



**UNIVERSITY OF CALICUT**

**Abstract**

General and Academic - Faculty of Science - Modified Syllabus of BSc Physics Programme under CBCSS UG Regulations 2019 with effect from 2020 Admission onwards - Implemented- Orders Issued.

**G & A - IV - J**

U.O.No. 6321/2020/Admn

Dated, Calicut University.P.O, 07.07.2020

- Read:-*1. U.O.No. 4368/2019/Admn dated 23.03.2019  
2. U.O.No. 18084/2019/Admn Dated 28.12.2019  
3. The item No.5 in the minutes of the meeting of the Board of Studies in Physics UG held on 05.03.2020  
4. Remarks of the Dean, Faculty of Science dtd 08.06.2020  
5. Order of the Vice Chancellor in the file even no. dtd 11.06.2020

**ORDER**

1. The Regulations for Choice Based Credit and Semester System for Under Graduate (UG) Curriculum-2019 (CBCSS UG Regulations 2019) for all UG Programmes under CBCSS-Regular and SDE/PrivateRegistration w.e.f. 2019 admission, has been implemented vide paper read first above and the same has been modified vide paper read second above.
2. The meeting of the Board of Studies in Physics (UG) held on 05/06/2020 has recommended the following modifications in the I and II semester of the Syllabus of B.Sc Physics Programme in tune with the new CBCSS UG - 2019 Regulations with effect from 2020 Admission, vide paper read third above.
  - Two units in semester I should be removed. The title of the course changed to Mechanics-I.
  - The syllabus of the unit, "Waves" in the syllabus of semester II is modified with another standard text book as book of study. The title of the course changed to Mechanics-II.
3. The Dean, Faculty of Science has approved the modified syllabus of BSc Physics programme in tune with the new CBCSS UG-2019 Regulations with effect from 2020 Admission onwards, vide paper read fourth above.
4. Considering the urgency of the matter, the Vice Chancellor has accorded sanction to implement the Scheme and Syllabus of B Sc Physics Programme in accordance with the new CBCSS UG Regulations 2019, in the University with effect from 2020 Admission onwards, subject to ratification by the Academic Council.
5. The Modified Scheme and Syllabus of B Sc Physics Programme in accordance with CBCSS UG Regulations 2019, is therefore implemented in the University with effect from 2020 Admission onwards.
6. Orders are issued accordingly. (Syllabus appended).

Arsad M

Assistant Registrar

To

The Principals of all Affiliated Colleges  
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Section Officer

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**UNIVERSITY OF CALICUT**

**B.Sc. PHYSICS**

**(CORE AND COMPLEMENTARY PROGRAMMES)**

**SYLLABUS & MODEL QUESTION PAPERS**

**w.e.f 2020 admission onwards**

**CBCSSUG Regulations 2020**

**B.Sc. PHYSICS**  
**CORE & COMPLEMENTARY PROGRAMMES**  
**SYLLABUS**

## **PROGRAMME: B.Sc. PHYSICS**

### **Programme Specific Outcomes**

**PSO1:** Understand the basic concepts of fundamentals of mechanics, properties of matter and electrodynamics

**PSO2:** Understand the theoretical basis of quantum mechanics, relativistic physics, nuclear physics, optics, spectroscopy, solid state physics, astrophysics, statistical physics, photonics and thermodynamics

