S.P.Mandali's

RAMNARAIN RUIA AUTONOMOUS COLLEGE

DEPARTMENT OF PHYSICS

31/03/2022

BOS MEETING (On ZOOM Online Platform)

Minutes of Meeting

(06:00PM – 08:00PM)

Members Present:

Sr. No.	Name	Designation
1.	Dr. Vijay Mayekar	Associate Professor and Head of the Department
2.	Dr. Varsha Shukla	Vice Principal, Ramnarain Ruia Autonomous College
3.	Dr. Rajendra Rathi	Assistant Professor
4.	Dr. Pratap Patil	Associate Professor
5.	Prof. Nana Pradhan	Professor
6.	Mr. Bhupesh Mude	Associate Professor
7.	Mr. Onkar Ramdasi	Assistant Professor
8.	Mr. Devendra Chavan	Assistant Professor
9.	Dr. Vinita Dhulia	Head, Department of Physics, NES Ratnam College, Mumbai
10.	Dr. Neetu Jha	UGC-Assistant Professor, ICT Mumbai
11.	Dr. Nilesh Wagholikar	Head, Department of Physics, S.P. College, Pune
12.	Dr. L.B Tiwari	Senior Manager, R and D technical services, Pidilte Industries
13.	Dr. Vinita Navalkar	Reviewer, Journal of Visualized Experiments (JoVE)

- Introduction & Welcome of New BOS Members by Dr. Vijay Mayekar, HOD.

Agenda Item No. 1 – To seek approval of the Choice Based Credit System as per the UGC template

Assistant Professor Onkar presented Choice Based Credit System as per the UGC template

DISCUSSED THAT:

- Change in the total number of credits for the UG and PG programs
- 4 Core Papers each in three disciplines of choice – 12 Core Papers
- Addition of 2 Ability Enhancement Compulsory Course (AECC)
- Minimum 4 Skill Enhancement Courses (SECC)
- 2 Papers each from a list of Discipline Specific Elective papers based on three of Discipline Specific Elective

RESOLVED THAT:

RAMNARAIN RUIA AUTONOMOUS COLLEGE 1937 MUMBAI-19.

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- BOS Members Approved the Changes

- ***Dr. Varsha Shukla intervened, adding that since the new BOS has arrived, we have switched from a credit-based system to a choice-based credit system and that if the general idea of that is accepted by the committee, it would be preferable.***
- ***Dr. Vijay Mayekar requested the members to present their views on the current choice based credit system and seeked the approval of the same.***

RESOLVED THAT:

BOS Members approved Choice Based Credit System as per the UGC template

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Agenda Item No. 2 – UG Section – Changes in the S.Y.B.Sc Syllabus

DISCUSSED THAT:

1.1 RUSPHY301 (Mechanics and Thermodynamics)

Unit – I

- "Center of mass and collisions" part of the unit has been shifted to F.Y.B.Sc. syllabus in year 2021-22.
- Dr. Pradhan referred to the addition of "Lagrange equations" from TYBSc Paper RUSPHY601 this year-2022-23, to fill in the gap of the part which has been shifted to F.Y.B.Sc.
- "Oscillations part" from the unit have been removed since it has already been covered in S.Y.J.C.

Unit – II

- Clausius Theorem, Entropy part has been shifted to F.Y.B.Sc. syllabus in year 2021-22.
- Dr. Rajendra Rathi, referred to addition of "radiation part of Thermal Physics" section might be included in lieu of the relocated part, and any other recommendations from BOS members are also welcome.
- Statistical Physics part has been added from the T.Y.B.Sc. Syllabus of Paper, this year-2022-23.

Unit – III

- Accepted with NO change in the Syllabus

1.2 RUSPHY302 (Analog Electronics)

Unit – I

- Accepted with No change in the Syllabus

Unit – II

- "Transistor Biasing" Part has been shifted to F.Y.B.Sc. in year 2021-22.

