Physics	3	---	3
630 Ph	Advanced Molecular and Atomic Physics	3	---	3
631 Ph	Advanced Elementary Particles	3	---	3
632 Ph	Mathematical Physics(2)	3	---	3
633 Ph	Research Symposium	3	---	3
634 Ph	Biophysics	3	---	3
635 Ph	Theoretical Nuclear	3	---	3
636 Ph	Nuclear Structure	3	---	3
637 Ph	Advanced Plasma (1)	3	---	3
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Coordinator:

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Date: 2015 / 2016