**PSO3:** Understand and apply the concepts of electronics in the designing of different analog and digital circuits

**PSO4:** Understand the basics of computer programming and numerical analysis

**PSO5:** Apply and verify theoretical concepts through laboratory experiments

### **Abbreviations used:**

**CL** – Cognitive level; **U** – understand; **Ap** – apply; **An** – analyze; **C** - create

**KC** – Knowledge category; **C** – conceptual; **F** – factual; **P** - procedural

## B.Sc. DEGREE PROGRAMME (PHYSICS CORE)

### COURSE STRUCTURE

Semester	Course Code	Course Title	Total hours	Hours/Week	Credits
1	A 01	Common Course I – English	72	4	4
	A 02	Common Course II – English	90	5	3
	A 07	Common Course III – Language other than English	72	4	4
	PHY1 B01	Core course I - Mechanics I	36	2	2
		Core Course V - Practical I	36	2	*
		1 <sup>st</sup> Complementary Course I - Mathematics	72	4	3
		2 <sup>nd</sup> Complementary Course I	36	2	2
		2 <sup>nd</sup> Complementary Course Practical I	36	2	*
	EO1	Environment Studies	-	-	4**
	<b>Total</b>	<b>450</b>	<b>25</b>	<b>18</b>	
2	A 03	Common Course IV – English	72	4	4
	A 04	Common Course V – English	90	5	3
	A 08	Common Course VI – Language other than English	72	4	4
	PHY2 B02	Core Course II - Mechanics II	36	2	2
		Core Course V - Practical I	36	2	*
		1 <sup>st</sup> Complementary Course II - Mathematics	72	4	3
		2 <sup>nd</sup> Complementary Course II	36	2	2
		2 <sup>nd</sup> Complementary Course Practical II	36	2	*
	EO2	Disaster Management			4**
	<b>Total</b>	<b>450</b>	<b>25</b>	<b>18</b>	
3	A 05	Common Course VI – English	90	5	4
	A 09	Common Course VIII - Language other than English	90	5	4
	PHY3 B03	Core Course III – Electrodynamics-I	54	3	3

		Core Course VI– Practical I	36	2	*
		1 <sup>st</sup> Complementary Course III – Mathematics	90	5	3
		2 <sup>nd</sup> Complementary Course III	54	3	2
		2 <sup>nd</sup> Complementary Course Practical III	36	2	*
E03		Human Rights <b>or</b> Intellectual Property Rights <b>or</b> Consumer protection			4**
		<b>Total</b>	<b>450</b>	<b>25</b>	<b>16</b>
4	A 06	Common Course IX – English	90	5	4
	A 10	Common Course X - Language other than English	90	5	4
	PHY4 B04	Core Course IV - Electrodynamics II	54	3	3
	PHY4 B05	Core Course Practical V – Practical I	36	2	5
		1 <sup>st</sup> Complementary Course IV– Mathematics	90	5	3
		2 <sup>nd</sup> Complementary Course IV	54	3	2
		2 <sup>nd</sup> Complementary Course Practical IV	36	2	4
	E04	Gender studies <b>or</b> Gerontology			4**
		<b>Total</b>	<b>450</b>	<b>25</b>	<b>25</b>
5	PHY5 B06	Core Course VI - Computational Physics	54	3	3
	PHY5 B07	Core Course VII - Quantum Mechanics	54	3	3
	PHY5 B08	Core Course VIII - Optics	54	3	3
	PHY5 B09	Core Course IX- Electronics (Analog and Digital)	54	3	3
		Open Course – ( <i>course from other streams</i> )	54	3	3
		Core Course Practical XIV - Practical II	72	4	*
		Core Course Practical XV- Practical III	72	4	*
		Core Course XVII Project/Research methodology	36	2	*
		<b>Total</b>	<b>450</b>	<b>25</b>	<b>15</b>
6	PHY6 B10	Core Course X - Thermodynamics	54	3	3
	PHY6 B11	Core Course XI -Statistical Physics, Solid State Physics, Spectroscopy and Photonics	54	3	3
	PHY6 B12	Core Course XII - Nuclear Physics and Particle Physics	54	3	3

	PHY6 B13	Core Course XIII - Relativistic Mechanics and Astrophysics	54	3	3
	PHY6 B14	Core Course XIV (Elective:EL1 / EL2 / EL3)	54	3	3
	PHY6 B15	Core Course Practical XV – Practical II	72	4	5
	PHY6 B16	Core Course Practical XVI – Practical III	72	4	5
	PHY6 B17 (P/R)	Core Course XVII Project/Research methodology Tour report	36	2	2 1
		<b>Total</b>	<b>450</b>	<b>25</b>	<b>28</b>
<b>Total Credits</b>					<b>120</b>

**Tour report shall be evaluated with Practical III**

\*Credit for practical / project to be awarded only at the end of Semester 4 and Semester 6.

