جامعة المجمعة
Majmaah University

Course Specifications

Institution:	**College of Education**.-.Zulfi...
Academic Department :	.....Physics.....
Programme :	..... B.Edu Degree in Physics.
Course :	..... Electrodynamics
Course Coordinator :	.....Dr.Ismat Ali.....
Programme Coordinator :	Dr. Fatema Alzahraa Mohamed
Course Specification Approved Date :	1./ 1 / 1438 H

This form compatible with NCAAA 2013 Edition

A. Course Identification and General Information

1 - Course title : Electrodynamics Course Code: . PHYS413.

2. Credit hours : (3)

3 - Program(s) in which the course is offered: B.Edu Degree in Physics

4 – Course Language : .....Arabic.....

5 - Name of faculty member responsible for the course: . Dr.Ismat Ali....

6 - Level/year at which this course is offered : 5th level.....

7 - Pre-requisites for this course (if any) :

- .....**non**.....

8 - Co-requisites for this course (if any) :

- .....**Phys** 212

9 - Location if not on main campus **:**

(.....)

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	√	What percentage?	**…80%…**
B - Blended (traditional and online)		What percentage?	**……. %**
D - e-learning		What percentage?	**……. %**
E - Correspondence	√	What percentage?	**…10 %**
F - Other	√	What percentage?	**…10 %**

Comments :

.....

B Objectives

What is the main purpose for this course?

1. Understand the basic concepts of classical electrodynamics, e.g., electromagnetic waves and its propagation in different media and Maxwell relations.
2. Acquire the necessary skills (e.g mathematical and numerical skills) to solve electrodynamics problems and gain deeper understanding of the concepts

Briefly describe any plans for developing and improving the course that are being implemented :

discussion with staff members, using different modern technology.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Vectors , scalar product and dot product	2.	6.
-Divergence- gradient- curle in Cartesian,	.2.	6.
-Derivative Poisson and Laplace equations in cylindrical and spherical coordinates. .	2	.6.
-displacement current by Maxwell theory	2.	6.
-derivative Maxwell's equation in differential form.	2.	6.
derivative Maxwell's equation in integral form..	2.	6.
-determination the speed of light by using wave equation with Maxwell's equation..	2	6
Revesion	1	3.

Tutorials	No. of Weeks	Contact Hours
Problems Vectors , scalar product and dot product	2	6
Problems Divergence- gradient- curle in Cartesian,	2	6
solve a problems on Poisson and Laplace equations	2	6
solve a problems on Maxwell's equation in differential form	2	6
solve a problems on Maxwell's equation in integral form	2	6
determination the speed of light by using wave equation with Maxwell's	2	6
Revision	3	9

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	.....45.....	.	.....	.....	.....	. .....45.....

Credit	…….	..	…….	…….	…….	…. …….45..……

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

.....non...

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

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
	Remember the most important definitions and concepts of mathematical calculations that used in electrodynamics course	lectures – tutorials – discussionbrain stormy.	• Homework. • Group Discussion • Mid-term exam • Practical Exam • Final Exam.
2.0	**Cognitive Skills**		
	1\ derivative Poisson and Laplace equations from Gaussian law 2\ Using Maxwell equations in determine the speed of light 3\ Develop lines of argument and appropriate judgments in accordance with handling electrodynamics theories 4\Manipulate problems of electromagnetic data	lectures – tutorials – discussion brain stormy...	1 □ Homework. □ Group Discussion □ Mid-term exam □ Practical Exam □ Final Exam.
3.0	**Interpersonal Skills & Responsibility**		
	1-The student work independently. 2. The students learn independently and take up responsibility.	1-Learn how to search the internet and use the library. 2. Learn how to cover missed lectures. 3. Learn how to summarize	• Homework. • Group Discussion • Mid-term exam • Practical Exam • Final Exam result gained

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		lectures or to collect materials of the course. 4. Learn how to solve difficulties in learning: solving problems – enhance educational skills. 5. Develop her interest in Science through :(lab work, field trips, visits to scientific and research. 6. Encourage the student to attend lectures regularly by: ▪ Giving bonus marks for attendance	by each group will indicate good group work.
4.0	**Communication, Information Technology, Numerical**		
	1. Computation 2. Problem solving 3. Data analysis and interpretation	1. Know the basic mathematical principles. 2. Use the web for research. 3. Discuss with the student. 4. Exams to measure the mathematical skill. 5. Clear the weakness point that should be eliminated. 6. Encourage the student to ask for help if needed. 7. Computational analysis. 8. Data representation. 9. Focusing on some real results and its physical meaning. 10. Lectures for problem solution. 11. Encourage the student to ask good question to help solve the problem	1. Their interaction with the lectures and discussions. 2. The reports of different asked tasks. 3. Homework, Problem solutions assignment and exam should focus on the understanding. 4. Results of computations and analysis.
5.0	**Psychomotor**		
	The ability to run the hardware efficiently. - The ability to choose the appropriate tools and use them properly. - The skill of the operation , the use of computers and the means	practical training. - Method of simulation and modeling. - Research projects..	Practical applications Performance evaluation. - Practical tests

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	of modern technology..		

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	**Attendance and Oral discussions**	From 2ed	10%
2	**Quiz**	4th	10%
3	**Mid term exam**	8th	20%
4	**Final exam**	16 th	60%

. Student Academic Counseling and Support

6 office hours per week
- Communicate, ask questions and inquiries through the site on the World Wide Web.
- To provide assistance and guidance to any inquiry or consulted regarding the article and given that
Include helping students understand the material and contribute to the process of academic guidance, And assist students in the face of any problems and academic scholarships in this cours.

E. Learning Resources

1. List Required Textbooks :

1- • Lecture notes prepared by academic staff member

2. List Essential References Materials :

- **1- Foundations of Electromagnetic Theory; John R. Reitz, Frederick J. Milford, and Robert W. Christy, Addison-Wesley Publishing Company, Inc., 3rd Edition, 1980**

3. List Recommended Textbooks and Reference Material :

- .....
- .....
- .....

4. List Electronic Materials :

Web sites and electronic materials are available with the lecturer • …… • …… • ……
5. Other learning material : • …… • …… • ……

F. Facilities Required

1. Accommodation • Lecture room for 30 students • Library •.
2. Computing resources • …… • …… • ……
3. Other resources • …… • …… • ……

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching: • Midterm and final exam. • Quiz.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor : • …… • …… • ……

3 Processes for Improvement of Teaching :

- Course report
- Program report
- Program self study
- Fortification of the student learning.

- Handling the weakness point.

4. Processes for Verifying Standards of Student Achievement

1- The instructors of the course are checking together and put a unique process of evaluation.
2- Check marking of a sample of papers by others in the department.
3- Feedback evaluation of teaching from independent organization

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

1- The following points may help to get the course effectiveness
   - Student evaluation
   - Course report
   - Program report
   - Program Self study
2- According to point 1 the plan of improvement should be given.
3- Contact the college to evaluate the course and the benefit it add to other courses.
4 -Add some subject and cut off others depending on the new discoveries in physics.

Course Specification Approved
Department Official Meeting Date 1 / 1/ 1438 *H*

Course's Coordinator	**Department Head**
Dr . Ismat Ali Ahmed	Dr. Fatema Alzahraa Mohamed