

FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL

UGPC APPROVAL _____
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 CONFIRMED _____
 BANNER POSTED _____
 ONLINE _____
 MISC _____

DEPARTMENT NAME: PHYSICS

COLLEGE OF:
CHARLES E. SCHMIDT COLLEGE OF SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX _____ RAT _____ COURSE NUMBER 6701 _____ LAB CODE (L or C) _____

COMPLETE COURSE TITLE **Shielding and Commissioning**

EFFECTIVE DATE

(first term course will be offered)
SUMMER 2013

CREDITS: 3

TEXTBOOK INFORMATION: *Shielding Techniques*, Patton H. McGinley;
 User manuals: Eclipse, BrainLab, Oncentra, Variseed, Cyberknife, Tomotherapy
 American Association of Physicist in Medicine (AAPM), all TG reports: 106, NCRP 151, NCRP 147, NCRP 49.

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR X _____ PASS/FAIL _____ SATISFACTORY/UNSATISFACTORY _____

COURSE DESCRIPTION, NO MORE THAN 3 LINES: A course covering the science of opening a new radiation oncology center: covers shielding calculations, installing and running the acceptance testing of a linear accelerator, High dose rate brachytherapy remote afterloader, CT simulator and treatment planning systems. Commissioning of the treatment planning systems.

PREREQUISITES W/MINIMUM GRADE: *
Permission of the Instructor

COREQUISITES:

OTHER REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL):

PREREQUISITES, COREQUISITES & REGISTRATION CONTROLS SHOWN ABOVE WILL BE ENFORCED FOR ALL COURSE SECTIONS.

* DEFAULT MINIMUM GRADE IS D-.

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE:
FACULTY OR BOARD CERTIFIED MEDICAL PHYSICIST

Other departments, colleges that might be affected by the new course must be consulted. List entities that have been consulted and attach written comments from each. NA

Dr. Silvia Pella, DABR, Research Affiliate Associate Professor, misipela@comcast.net, 561-789-6642
Faculty Contact, Email, Complete Phone Number

SIGNATURES

SUPPORTING MATERIALS

<p>Approved by: Department Chair: College Curriculum Chair: College Dean: UGPC Chair: Dean of the Graduate College:</p>	<p>Date: _____ _____ _____ _____</p>	<p>Syllabus—must include all details as shown in the UGPC Guidelines. Written Consent—required from all departments affected. Go to: http://graduate.fau.edu/gpc/ to download this form and guidelines to fill out the form.</p>
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Email this form and syllabus to sfulks@fau.edu and egirjo@fau.edu one week **before** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website by committee members prior to the meeting.



Dr. Silvia Pella, PhD, DABR
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Charles E. Schmidt College of Science
Wellington Regional Cancer Center
Department of Physics
777 Glades Road, Boca Raton, FL, 33431

**Professional Master's of Science in Medical Physics (MSMP)
Course Syllabus**

1. **Course title/number, credit hours:** RAT 6701 Shielding and Commissioning (3 credit hours)
2. **Prerequisite:** None
3. **Course logistics:**
 - Term: Summer, Term 1
 - Offered on line
 - Location: SE 101, We 6:00 – 8:50 PM
4. **Instructor contact information:**
 - Instructor: Silvia Pella, Ph.D., DABR
 - Office: SE 110
 - Office hours: To be arranged
5. **Course description:**
 - A course covering the science of opening a new radiation oncology center: covers shielding calculations, installing and running the acceptance testing of a linear accelerator, High dose rate brachytherapy remote afterloader, CT simulator, and treatment planning systems. Also it will cover the commissioning of the treatment planning systems.
6. **Course objectives:**
 - At the end of this course the students should have a good understanding of the details in shielding calculations for a linear accelerator vault, HDR suite, and CT simulator, involving cost effective decisions while the radiation protection is ensured at a maximum level. At the same time the student will learn how to commission a treatment planning system, and the record and verify network.
7. **Course evaluation methods:** The letter grade is decided from:
 - Quizzes 10%
 - Tests 40%
 - Shielding calculations of a vault housing one type of radiation therapy unit 20%
 - Homework 10%
 - Study subject presentation 20%
 - Total 100%
8. **Course grading scale:**

Cumulative Performance	Grade
> 90%	A

85% - 90%	A-
80% - 85%	B+
75% - 80%	B
70% - 75%	B-
69 or less	F

9. Policy on makeup tests, late work, and incompletes:

If a student cannot attend an exam or hand in a homework project on time due to circumstances beyond their control then the instructor may assign appropriate make-up work. Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical and theatrical performances, and debate activities. These students will be allowed to make up missed work without any reduction in the student's final course grade. Reasonable accommodation will also be made for students participating in a religious observance. Also, note that grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. A grade of "I" will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU's University Catalog. The student must show exceptional circumstances why requirements cannot be met. A request for an incomplete grade has to be made in writing with supporting documentation, where appropriate.

10. Special course requirements:

- Course needs permanent access to planning systems.

11. Classroom etiquette policy:

University policy on the use of electronic devices states: "In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions."

12. Disability policy statement:

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodation due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) -- in Boca Raton, SU 133 (561-297-3880); in Davie, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305) – and follow all OSD procedures.

<http://www.fau.edu/policies/files/1.13%20Disabilities%20and%20Accommodation>

13. Honor Code policy statement:

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001 at http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf

14. Required texts/readings:

- *Shielding Techniques*, Patton H. McGinley;

- User manuals: Eclipse, BrainLab, Oncentra, Variseed, Cyberknife, Tomotherapy

15. Supplementary/recommended readings:

- American Association of Physicist in Medicine (AAPM), all TG reports: 106
- NCRP 151
- NCRP 147
- NCRP 49

16. Course topical outline:

- Week 1: Dose equivalent and effective dose
- Week 2: Planning a radiation oncology site
- Week 3: Placing the offices, hot lab, vaults, exam rooms, and treatment console with maximum radiation protection
- Week 4: Equipment section and acquisition for each room
- Week 5: Quality assurance of each equipment
- Week 6: Planning a vault for a linear dual energy accelerator
- Week 7: Preparing the documentation for DOH approval of site
- Week 8: Calculating shielding for a mono and dual energy linac
- Week 9: Calculating shielding for a CT simulator
- Week 10: Shielding calculations for a brachytherapy suite and the hotlab
- Week 11: Beam data collection for the treatment planning system. Beam data modeling
- Week 12: Treatment planning systems, commissioning. Surveys and documentation post commissioning Final documentation of acceptance submitted to DOH.
- **Homework problems and readings are given weekly; these are due the following week from assignment.**

17. Assignments

- **Quiz 1** Wednesday, 05/23/12
- **Test 1** Wednesday, 06/06/12
- **Quiz 2** Monday, 06/20/12
- **Test 2** Monday, 07/04/12
- **Quiz 3** Monday, 07/11/12
- **Presentation** Monday, 07/25/12