\*\*Mandatory audit courses for the program, but not counted for the calculation of SGPA or CGPA.

Student can attain only pass (Grade P) for these courses.

## CREDIT AND MARK DISTRIBUTION IN EACH SEMESTERS

**Total Credits: 120; Total Marks: 3075**

<i>Semester</i>	<i>Course</i>	<i>Credit</i>	<i>Marks</i>
1	Common course: English	4	100
	Common course: English	3	75
	Common course: Additional Language	4	100
	Core Course I: Mechanics I	2	75
	Complementary course: Mathematics	3	75
	Complementary course: II	2	75
	Total	<b>18</b>	<b>500</b>
2	Common course: English	4	100
	Common course: English	3	75
	Common course: Additional Language	4	100
	Core Course II: Mechanics II	2	75
	Complementary course: Mathematics	3	75
	Complementary course: II	2	75
	Total	<b>18</b>	<b>500</b>
3	Common course: English	4	100
	Common course: Additional Language	4	100
	Core Course III: Electrodynamics-I	3	75
	Complementary course: Mathematics	3	75
	Complementary course: II	2	75
	Total	<b>16</b>	<b>425</b>
4	Common course: English	4	100
	Common course: Additional Language	4	100
	Core Course IV: Electrodynamics-II	3	75
	Core Course V: Physics Practical 1	5	100
	Complementary course: Mathematics	3	75
	Complementary course: II	2	75
	Complementary course: II Practical	4	100
	Total	<b>25</b>	<b>625</b>
5	Core Course VI: Computational Physics	3	75
	Core Course VII :Quantum Mechanics	3	75
	Core Course VIII: Optics	3	75
	Core Course IX: Electronics (Analog and Digital)	3	75
	Open course	3	75
	Total	<b>15</b>	<b>375</b>



6	Core Course X: Thermodynamics	3	75
	Core Course XI: Statistical Physics, Solid State Physics, Spectroscopy and Photonics	3	75
	Core Course XII: Nuclear Physics and Particle Physics	3	75
	Core Course XIII: Relativistic mechanics and Astrophysics	3	75
	Core Course XIV: Elective (EL1 / EL2 / EL3)	3	75
	Core Course XV: Practical II	5	100
	Core Course XVI: Practical III	5	100
	Core Course XVII: Project/Research Methodology	2	60
	Tour report	1	15
	<b>Total</b>	<b>28</b>	<b>650</b>
<b>Grand Total</b>	<b>120</b>	<b>3075</b>	

## COURSE STRUCTURE PHYSICS(CORE)

### Credit Distribution

Semester	Common course		Core course	Complementary course		Open course	Total
	English	Additional Language		Mathematics	Comple. II		
2	4+3	4	2	3	2	-	18
3	4	4	3	3	2	-	16
4	4	4	3+5*	3	2+4*	-	25
5	-	-	3+3+3+3	-	-	3	15
6	-	-	3+3+3+3+3+5*+5*+3**	-	-	-	28
<b>Total</b>	<b>22</b>	<b>16</b>	<b>55</b>	<b>12</b>	<b>12</b>	<b>3</b>	<b>120</b>

\*Practical    \*\*Project

Tour Report to be evaluated with Practical Paper III

### Mark Distribution and Indirect Grading System

Indirect grading system is to be followed for examinations of all courses. After external and internal evaluations marks are entered in the answer scripts. All other calculations, including grading, will be done by the university using the software. Indirect Grading System in 8 point scale is followed. Each course is evaluated by assigning marks with a letter grade (O, A<sup>+</sup>, A, B<sup>+</sup>, B, C, P or F to that course by the method of indirect grading.