- "J-FET and MOSFET" Part has been included as new topic in the syllabus from TYBSc paper RUSPHY602 this year 2022-23

Unit – III

- "OpAmp-Introduction" part of the Unit has been shifted down to F.Y.B.Sc. in year 2021-22

1.3 RUSPHY303 (Applied Physics – I)

- Accepted with no change in the Syllabus

1.4 RUSPHY401 (Optics, Applied Optics)

Unit – I

- "Interference in Thin Films and Fresnel Diffraction" shifted to the F.Y.B.Sc. paper RUSPHY101 (as part of Unit – I).
- "Resolving power of the optical instruments" part has been included as new part in Unit-I, this year-2022-23

Unit – II

- Accepted with No change in the Syllabus

Unit – III

- Accepted with No change in the Syllabus

1.5 RUSPHY402 (Introduction to Quantum Mechanics)

Unit – I

- The Full "Introduction to Quantum Mechanics" unit has been shifted to the F.Y.B.Sc. paper RUSPHY102 (as full Unit – III) in year 2021-22

- Unit – II of old curriculum has now become Unit – I of the Syllabus

Unit – II

- Unit – III of old curriculum has now become Unit – II of the Syllabus.

Unit – III

- "Schrodinger Equation and Hydrogen Atom" has been shifted from TYBSc Paper RUSPHY503, this year-2022-23.

1.6 RUSPHY403 (Applied Physics - II)

- Accepted with no change in the Syllabus.

RESOLVED THAT:

- BOS member approved modified syllabus.

Semester – I Practical-reorganisation and addition of new Practical.

Skill Experiments

- Accepted with no change in the Syllabus

Regular Experiments: Group A

- Single Slit Diffraction Practical has been added
- Narrow-Wire Diffraction Interference fringes practical has been added
- Ultrasonic Interferometry to find out adiabatic compressibility of liquid practical has been added.

Regular Experiments: Group B

- XRD Pattern analysis using ORIGIN Practical has been added.
- GM-Counter simulation practical has been added.
- *Dr. Vinita Navalkar proposed that students be exposed to the Linux operating system because many research institutes use it, and that alternative charting software such as GNUPLOT be taught to them.*

Semester – II Practical

- Accepted with no change in the Syllabus

RESOLVED THAT:

- BOS member approved the syllabus changes.

Agenda Item No. 3 – Modalities of the Examination System

DISCUSSED THAT:

Theory Examination Pattern:

A) **Internal Assessment – (40%** of 100 marks) = **40 marks.**

Theory Paper-Paper code	Internal test marks	Assignment	Marks distribution	Total Marks per paper

Mechanics, Optics &Thermodynamics RUSPHY101	**20**	15 questions On units1,2,3	Assessment- 15 Viva on it --05 ---------- **Total= 20 mark**	**40**
Nuclear Physics & Quantum Mechanics RUSPHY102	**20**	15 questions On units1,2,3	Assessment- 15 Viva on it --05 ---------- **Total= 20 mark**	**40**

B) Internal test pattern (Half Hour Test)

Questions	Options	Marks
Q.1	20 objective questions, all compulsory, each question with 4 options (half mark each)	10
Q.2	Attempt any two numerical out of four.(3 marks each)	06
Q.3	Attempt any one numerical out of two.(4 marks each)	04
	Total marks	**20**

C) External examination - 60 % of 100 marks = 60 marks

Semester-end Theory Assessment - 60 marks

1. Duration - These examinations shall be of **2 hours** duration.
2. Paper Pattern: All questions shall be compulsory with internal choice within the questions.

Questions	Options	Marks	Questions on
Q.1)A)	Any 2 out of 4	14	Unit I
Q.1)B)	Any 1 out of 2	01	
Q.2)A)	Any 2 out of 4	14	Unit II
Q.2)B)	Any 1 out of 2	01	
Q.3)A)	Any 2 out of 4	14	Unit III
Q.3)B)	Any 1 out of 2	01	
Q.4)A)	Any 1 out of 2	5	Unit I
Q.4)B)	Any 1 out of 2	5	Unit II
Q.4)C)	Any 1 out of 2	5	Unit III
Total marks		**60**	

Practical Examination Pattern:

(A) Internal Examination:

Sr. No.	Activity	Practical-Group-A(Marks)	Practical-Group-B(Marks)
1.	**Continuous Assessment** (1.5 marks per experiment/ 5 regular and 3 skill experiment)	12	12
2.	**Main Journal** (one mark per experiment for 5 regular and 3 skill experiment)	8	8
	Total (= 1 + 2)	**20**	**20**
	Skill experiments= 06 for certified journal Main experiments = minimum 10 for certified Journal per Semester (5 each from experiment group A and B)		

(B) External (Semester-end practical examination):

Sr. No.	Particulars	Practical-Group-A(Marks)	Practical-Group-B(Marks)
1.	Laboratory work	25	25
2.	Viva	5	5
	Total **(= 1 + 2)**	**30**	**30**

Overall Examination and Marks Distribution Pattern- Semester I

Course	RUSPHY101 (Marks)			RUSPHY102 (Marks)			Total (Marks)
	Internal	External	Total	Internal	External	Total	
Theory	40	60	100	40	60	100	200
Practical	20	30	50	20	30	50	100

(GRAND TOTAL MARKS: 300)

RESOLVED THAT:

- **BOS member approved the modalities.**

Agenda 4 – To approve 2-4 certificate courses offered by SWAYAM/NPTEL/MOOC/College.

