



# Course Specifications

Institution:	Faculty of Education in Zilfi.
Academic Department :	Physics
Programme :	Bachelor in Education
Course :	Mathematics of Physics 1 (Phys121)
Course Coordinator :	Areej Aljaghwani
Programme Coordinator :	Dr. Fatema Alzahraa Mohamed Nabieh
Course Specification Approved Date :	1/ 1 / 1438 H

## A. Course Identification and General Information



1 - Course title : Mathematics of Physics 1 Course Code: <b>Phys121</b>		
2. Credit hours : <b>( 3 theory + 1 exercise)</b>		
3 - Program(s) in which the course is offered: <b>Faculty of Education in Zilfi/ physics department</b>		
4 – Course Language : <b>Arabic</b>		
5 - Name of faculty member responsible for the course: <b>Areej Aljaghwani</b>		
6 - Level/year at which this course is offered : <b>Second level</b>		
7 - Pre-requisites for this course (if any) : <ul style="list-style-type: none"> <li>• <b>Calculus 1 (Math 111)</b></li> </ul>		
8 - Co-requisites for this course (if any) : <ul style="list-style-type: none"> <li>• Mathematics of Physics 2 (Phys212)</li> </ul>		
9 - Location if not on main campus : ( ..... )		
10 - Mode of Instruction (mark all that apply)		
A - Traditional classroom	<input checked="" type="checkbox"/> What percentage? <table border="1"><tr><td><b>70 %</b></td></tr></table>	<b>70 %</b>
<b>70 %</b>		
B - Blended (traditional and online)	<input type="checkbox"/> What percentage? <table border="1"><tr><td>..... %</td></tr></table>	..... %
..... %		
D - e-learning	<input checked="" type="checkbox"/> What percentage? <table border="1"><tr><td><b>30%</b></td></tr></table>	<b>30%</b>
<b>30%</b>		
E - Correspondence	<input type="checkbox"/> What percentage? <table border="1"><tr><td>..... %</td></tr></table>	..... %
..... %		
F - Other	<input type="checkbox"/> What percentage? <table border="1"><tr><td>..... %</td></tr></table>	..... %
..... %		
Comments : .....		

## B Objectives

<p>What is the main purpose for this course?</p> <ul style="list-style-type: none"> <li>• <b>Identify matrices, their types and operations on them</b></li> <li>• <b>Identify Vector, characteristics and some operations on them</b></li> <li>• <b>Identify the straight line equation and plane</b></li> <li>• <b>Identify quadratic curves such as circle, parabola, ellipse and excess</b></li> </ul>
<p>Briefly describe any plans for developing and improving the course that are being implemented :</p> <p><b>Quick Quiz during the lecture to apply the newly acquired information, this will help to a good understanding.</b></p>



## C. Course Description

### 1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Matrices (definition + some operations by + kinds + characteristics)	1	3
Determinants (defined + characteristics)	2	3
Inverse matrix	3	3
Solving a system of linear equations (method: Gauss Jordan, matrices, Cramer)	4-5	6
Vector (basic definition + characteristics + operations on vectors)	6-7	6
Vector (standard multiplication + vector multiplication + standard triple batting)	8	3
Analytic geometry (straight line equation)	9	3
Analytical geometry (equation planar surfaces)	10	3
Analytic geometry (square curves - circle equation)	11	3
Analytic geometry (square curves - ellipse equation)	12	3
Analytic geometry (square curves - hyperbolic equation)	13	3
Analytic geometry (square curves - pieces equation equivalent)	14	3

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
<b>Contact Hours</b>	<b>45</b>			<b>30</b>	.....	75
<b>Credit</b>	45			<b>15</b>	.....	60

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

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#### 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
<b>1.0</b>	<b>Knowledge</b>		
<b>1.1</b>	<b>Identification of matrices, their properties, their types and processes arrest them</b>	Lecture & discussion	Med exams, Participation during the lecture & scientific activities
<b>1.2</b>	<b>Identify the vectors, their characteristics and processes arrest them</b>	Lecture & discussion	Med exams, Participation during the lecture & scientific activities
<b>1.3</b>	<b>Identification of linear equations and some methods used to solve them</b>	Lecture & discussion	Med exams, Participation during the lecture & scientific activities
<b>1.4</b>	<b>Identify the most important analytical geometry definitions and properties</b>	Lecture & discussion	Med exams, Participation during the lecture & scientific activities
<b>1.5</b>	.....	.....	.....
<b>1.6</b>	.....	.....	.....
<b>2.0</b>	<b>Cognitive Skills</b>		
<b>2.1</b>	<b>Do algebraic operations on matrices</b>	lecture	exams
<b>2.2</b>	<b>Do algebraic Operations on Vectors</b>	lecture	exams