### Mark Distribution

Sl. No.	Course	Marks
1	English	550
2	Additional Language	400
3	Core course: Physics	1350
4	Complementary course I: Mathematics	300
5	Complementary course II: Chemistry/....	400
6	Open Course	75
<b>Total Marks</b>		<b>3075</b>

### Eight point Indirect Grading System

% of Marks	Grade	Interpretation	Grade Point Average	Range of Grade points	Class
95 and above	O	Outstanding	10	9.5 - 10	First Class with distinction
85 to below 95	A <sup>+</sup>	Excellent	9	8.5 – 9.49	
75 to below 85	A	Very good	8	7.5-8.49	
65 to below 75	B <sup>+</sup>	Good	7	6.5 –7.49	First Class
55 to below 65	B	Satisfactory	6	5.5 – 6.49	

45 to below 55	C	Average	5	4.5 – 5.49	Second Class
35 to below 45	P	Pass	4	3.5 – 4.49	Third class
Below 35	F	Fail	0	0 – 3.49	Fail

**Core Course Structure**  
**Total Credits: 56 (Internal: 20%; External: 80%)**

<i>Semester</i>	<i>Code No</i>	<i>Course Title</i>	<i>Hours/Week</i>	<i>Total Hours</i>	<i>Credit</i>	<i>Marks</i>
<b>1</b>	PHY1B01	Core Course I: Mechanics I	2	36	2	75
	-	Core Course V : Practical-I	2	36	-*	-
<b>2</b>	PHY2B02	Core Course II: Mechanics II	2	36	2	75
	-	Core Course V : Practical-I	2	36	-*	-
<b>3</b>	PHY3B03	Core Course III: Electrodynamics-I	3	54	3	75
	-	Core Course V : Practical-I	2	36	-*	-
<b>4</b>	PHY4B04	Core Course IV: Electrodynamics-II	3	54	3	75
	PHY4B05	Core Course V : Practical-I	2	36	5	100
<b>5</b>	PHY5B06	Core Course VI: Computational Physics	3	54	3	75
	PHY5B07	Core Course VII: Quantum Mechanics	3	54	3	75
	PHY5B08	Core Course VIII: Optics	3	54	3	75
	PHY5B09	Core Course IX: Electronics (Analog and Digital)	3	54	3	75
		Core Course XIV: Practical II	4	72	-**	-
		Core Course XV: Practical III	4	72	-**	-
	Core Course XVII: Project Work	2	36	-**	-	
<b>6</b>	PHY6B10	Core Course X: Thermodynamics	3	54	3	75
	PHY6B11	Core Course XI: Statistical Physics, Solid State Physics, Spectroscopy and Photonics	3	54	3	75
	PHY6B12	Core Course XII: Nuclear Physics and Particle Physics	3	54	3	75
	PHY6B13	Core Course XIII Relativistic mechanics and Astrophysics	3	54	3	75

	PHY6B14 (EL1)	Core Course XIV: Elective***	1. Biomedical Physics	3	54	3	75
	PHY6B14 (EL2)		2. Nanoscience and Technology				
	PHY6B14 (EL3)		3. Materials Science				
	PHY6B15	Core Course XV: Practical -II		4	72	5**	100
	PHY6B16	Core Course XVI: Practical-III		4	72	5**	100
	PHY6B17 (P/R)	Core Course XVII: Project Work /Research Methodology and Tour Report		2 1	36	3**	60 15
<b>Total</b>						<b>56</b>	<b>1350</b>

\* Exam will be held at the end of 4<sup>th</sup> semester

\*\* Exam will be held at the end of 6<sup>th</sup> semester

\*\*\* An institution can choose any one among the three courses.

## **CORE COURSE THEORY: EVALUATION SCHEME**

The evaluation scheme for each course contains two parts: viz., internal evaluation and external evaluation. Maximum marks from each unit are prescribed in the syllabus.