DISCUSSED THAT:

- Students from all the courses are encouraged to take certificate courses offered by SWAYAM/NPTEL/MOOC etc. regarding different topics in Physics.

Sr. No.	Class	Course Description and Institute
1	T.Y.B.Sc.	Introduction to Atmospheric Space Sciences through Swayam – Prof. M.V. Sunil Krishna, IIT Roorke.
2	T.Y.B.Sc.	Introduction to Photonics-M.Sc. Photonics – Manipal University – Prof. Balaji Srinivasan, IIT Madras

3	S.Y.B.Sc.	Quantum Mechanics, IIT Bombay
4	B.Sc.	Experimental Physics – I,II,III – Prof. Amal Kumar Das, IIT Kharagpur
5	T.Y.B.Sc., M.Sc.	Physics of Biological Systems – Prof. Mithun Mitra
6	M.Sc.	Optical Sensors – Prof. Sachin Srivastava, IIT Roorke

- *Dr. Vinita Dhulia pointed out that some NPTEL courses are 8-12 weeks long, which can be taxing, so caution should be exercised when choosing courses.*
- *Dr. L.B. Tiwari pointed out that everything student learn at the B.Sc. level is not required by the industry. It will be preferable if you can accomplish anything that is industry or employment relevant. If you look at chemical industries, paint industries, and polymer industries, Color Physics is one such example of a job-oriented career.*

RESOLVED THAT:

BOS members accepted the Certificate Courses

Agenda Item No. 5 – Changes in the PG Curriculum

DISCUSSED THAT:

As per the new UGC template, there will be:

- 11 Core Courses
- 3 Discipline Specific Electives (DSE)
- 2 Research Projects/Internships
- 2 Ability Enhancement Compulsory Courses (AECC)
- 1 MOOC/Swayam/NPTEL/Case Study Course

All these courses with their credits are spanned over the entire 4 Semesters as Follows:

Sr. No	Course	Theory Credits	Practical Credits	Description
1	Core I	4	2	Common for the Cluster
	Core II	4	2	Offered by the Department
	Core III	4	2	Offered by the Department
	Discipline Specific Elective(Skill based)	2	2	Offered by the Departments in the cluster
	Ability Enhancement	2	0	Offered by College
2	Core I	4	2	Common for the cluster
	Core II	4	2	Offered by the Department
	Core III	4	2	Offered by the Department
	Discipline Specific Elective(Skill based)	2	2	Offered by the Departments in the cluster
	Ability Enhancement	2	0	Offered by College
3	Core I	4	2	Offered by the Department
	Core II	4	2	Offered by the Department
	Research Project/ Internship	0	6	-
	Discipline Specific Elective(Skill based)	2	2	Offered by the Departments in the cluster
	MOOCs/Swayam/Coursera/Workshops/ Case study	0	2	College/Department/National/International
4	Core I	4	2	Offered by the Department
	Core II	4	2	Offered by the Department
	Core III	4	2	Offered by the Department

	Research Project/Internship	0	6	-

- Electronics is the main applied subject in M.Sc. Physics
- In terms of career chances, M.Sc. Physics students compete with Engineering Students in the industry, with Engineering Students being favoured over M.Sc. Physics students.
- As a result, Material Science is being considered to replace Electronics at the M.Sc. level.
- Dr Vijay Mayekar - Because PG students from many similar colleges are having difficulty finding work, these colleges can band together and approach an industry expert for proper guidance based on industry requirements. This will boost the students' chances of being hired by the sector.
- Dr. Neetu Jha - Because research projects are required as part of the PG curriculum, students can choose topics that are in line with industry needs or they can get input from the industry and arrange their projects accordingly.

RESOLVED THAT:

- **BOS members approved the restructured PG Curriculum**

- The meeting ended with Concluding Remarks and Vote of Thanks by Dr. Vijay Mayekar, Head of the Department.

Dr. Vijay Mayekar
Associate Professor and Head,
Department of Physics,
Ramnarain Ruia Autonomous College

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