2018 - 2019

Minutes of Board of Studies in physics held on 09.02.2019 at 10.00 AM in the Department of Physics.

Members Present :

1. Dr. D. Prem Anand	- CHAIRMAN
2. Dr. S. Paul Raj	- MEMBER
3. Rev. Dr. Danis Ponniah	- "
4. Dr. V. Sivashankar	- "
5. Dr. G. David Rathinavelu	- "
6. Dr. B. Helina	- "
7. Dr. R. Mary Jenila	- "
8. Dr. S. Anna Venus	- "
9. Dr. S.G. Rejith	- "
10. Dr. M. Augustine	- "
11. Dr. L. Arun Jose	- "
12 Dr. P. Murugakoothan	- University nominee
13. Dr. R. Ramesh Babu	- External expert
14. Dr. G. Ravi	- "
15. Dr. A. Jestin Lenus	- Alominus
16. Ms. K. Mahalakshmi	- Student Representative
17. Ms. S. Shri Janani	- "

The board approved the minutes of the previous meetings held on 10.2.2018 and 10.10.2018.

The board suggest to remove few topics like "magnetic spectrograph and line and continuous spectrum" in unit III and "neutron detection and neutron collimator" in unit IV of "Nuclear Physics" and recommends to modify the syllabus of "Reactor Physics" based on the representation from UG Students.

The board recommends to reduce the contents of unit I of "Electromagnetic Theory and plasma physics" and "Communication Physics" as per the representation from PG Students. It is also suggested to realign the syllabus of "Electromagnetic Theory and plasma physics" paper from unit II to unit V for continuity.

The board suggest to rearrange the topics of all the units of Condensed Matter Physics according to their properties and also recommends to add two more experiments in practicals II and IV.

The board suggest to change the contents of unit-IV and unit-V of the Ph.D course Study paper titled "Research Methodology" and recommends to rename unit-IV as "characterization techniques".

The board approves to introduce five new Ph.D course Study papers, namely,

(i) Crystal growth methods.
(ii) Thin film techniques
(iii) Space Physics
(iv) Nanomaterials and
(v) Nonlinear dynamics.

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12. ABSENT
13. [signature] 09/02/2019.
14. ABSENT
15. ABSENT
16. K. Mahalakshmi.
17. S. Shri Tavasi

Minutes of Board of Studies in Physics held on 08.02.2020 at 10.00 AM in the Department of Physics

Members Present:

1.	Dr. D. PREM ANAND	— CHAIR MAN
2.	Dr. S. PAULRAJ	— MEMBER
3.	Dr. V. SIVASHANKAR	— "
4.	Dr. G. DAVID RATHINAVELU	— "
5.	Dr. B. HELINA	— "
6.	Dr. S. ANNA VENUS	— "
7.	Dr. R. MARY JEMLA	— "
8.	Dr. S.G. REJITH	— "
9.	Dr. M. AUGUSTINE	— "
10.	Dr. L. ARUN JOSE	— "
11.	Dr. M. MELVIN DAVID KUMAR	— "
12.	Dr. P. MURUGA KOOTHAN	— UNIVERSITY NOMINEE
13.	Dr. R. RAMESH BABU	— EXTERNAL EXPERT
14.	Dr. G. RAM	— "
15.	Dr. A. JESTIN LENUS	— ALUMINUS
16.	Mr. K. PAVAN VINAY	— PhD STUDENT REPRESENTATIVE

The board approved the minutes of the previous meeting held on 09.02.2019.

In the Heat and Thermodynamics and Electricity and Magnetism practical papers the board suggest to add two more experiments. Also, the board approves to change the title of the PG paper "Microprocessor and Microcontrollers" to "Microprocessor and Microcontroller".

The board propose some major changes/revamps to be done in the UG paper titled "Optics and Lasers" and in some PG papers titled "Electromagnetic Theory, Condensed Matter Physics, Material Synthesis and Characterization, Nanoscience and Technology". This can be carried out after the deliberation in the next Board of Studies meeting. Also it is suggested to give

titles to every units in all the major and Allied physics papers after presenting them in the next Board.