### **1. INTERNAL EVALUATION**

20% of the total marks in each course are for internal evaluation. The colleges shall send only the marks obtained for internal examination to the university.

**Table 1: Components of Evaluation (Theory)**

<i>Sl. No.</i>	<i>Components</i>	Marks for 4/5 credits papers	Marks for 2/3 credits papers
1	Class room participation based on attendance	4	3
2	Test paper: I	8	6
3	Assignment	4	3
4	Seminar/ Viva	4	3
<i>Total Marks</i>		20	15

**Table 2: Pattern of Test Papers**

<i>Duration</i>	<i>Pattern</i>	<i>Total number of questions</i>	<i>Number of questions to be answered</i>	<i>Marks for each question</i>	<i>Marks</i>
2 Hours	Short answer	12	10-12	2	20
	Paragraph/problem	7	6-7	5	30
	Essay	2	1	10	10
<i>Total Marks*</i>					60

\*90% and above = 6, 80 to below 90% = 5.5, 70 to below 80% = 5, 60 to below 70% = 4.5, 50 to below 60% = 4, 40 to below 50% = 3.5, 35 to below 40% = 3, 25 to below 30% = 2.5, 15 to below 20=2, less than 15=0

### **2. EXTERNAL EVALUATION**

External evaluation carries 80% marks. University examinations will be conducted at the end of each semester.

**Table 1: Pattern of Question Paper**

<i>Duration</i>	<i>Pattern</i>	<i>Total number of questions</i>	<i>Number of questions to be answered</i>	<i>Marks for each question</i>	<i>Marks</i>
2 Hours	Short answer	12	10-12	2	20
	Paragraph/problem	7	6-7	5	30
	Essay	2	1	10	10

## **CORE COURSE PROJECT: EVALUATION SCHEME**

Project evaluation will be conducted at the end of sixth semester.

### **Project:**

1. Project work should be done as an extension of topics in the syllabus.
2. Project can be experimental / theoretical or done in collaboration (association) with a recognized laboratory or organization.
3. Project work may be done individually or as group of maximum of six students.
4. A supervisor has to guide a batch of maximum 24 students. For an additional batch another supervisor has to be appointed. However the existing work load should be maintained.

### **Guidelines for doing project:**

The project work provides the opportunity to study a topic in depth that has been chosen or which has been suggested by a staff member. The students first carryout a literature survey which will provide the background information necessary for the investigations during the research phase of the project.

The various steps in project works are the following:-

- a) Wide review of a topic.
- b) Investigation on an area of Physics in systematic way using appropriate techniques.
- c) Systematic recording of the work.
- d) Reporting the results with interpretation in documented and oral forms.

### **Use of Log Book**

- During the Project the students should make regular and detailed entries in to a personal laboratory log book through the period of investigation.
- The log book will be a record of progress on project and will be useful in writing the final report. It contains experimental conditions and results, ideas, mathematical expressions, rough work and calculation, computer file names etc. All entries should be dated.
- The students are expected to have regular meeting with their supervisor to discuss progress on the project and the supervisor should regularly write brief comments with dated signature.
- **The log book and the written report must be submitted at the end of the project.**

**Table 1: Internal Evaluation**

<i>Sl. No</i>	<i>Criteria</i>	<i>Marks</i>
1	Punctuality & Log book	2
2	Skill in doing project work/data	2
3	Scheme Organization of Project Report	3
4	Viva-Voce	5
<i>Total Marks</i>		12

**Table 2: External Evaluation**

**Individual presentation is compulsory and individual Log book should be submitted**

<i>Sl. No</i>	<i>Criteria</i>	<i>Marks</i>
1	Content and relevance of the project, Methodology, Reference, Bibliography	8
2	Project Presentation, Quality of analysis, statistical tools, findings, recommendations	10
3	Project Report (written copy) and Log Book	10
4	Viva-voce	20
<i>Total Marks</i>		48

**STUDY TOUR Internal 5 marks**

**Minimum two days visit to National research Institutes, Laboratories and places of scientific importance are mandatory. Study tour report has to be submitted with photos and analysis along with Practical Paper III for evaluation**

