المركز الوطني للتقويم والاعتماد الاكاديمي
National Center for Academic Accreditation and Evaluation

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)

هيئة تقويم التعليم
Education Evaluation Commission

Course Specifications

Institution: University of Tabuk	Date: 19/4/2019
College/Department : Physics	

A. Course Identification and General Information

1. Course title and code: Laser Physics- PHYS412
2. Credit hours: 3(2+1)
3. Program(s) in which the course is offered. **Bachelor of Science (Physics)**
(If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course: Dr. Babikir Osman Elbashir
5. Level/year at which this course is offered**: level 8 fourth year.**
6. Pre-requisites for this course (if any): PHYS342.
7. Co-requisites for this course (if any): N/A.
8. Location if not on main campus: The Main campus.
9. Mode of Instruction (mark all that apply):

a. traditional classroom	☑	What percentage?	
b. blended (traditional and online)	☐	What percentage?	
c. e-learning	☐	What percentage?	
d. correspondence	☐	What percentage?	
f. other	☑	What percentage?	

Comments:

B Objectives

1. What is the main purpose for this course?

-Provides students with the essential knowledge and understanding of the fundamental principles of laser physics.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

Post the course material on the website that could be accessed by students after registration.
- Utilizing various internet resources that offer informative details to support the lecture course material.
- Tutorial, reading assignments and relevant research papers using university online library will be considered to enrich the scope of the course.
- Increasing the use of IT or web-based reference material
- Working on updating the objectives of the course and the scientific content as required

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:

Theoretical: Introduction to light, absorption and dispersion of light, characteristics of laser beam, population inversion, Einstein coefficients, magnification properties, laser applications and types
Practical:
The speed of light using the laser, the wavelength determination of the laser beam, the reverse quadratic law, the absorption factor of the glass, the speed of light in the graphical way, the refractive index of the plastic slides, the wavelength determination of the light using the diffraction aggregates.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
Introduction to laser	1	3
Absorption and attenuation of light	1	3
Characteristics of laser	1	3
Population inversion	1	3
Three and four level systems	1	3
Einstein relations	1	3
Optical resonators	2	6
Optical amplifications	2	6
Laser types	2	6

Laser applications	2	6

2. Course components (total contact hours and credits per semester):

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planed	28		28			56
	Actual						
Credit	Planed	28		14			42
	Actual						

3. Additional private study/learning hours expected for students per week. 2 hou /eek

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	**- To list the basic principles of laser.** **- To state the four physical properties of laser.** **- To write the four types of laser when classified according to active media.** - To demonstrate the **importance of lasers in our life in three fields.**	Lectures examples and student demonstrations	Exams. • Homework. • Classwork. • Quizzes
1.2			
2.0	**Cognitive Skills**		
2.1	(i) Description of cognitive skills to be developed - To **apply the laws of laser properties.** **- To distinguish between the different categories of lasers according to four different criteria.** - To prove the Einstein relation for laser theory	**Discussion, Lessons, examples and illustrations to demonstrate the difference among topics**	Exams. • Homework. • Classwork

2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1	Description of the interpersonal skills and capacity to carry responsibility to be developed -To Participate in an open oral discussion about the laser issues inside the class - To conduct an experimental work in the laser lab	**Directing the student to self-learning and greater knowledge in the field of course** **-Tutorial Classes.** **-Encourage students to think critically and involve in discussions with the instructor in classroom.** **-Oral presentations on related topics will be held in class weekly** **-Work independently and as part of a team.** **- Encourage peer discussion and offer one to one discussion** **- Building up a friendly relationship between instructor and students, so that students can understand more on the subject**	Quizzes. • Lab. Reports. • In-lab. evaluation
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	(i) Description of the skills to be developed in this domain. **- To communicate with other students as well as other faculty members.** **-To discover the importance of lasers in human and scientific life.**	- **Develop the scientific language skills** **- Develop communication skills with others via websites or e-mail** **- Using online library and internet in searching for literature paper related to the subject**	class participation). • Oral exams
4.2			
5.0	**Psychomotor**		
5.1			
5.2			

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Effective participation in class room, attendance, Participation and Homework	All the semester	5%
2	Quizzes	All the semester	5%
3	1st exam	7	25%
4	1nd practical Exam	14	25%
5	Final exam	16	40%
6	total		100%
7			
8			

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) - **Students can approach during the office hours for the faculty member to ask questions to clarify some points missed during the lecture.** **- Students can communicate with the teaching staff through the website and ask questions related to all aspects of the lesson. The students will get written answers as soon as possible, The teaching staff are available during all the day in the faculty and are ready to clarify any points related to the course.** **- The teaching staff are available during all the day, where they are ready to clarify any points related to the course.**

E Learning Resources

1. List Required Textbooks Laser Communication Systems by William K. Psatt (1978).
2. List Essential References Materials (Journals, Reports, etc.) **Introduction to laser by: john smith 6th ed. Wilesy, John & Sons Inc.**
3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access, etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **Classrooms ready and equipped with educational media**
2. Technology resources (AV, data show, Smart Board, software, etc.) **Data show and internet.** **- Computer and microphone in Lecture rooms**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching **- Regular evaluation of the course to identify the weaknesses areas** **- Performance appraisal form filled up by each student to show level of fulfillment** **- Confidential completion of standard course evaluation questionnaire**
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department **A statistical regular review and analysis of the students' achievement in the department.** **- Prepare a questionnaire which should be filled by the students at the end of the term.** **-The questionnaire should be after that analyzed and carefully studied.**
3. Processes for Improvement of Teaching **Provide training and workshop opportunities for the teaching staff to improve their teaching strategies.** **- Form committees to follow up progress and work on improvement.** **- Provide opportunities to improve academic courses and research through conferences.** **- Provide the teaching staff members with all the references and electronic resources.** **- Updating through more reading books and articles related to the course** **- Improve relations between instructor and students.**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) - **Check marking of the answer sheets of examination papers with other colleagues** **- Check progress level of the students (this can be done by an independent teacher by reviewing students' records and compare the students' work with another from a different institute).**
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Student's feedback on the quality of the course.**
- **Consulting other faculty members or collaborators in overseas universities for their views on the method of quality of improvement**
- **Check other universities web sites to compare our lectures with them**
- **Compare the syllabus with the syllabus of standard universities.**
- **Form a specialized committee from the department to review the progress of teaching and update the resources**
- **Consult distinguished students and discuss with them positive and negative points in Lectures.**

Name of Course Instructor: Dr. Babikir Osman Elbashir_____

Signature: _____BabikirOsman_____ Date Specification Completed: 19/4/2019_____

Program Coordinator: Dr. Fahad Alharbi
Signature: *Dr. Fahad Alharbi* Date Received: 19/4/2019