

Course Description Form

1. Course Name: Laser Physics Practical	
2. Course Code:	
3. Semester / Year: 2025 Second Course	
4. Description Preparation Date: 2025\3\25	
5. Available Attendance Forms: Daily attendance	
6. Number of Credit Hours (Total) 6 / Number of Units (Total) 15	
7. Course administrator's name (mention all, if more than one name)	
Name: ghsoon shakir mouhsen Email: ghsoonshakir@gmail.com	
8. Course Objectives	
Course Objectives 1. Understand the nature of electromagnetic radiation, refraction, and laser properties. 2. Learn lasing processes, including photon interactions, population inversion, and amplification. 3. Differentiate laser types (e.g., gas lasers) and their excitation mechanisms. 4. Analyze laser system components, operation principles, and radiation control methods. 5. Apply laser physics to cosmetology and medical treatments while ensuring safe usage.	• • •
9. Teaching and Learning Strategies	
Strategy	

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-			1-troduction to Laboratory Safety and Equipment		
2-			2- Introduction Laboratory Safety and Equipment		
3-			3- Properties of Laser Radiation		
4-			4-Properties of Laser Radiation		
5-			4- Understanding Lasing Processes		
6-			5-Laser Gain and Amplification		
7-			6-Three-Level and Four-Level Laser Systems		
8-			7- Laser Active Medium and Excitation Mechanisms		
9-			8-Laser Feedback Mechanisms and Resonators		
10-			9-Laser Gain and Line Shape Measurement		
			10- Laser Output Control and Threshold Calculations		

11-			11- Different Types of Lasers and Their Characteristics		
12-			12-Final Project and Practical Examination		

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Fundamentals in Biophysics and Medicine: - Page 187 books.google.com › books Dr. Marwan bin Ahmed Al-Fahhad Dr. Abdul-Ghani Yousef Qarm · 2005 2-Basic Physics: For First-Year University and Technical Colleges books.google.com › books Dr. Marwan bin Ahmed bin Mohammed Al-Fahhad · 2012 3-An Introduction to Thermal Physics books.google.com › books Daniel V. Schroeder · 2014
Main references (sources)	
Recommended books and references (scientific journals, reports...)	ysics: Principles and Applications.google.com › books Douglas S. Giancoli · 2014
Electronic References, Websites	