The board approves to introduce three certificate courses in the UG syllabi from the next academic year (2020-2021) titled

(i) Experimental Physics
(ii) Neutrino Physics and
(iii) Bio Physics

Two certificate courses in the PG syllabi from the next academic year (2020-2021), titled

(1) Experimental techniques and
(2) Quantum Computing

The board identified two external experts for the next board of Studies meeting, namely

(1) Dr. Sundarakannan, Associate Professor and Head Department of Physics, MS University, Tirunelveli
(2) Dr. N. Prithivikumaran, Associate Professor and Head, Department of Physics, VHNSN college, Virudhunagar

One Alumnus,

(1) Dr. H. Johnson, Associate Professor, Dept of Physics, Pope's College, Sawyerpuram

and an Industrial expert,

(1) Dr. P. Pandaram, Scientist G, Kudankulam Nuclear Power Plant, Kudankulam.

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2020 - 2021

(UG Syllabus revision)

Minutes of the Board of Studies in Physics held on 06.02.2021 at 10.00 AM in the Department of Physics.

Members present:

1.	Dr. D. Prem Anand	– CHAIRMAN
2.	Dr. S. Paulraj	– MEMBER
3.	Dr. V. Sivashankar	– "
4.	Dr. G. David Rathinavelu	– "
5.	Dr. B. Helina	– "
6.	Dr. S. Anna Venus	– "
7.	Dr. G. Ravi	– EXTERNAL EXPERT
8.	Dr. P. Selvarajan	– EXTERNAL EXPERT
9.	Dr. R. Ramesh	– EXTERNAL EXPERT
10.	Manoj M. Rajesh	– UG STUDENT REPRESENTATIVE.

The board approved the minutes of the previous meeting held on 08.02.2020.

It is resolved that the senior faculty member must be the chairman of the Board of Studies. The board suggested the following changes in the B.Sc Physics Syllabus.

In the paper titled "Properties of matter & Acoustics" can be changed to Properties of Matter and Sound. In unit II & III some topics can be added in unit II & III and in unit-V, the typing error can be corrected.

In the 4th unit of Introduction to Solar energy paper. "Photo voltaic effect" topic can be added and also the syllabus can be rearranged into 3 units.

In the Heat & Thermodynamics paper, In unit-III Lewith law, In unit IV - methods and In unit-V Comparison of three Statistics can be added.

In "Nuclear Energy & Applications" paper the syllabus can be rearranged into 3 units.

The board approves that, the Professional English" can be introduced instead of "Space Science & Cosmology" as per the guidelines of TANSCHE.

In the "Physics for competitive Exams" Papers the topics in the units can be reduced.

In the paper titled "Mechanics", the topic "venturimeter" can be included in Unit-III.

In the paper titled "Every day Electronics" the title can be changed to "Electronics in Daily life".

In the paper "Programming in C & C++" some topics can be added in Unit-V.

In the paper "Electronics-I", the schottky diode can be added in Unit-II.

for the paper "fibre Optics", "foculs effect" topic can be added.

In the paper "Quantum mechanics", In unit-I, the repetition of G.P. Thomson effect can be deleted and the "The Compton effect" can be added.

In Unit-III of Electronics-II, the typical error can be corrected.

In "Solid State Physics" Paper, "Semiconducting materials" can be added in Unit-III and "Superconducting materials" can be added in Unit-V.

In the paper titled "Instrumentation" the Unit-5 can be revamped.

Regarding the paper titled "Reactor Physics" the board suggested the Scientist from Koodankulam Nuclear Power Project can be participated in the Board of Studies meeting.

The Board also approved that "fusion & fission reactor" topics to be added in Unit-III.

In "Nano Physics" paper, "Dynamic Light Scattering (DLS) can be included. In Unit-I, the title can be changed into "Introduction and the whole topics" in unit-I can be revamped. The Board also suggested that, the title can be changed into "Methods of Preparation" for Unit-II.

In this paper "Allied Physics-I", the topic "Conventional energy Sources" can be changed into "Energy resources".