**Distribution of marks EXTERNAL**

No	Items	External (15)
1	Documented Report	8
2	Outcome/Analysis	4
3	Photos ( five photos)	3
<b>TOTAL</b>		<b>15</b>

### CORE COURSE: PRACTICAL EVALUATION SCHEME

Internal		External		Marks for Python Programming
Items	Marks	Items	Marks	
Record	4	Record with 20 experiments Max.one mark for each experiment	10	10
Regularity in doing the experiment	4	Formulae, Theory, Principle/ Programme	22	15
Attendance	4	Adjustments& setting / Algorithm	14	15
Test 1	4	Tabulation, Observation and performance/ Execution	20	24
Test 2	4	Calculation, result, graph, unit/ Result	10	12
		Viva	4	4
<b>Total</b>	<b>20</b>	<b>Total</b>	<b>80</b>	<b>80</b>

CORE COURSE – XIII (ELECTIVE) :		
<b>1</b>	PHY6 B14 (EL1)	BIOMEDICAL PHYSICS
<b>2</b>	PHY6 B14 (EL2)	NANO SCIENCE AND TECHNOLOGY
<b>3</b>	PHY6 B14 (EL3)	MATERIALS SCIENCE

OPEN COURSES OFFERED BY PHYSICS DEPARMENT (For students from other streams)		
<b>1</b>	PHY5 D01(1)	NON CONVENTIONAL ENERGY SOURCES
<b>2</b>	PHY5 D01(2)	AMATEUR ASTRONOMY AND ASTROPHYSICS
<b>3</b>	PHY5 D01(3)	ELEMENTARY MEDICAL PHYSICS



## PHYSICS COMPLEMENTARY COURSE STRUCTURE

Total Credits: 12 (Internal: 20%; External: 80%)

<i>Semester</i>	<i>Code No</i>	<i>Course Title</i>	<i>Hours/Week</i>	<i>Total Hours</i>	<i>Credit</i>	<i>Marks</i>
1	PHY1C01	Complementary Course I: Properties of matter and Thermodynamics	2	36	2	75
	-	Complementary Course V: PHYSICS Practical	2	36	-*	-
2	PHY2C02	Complementary Course II: Optics ,Laser, Electronics	2	36	2	75
	-	Complementary Course V: PHYSICS Practical	2	36	-*	-
3	PHY3C03	Complementary Course III: Mechanics, Relativity, Waves and Oscillations	3	54	2	75
	-	Complementary Course V: PHYSICS Practical	2	36	-*	-
4	PHY4C04	Complementary Course IV: Electricity ,Magnetism and Nuclear Physics	3	54	2	75
	PHY4C05	Complementary Course V: PHYSICS Practical	2	36	4*	100
<b>Total</b>					<b>12</b>	<b>400</b>

\* Examination will be held at the end of 4<sup>th</sup> semester

### COMPLEMENTARY COURSE THEORY: EVALUATION SCHEME

The evaluation scheme for each course contains two parts: *viz.*, internal evaluation and external evaluation. Maximum marks from each unit are prescribed in the syllabus.

#### 1. INTERNAL EVALUATION

20% of the total marks in each course are for internal evaluation. The colleges shall send only the marks obtained for internal examination to the university.

**Table 1: Components of Evaluation**

<i>Sl. No.</i>	<i>Components</i>	<i>Marks for 2/3 credits papers</i>
1	Class room participation based on attendance	3
2	Test paper: I	6
3	Assignment	3
4	Seminar/ Viva	3
<i>Total Marks</i>		15

**Table 2: Pattern of Test Papers**

<i>Duration</i>	<i>Pattern</i>	<i>Total number of questions</i>	<i>Number of questions to be answered</i>	<i>Marks for each question</i>	<i>Marks</i>
2 Hours	Short answer	12	10-12	2	20
	Paragraph/problem	7	6-7	5	30
	Essay	2	1	10	10
<i>Total Marks*</i>					60

\*90% and above = 6, 80 to below 90% = 5.5, 70 to below 80% = 5, 60 to below 70% = 4.5, 50 to below 60% = 4, 40 to below 50% = 3.5, 35 to below 40% = 3, 25 to below 30% = 2.5, 15 to below 20 = 2, less than 15 = 0

## **2. EXTERNAL EVALUATION**

External evaluation carries 80% marks. University examinations will be conducted at the end of each semester.

