IRAN UNIVERSITY OF MEDICAL SCIENCES

School of pharmacy

Department Medicinal Chemistry

Course title: **Pharmaceutical Nanotechnology**

Credit (Theory or Practical): 4 Credits Theory

Prerequisite: Pharmaceutics

Course Lecturers: Dr. Rastegari, Dr. Morad

Responsible Lecturer: Dr. Rastegari

Student responsibilities*:*

1- Attend all scheduled classes on time.
2- Actively participate in class discussion and activity.
3- Complete all assignments, seminars and projects on time
4- Engage in respectful and professional communication with lecturers and staff.

Course Description:

- Course objectives:

- Familiarity with the importance and application of pharmaceutical nanotechnology
- Familiarity with targeted delivery and smart nanoparticles
- Familiarity with different types of nanoparticles in pharmaceutical nanotechnology
- Familiarity with wound healing approaches in nanomedicine

Student Learning Objectives:

-Students should learn the importance and application of pharmaceutical nanotechnology
- Students should learn targeted drug delivery
- Students should learn non-viral gene delivery systems
- Students should learn nanofibers development and applications
- Students should learn smart nanomedicine
- Students should learn different types of nanoparticles in pharmaceutical nanotechnology
- Students should learn wound healing approaches in nanomedicine

Students are expected to:

- learn the importance and application of pharmaceutical nanotechnology
- learn targeted drug delivery
- learn non-viral gene delivery systems
- learn smart nanomedicine
- learn nanofibers development and applications
- learn different types of nanoparticles in pharmaceutical nanotechnology
- learn wound healing approaches in nanomedicine

Course title: Pharmaceutical Nanotechnology – Mondays (8:30-12:30)

	Subject	Lecturer	Presentation method	Date
1	An introduction to pharmaceutical nanotechnology (importance and applications)	Dr. Rastegari	Lectures and Seminar	16 Sep
2	Targeted drug delivery	Dr. Rastegari	Lectures and Seminar	23 Sep
3	Disease diagnosis and gene delivery by nanotechnology	Dr. Rastegari	Lectures and Seminar	30 Sep
4	Lipid base nanostructures	Dr. Rastegari	Lectures and Seminar	7 Oct
5	Polymeric base nanostructures	Dr. Rastegari	Lectures and Seminar	14 Oct
6	Carbon based nanostructures	Dr. Rastegari	Lectures and Seminar	21 Oct
7	Wound healing approaches in nanomedicine	Dr. Rastegari	Lectures and Seminar	28 Oct
8	General methods for development nanostructures	Dr. Rastegari	Lectures and Seminar	4 Nov
9	Nanofibers and applications 1	Dr. Morad	Lectures and Seminar	11 Nov
10	Nanofibers and applications 2	Dr. Morad	Lectures and Seminar	18 Nov
11	Metal based Nanostructures	Dr. Morad	Lectures and Seminar	25 Nov

12	Physicochemical Characterization methods of nanostructures 1	Dr. Morad	Lectures and Seminar	2 Dec
13	Physicochemical Characterization methods of nanostructures 2	Dr. Morad	Lectures and Seminar	9 Dec
14	Nanomedicine and tissue engineering	Dr. Morad	Lectures and Seminar	16 Dec
15	Regulatory issues in nanomedicine	Dr. Morad	Lectures and Seminar	23 Dec

References:

1- Recently published research and review articles
2- Torchilin, Nanoparticulates as drug carriers
3- Rastegari, Nanoscience Applications in Diabetes
4- Jain, The handbook of nanomedicine
5- Rastegari, Current applications of biomolecules in biopharmaceuticals and drug discovery
6- Jack, Targeted drug strategies for cancer and inflammations

Notes:

- All classes will be held in Besarati (Eastern 7) street, North Shahin Boulevard

The absence hours of a student should not exceed 4/17 in theoretical, 2/17 in practical and laboratorial. Otherwise, the score for that course or section will be considered as zero.

Note 1: allowed absences are accepted provided that students bring in documents for that and the related professor approves it. Acting against absences (either excused or not) will be the decision of the professor and agreement of the college.

Student Evaluation

Seminar and class activity	8
Final exam	12
Total Score	20