In this paper titled "Allied Physics-II", the typical error can be corrected.

In Unit-5, Galilean transformation "can be deleted and in "variation of mass with velocity" topic Explanation only can be mentioned.

As suggested by the previous Board of Studies meeting, LCR Series, Parallel resonance circuits can be added in the "Electricity and Magnetism" Practicals.

Signatures:

1. D Prem Anand
2.
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5. B. Helina
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10. Manoj. M. Rajesh.

PG Syllabus revision.

The Board suggested the following changes regarding the PG Syllabus revision.

1. As per the Guidelines prescribed by TANSCHE, the syllabus can be revamped.

2. "for the "Energy physics paper" the units can be revamped.

The following members were present.

1. Dr. D. Prem Anand - CHAIRMAN
2. Dr. R. Mary Jenila - MEMBER.
3. Dr. S. G. Rejith - MEMBER.
4. Dr. M. Augustine - MEMBER.
5. Dr. L. Arun Jose - MEMBER.
6. Dr. M. Melvin David Kumar - MEMBER.
7. Mr. R. CHRISTHU RAJA - MEMBER
8. Dr. G. RAVI - EXTERNAL EXPERT.
9. Dr. P. SELVARAJAN - EXTERNAL EXPERT
10. Dr. R. RAMESH - EXTERNAL EXPERT
11. K. GNANA SOUNDARI - PG REPRESENTATIVE (STUDENT)

Signatures:

1. A Prem Anand
2. R M Aceval
3. [illegible]
4. [illegible]
5. [illegible]
6. —ABSENT—
7. [illegible]
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2021-2022.

(UG Syllabus revision)

Minutes of the Board of Studies in Physics held on 23.04.2022 at 10.00 Am in the department of Physics.

Members present:

1. Dr.D. Prem Anand	— CHAIRMAN
2. Dr.S. Paulraj	— MEMBER.
3. Dr.V. Sivashankar	— "
4. Dr.G. David Rathinavelu	— "
5. Dr.B. Helina	— "
~~6. Dr.B. Helina.~~	
6. Dr.S. Annavenus	— "
7. Dr.P. Selvarajan.	— EXTERNAL EXPERT.
8. Dr.R. Mary jenila.	— MEMBER
9. Dr.S.G. Rejith	— "
10. Dr.M Augustine	— "
11. Dr.L. Arunjose	— "
12 Dr.M. Melvin David Kumar.	— "
13. Mr.R. Christhuraja.	— "
14. Dr.L Antony Selvam	— "
15. Dr. D.E. Jain Ruth	— "
16. Drs. Aron Rabi	— "
17. S. Singarayar.	— STUDENT REPRESENTATIVE

The board approved the minutes of the previous meeting held on 06.02.2021.

It is suggested that senior faculty member will be the Head of Physics department and also it is suggested that the HOD of Physics will be the chairman of the Board of Studies.

UG syllabus revision.

In this paper titled "Heat & Thermodynamics" Weins displacement, Rayleigh jeans law, Stefan's constant can be included in Unit-I. Maxwell Boltzmann statistics can be included in the Quantum Statistics" topic. The typical error in the title can be corrected.

for "Physics for Competitive Exams" papers. In Unit IV → the title can be changed into Electricity & Electronics. In Unit V - Atomic & Nuclear Physics title can be introduced instead of the previous one. Diode, transistor, logic gates can be shifted to Unit 4. 600 Questions of Question bank can be prepared for this paper, 300 Questions can be asked for internal & external exam from this question bank.

In "Optics & Lasers" paper. In unit I "compound microscope" is repeated. it can be removed. In unit II Haidenger's fringes & Michelson interferometer topics can be deleted. In "Mechanics" paper typical error can be corrected in unit I. "Impulse of a force" can be changed to Impulse - Elastic & inelastic collision. "Linear momentum" topic can be added. "Impact between two smooth spheres" changed to "Direct impact between two smooth spheres. In unit 2 M.I of a solid disc can be added "radiation of gyration" can be changed to "radius of gyration. In unit 3, Application can be deleted. Typical errors can also be deleted. In unit-4 "law of floatation" can be changed to "Laws of floatation. In Text books Sl.nos can be corrected

In "Instrumentation" papers "Taut Band" suspension topic can be included before Suspension galvanometer. In unit - II the topics voltmeter, ammeter method of resistance topics can be deleted.