**Table 1: Pattern of Question Papers**

<i>Duration</i>	<i>Pattern</i>	<i>Total number of questions</i>	<i>Number of questions to be answered</i>	<i>Marks for each question</i>	<i>Marks</i>
2 Hours	Short answer	12	10-12	2	20
	Paragraph/problem	7	6-7	5	30
	Essay	2	1	10	10
<i>Total Marks</i>					60

### Practical Evaluation (Complementary)

Internal		External	
Record	4	Record with 20 experimrnts. Max. ½ mark for one expt.	10
Regularity	4	Formulae, Theory, Principle	22
Attendance	4	Adjustments, setting	14
Test I	4	Tabulation & Observation	20
Test II	4	Calculation, graph, result, unit	10
		Viva	4
<b>Total</b>	<b>20</b>	<b>Total</b>	<b>80</b>

**OPEN COURSE STRUCTURE**  
**(FOR STUDENTS OTHER THAN B.Sc. Physics)**  
**Total Credits: 2 (Internal 20%; External 80%)**

<i>Semester</i>	<i>Code No</i>	<i>Course Title</i>	<i>Hours/Week</i>	<i>Total Hours</i>	<i>Marks</i>
<b>5</b>	PHY5D01(1)	Open Course 1: Non conventional Energy Sources	3	54	75
	PHY5D01(2)	Open Course 2: Amateur Astronomy and Astrophysics			
	PHY5D01(3)	Open Course 3: Elements of Medical Physics			

**OPEN COURSE: EVALUATION SCHEME**

The evaluation scheme contains two parts: *viz.*, internal evaluation and external evaluation.

**Maximum marks from each unit are prescribed in the syllabus.**

**Problems are not required**

**1. INTERNAL EVALUATION**

20% of the total marks are for internal evaluation. The colleges shall send only the marks obtained for internal examination to the university.

**Table 1: Components of Evaluation**

<i>Sl. No.</i>	<i>Components</i>	<i>Marks for 2/3 credits papers</i>
1	Class room participation based on attendance	3
2	Test paper: I	6
3	Assignment	3
4	Seminar/ Viva	3
<i>Total Marks*</i>		15

**Table 2: Pattern of Test Papers (Internal)**

<i>Duration</i>	<i>Pattern</i>	<i>Total number of questions</i>	<i>Number of questions to be answered</i>	<i>Marks for each question</i>	<i>Marks</i>
2 Hours	Short answer	12	10-12	2	20
	Paragraph/problem	7	6-7	5	30
	Essay	2	1	10	10
<i>Total Marks*</i>					60

\*90% and above = 6, 80 to below 90% = 5.5, 70 to below 80% = 5, 60 to below 70% = 4.5, 50 to below 60% = 4, 40 to below 50% = 3.5, 35 to below 40% = 3, 25 to below 30% = 2.5, 15 to below 20=2, less than 15 = 0

## **2. EXTERNAL EVALUATION**

External evaluation carries 80% marks. University examination will be conducted at the end of 5<sup>th</sup> semester.

**Table 1: Pattern of Question Paper**

<i>Duration</i>	<i>Pattern</i>	<i>Total number of questions</i>	<i>Number of questions to be answered</i>	<i>Marks for each question</i>	<i>Marks</i>
2 Hours	Short answer	12	10-12	2	20
	Paragraph/problem	7	6-7	5	30
	Essay	2	1	10	10
<i>Total Marks</i>					60