	<b>NQF Learning Domains And Course Learning Outcomes</b>	<b>Course Teaching Strategies</b>	<b>Course Assessment Methods</b>
2.3	<b>Solve linear equations using different methods</b>	lecture	exams
2.4	<b>Resolve questions about the straight line and plane</b>	.....	.....
2.5	<b>Solving issues related to quadratic curves: circle circular Cuttings</b>	.....	.....
2.6	.....	.....	.....
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1	<b>Communication skills with others</b>	Discussions of study and collaborative work	Home work
3.2	<b>Skills of take responsibility and lead the team</b>	Discussions of study and collaborative work	Home work
3.3	<b>Cooperative work skills</b>	Discussions of study and collaborative work	Home work
3.4	.....	.....	.....
3.5	.....	.....	.....
3.6	.....	.....	.....
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	<b>Develop the skills of observations, conclusion and explanation for the student</b>	Ask questions and discussion	Quick Quiz & Med exam
4.2	<b>develop the student personal to be a Dialogic personality</b>	discussion	Quick Quiz & Med exam
4.3	<b>Urged students to seek knowledge in several ways, the most important electronic tools</b>	discussion	Quick Quiz & Med exam
4.4	<b>Use electronics networks to serve the course</b>	Cooperative learning Teamwork	Assessments the activities by each participating student
4.5	<b>Develop the skills of teamwork and communication</b>	Cooperative learning Teamwork	Assessments the activities by each participating





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
			student
4.6	.....	.....	.....
<b>5.0</b>	<b>Psychomotor</b>		
5.1	.....	.....	.....
5.2	.....	.....	.....
5.3	.....	.....	.....
5.4	.....	.....	.....
5.5	.....	.....	.....
5.6	.....	.....	.....

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

	Assessment task	Week Due	Proportion of Total Assessment
1	Test theoretical mid test	6	15
2	Post a scientific / Theory	10	15
3	Post a scientific / practice	11	10
4	Practice final test	13	10
5	Theoretical test final	14	50

### D. Student Academic Counseling and Support

2 office hour

### E. Learning Resources

#### 1. List Required Textbooks :

- Linear Algebra, Vector Algebra And Analytical Geometry, by V.V. Konev- 2009.

#### 2. List Essential References Materials :

- Lecture Notes





<b>3. List Recommended Textbooks and Reference Material :</b> <ul style="list-style-type: none"><li>• .....</li><li>• .....</li></ul>
<b>4. List Electronic Materials :</b> <ul style="list-style-type: none"><li>• <b>ocw.mit.edu/courses/physics/)</b></li><li>• .....</li><li>• .....</li></ul>
<b>5. Other learning material :</b> <ul style="list-style-type: none"><li>• .....</li><li>• .....</li><li>• .....</li></ul>

### **F. Facilities Required**

<b>1. Accommodation</b> <ul style="list-style-type: none"><li>• <b>...lecture room and laboratory</b></li><li>• .....</li></ul>
<b>2. Computing resources</b> <ul style="list-style-type: none"><li>• <b>Laboratory with 13 computers devices.</b></li><li>• .....</li></ul>
<b>3. Other resources</b> <ul style="list-style-type: none"><li>• .....</li><li>• .....</li><li>• .....</li></ul>

### **G Course Evaluation and Improvement Processes**

<b>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:</b> <ul style="list-style-type: none"><li>• <b>Mid test</b></li><li>• <b>Discussion in lectures</b></li><li>• <b>questionnaires distributed to the students to find out their views of the course and on the effectiveness of the decision and the method of teaching</b></li></ul>
<b>2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor :</b> <ul style="list-style-type: none"><li>• <b>Periodic review of the course by a committee study plans and schedules in a department</b></li><li>• .....</li></ul>
<b>3 Processes for Improvement of Teaching :</b> <ul style="list-style-type: none"><li>• <b>Provide projectors in the rooms</b></li><li>• <b>Encourage students to introduce and declamation, and group</b></li></ul>





**discussions.**

**4. Processes for Verifying Standards of Student Achievement**

- **The professor of the course exchange of correct sample of the home works or tests on a regular basis with a faculty member to another in the same decision in other educational institution.**
- .....
- .....

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

- **Evaluating courses every year by Committee for Quality.**
- **Update decisions that need to be developed per year**
- **Use of modern technological tools for ease of explanation courses**

**Course Specification Approved**  
**Department Official Meeting No ( 2 ) Date 1 / 1 / 1438 H**

**Course's Coordinator**

**Name :** Areej AlJaghwani

**Signature :** .....

**Date :** 20/ 4 / 1438 H

**Department Head**

**Name :** Fatema Alzahraa  
Mohamed Nabieh

**Signature :** .....

**Date :** .../ ... / ..... H