DATE

Dc indicating instrument" topic can be deleted. "Thermo couple instrument" topic can be changed to Rf Ammeter (Thermocouple". In unit 3,4, typical error can be corrected.

In this paper "Digital Principles", in unit-I typical error can be corrected.

In "Nuclear Physics" paper there is no correction in that. In this paper "fibre optics" - Manufacturing methods of fibres can be added.

In "Quantum mechanics" paper, in Unit-II "a ray microscope" into "γ-ray microscope. In Unit IV "the" word can be deleted.

In this paper "Reactor Physics", the text book can be compiled by the faculty members who are handling this paper.

for Unit I & II → Dr. Melvin david kumar
For III Unit → Dr. Anna Venus.
For IV & V units - Dr. D.E. Jain Ruth.
will be the in charges.

For "Nano Physics" paper, In unit-III under the topic "chemical methods" → particular method can be added in that.

For this paper "Allied Physics-I" (which is for Chemistry and Mathematics department, the same subject code can be followed.

In "Nuclear Energy & Applications" paper Chernobyl disaster & Nuclear Hazards" can be added.

In unit II, these above said topics can be deleted.

In Unit III Under the topic "chernobyl disaster" — fukushima & three mile island disaster" topics can be added.

PG Syllabus revision:

In "Medical Physics" paper In Unit-V One Book for study can be added.

In this paper "Condensed matter Physics" by S.O. Pillai & Arumugam can be added for Book for study.

The reference books in Serial no 2.4 can be changed.

In this paper titled "Spectroscopy" "Nuclear Quadrupole resonance" can be deleted

In this paper "Nuclear Physics and Elementary Particles", In Unit-II "Meson Theory of Nuclear forms" can be changed into "Meson Theory of Nuclear forces.

In this paper titled, "Nanophysics" topics in the Unit III can be rearranged.

In Unit-IV, fourier Transform Infrared Spectroscopy (FTIR), Scanning Probe Microscope (SPM) can be included.

PAGE NO.
DATE

Regarding the Internship, there is no feasibility for Under graduate students.

It is also suggested that, in the possibility of Memorandum of Understanding with the Institution, it can be done with the Wind mill, Aralvaimozhi, Liquid propulsion Space centre (Mahendragiri), Koodankulam Nuclear Power Project Koodankulam & Indian Institute of Geo Magnetism, Krishnapuram.

Signatures.

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PAGE NO
DATE

2022 – 2023

UG and PG syllabus revision.

Minutes of the Board of Studies in Physics department held on 18.03.2023 (Saturday) at 10.00 a.m

Members Present.

1. Dr. S. Helina	– CHAIRMAN
2. Dr. S. Paulraj	– MEMBER
3. Dr. D. Prem Anand	– "
4. Dr. V. Sivashankar	– "
5. Dr. G. David Rathinavelu	– "
6. Dr. S. Anna Venus	– "
7. Dr. P. Selvarajan	– EXTERNAL EXPERT
8. Dr. R. Mary Jenila	– MEMBER
9. Dr S. G. Rejith	– "
10. Dr. L. Arun Jose	– "
11 Mr. R. Christu Raja	– "
12. Dr. D. E. Jain Ruth	– "
13. Dr. S. Aron Rabi	– "
14. Dr. L. Antony Selvam	– "
15. Dr. M. Sheela Vdhaya Roselin	– "
16. O. Meena	– Student
17. A. Francy	– "

Minutes of the Board of Studies

The Board of Studies Meeting of the Department of Physics was held on 18.03.2023 in the department at 10.00 am. The meeting started with a prayer followed by the welcome address of the Head of the Department.

Agenda of the Meeting:

1. Minutes of the Previous Board of Studies Meeting
2. Discussion on the UG/PG Syllabi and Suggestion for next revision.
3. New panel for Board of Studies
   a) Subject Experts - 2 members
   b) Alumnus - 1 member
   c) Industrialist - 1 member
4. Any other matter

Members Present:

1. Dr. S. Helina - CHAIRMAN
2. Dr. S. Paulraj - MEMBER
3. Dr. D. Prem Anand - "
4. Dr. V. Siva Shankar - "
5. Dr. G. David Rathinavelu - "
6. Dr. S. Anna Venus - "
7. Dr. P. Selvarajan - EXTERNAL EXPERT
8. Dr. R. Mary Jenila - MEMBER
9. Dr. S. G. Rejith - "
10. Dr. L. Arun Jose - "
11. Mr. R. Christy Raja - "
12. Dr. D. E. Jain Ruth - "
13. Dr. S. Aaron Rabi - "
14. Dr. L. Antony Selvam - "

15. Dr. M. Sheela Udhaya Roselin - Member
16. Ms. O. Meena - Student Representative
17. Ms. Francy - "
18. Mr. M. Sappani Muthu - Member

The following members could not attend the meeting due to various reasons:

1. Dr. A. Justin Denus (University Representative)
2. Dr. G. Ravi (Subject Expert)
3. Dr. P. Pandiarem (Industrial Expert + Alumnus)

Based on the discussions on the agenda the following suggestions were made by the board:

(i) The board approved to change the syllabus pattern according to TANSHE pattern for UG program.

(ii) For III year UG students the internship program is approved to be implemented in V semester.

(iii) Also for III UG students the project will be implemented in V semester.

(iv) The hours of the core and allied papers are suggested to be adjusted.

(v) The hours of the UG practical papers will also be adjusted.

UG Science Course Pattern
(With Effect from June 2023)

Sem	Part	Status	Sub. Code	Title of the Paper	Hrs	Cdt
I	I	Lang	23UGT11	General Tamil – I	6	3
	I	Lang	23UGH11	Hindi – I		
	I	Lang	23UGF11	French - I		
	II	Lang	23UGE11	General English - I	4	3
	III	Core-T1	23xxx11	Core theory	5	5
	III	Core-P1	23xxx12	Core Practical	3	3
	III	EC-T1	23UEC11	Elective Course (Allied Theory)	4	2
	III	EC-P1	23UEC12	Elective Course (Allied Practical)	2	1
	IV	SEC1	23USE11	Skill Enhancement Course (NME)	2	2
	IV	AECC1	23UAE11	English	2	2
	IV	EC	23UVE11	Religion / Ethics	2	2
					30	23
II	I	Lang	23UGT21	General Tamil – II	6	3
	I	Lang	23UGH21	Hindi – II		
	I	Lang	23UGF21	French - II		
	II	Lang	23UGE21	General English - II	4	3
	III	Core-T2	23xxx21	Core theory	5	5
	III	Core-P2	23xxx22	Core Practical	3	3
	III	EC-T2	23UEC21	Elective Course (Allied Theory)	4	2
	III	EC-P2	23UEC22	Elective Course (Allied Practical)	2	1
	IV	SEC2	23USE21	Skill Enhancement Course (NME)	2	2
	IV	SEC3	23USE22	Discipline Specific/Generic	2	2
	IV	AECC2	23UAE21	English	2	2
					30	23
III	I	Lang	23UGT31	General Tamil – III	6	3
	I	Lang	23UGH31	Hindi – III		
	I	Lang	23UGF31	French - III		
	II	Lang	23UGE31	General English - III	4	3
	III	Core-T3	23xxx31	Core theory	5	5
	III	Core-P3	23xxx32	Core Practical	3	3
	III	EC-T3	23UEC31	Elective Course (Allied Theory)	4	2
	III	EC-P3	23UEC32	Elective Course (Allied Practical)	2	1
	IV	SEC4	23USE31	Entrepreneurial Based	2	2
	IV	SEC5	23USE32	Skill Enhancement Course (NME)	2	2
	IV	AECC3	23UAE31	Integrated Personality Development	2	2
					30	23
IV	I	Lang	23UGT41	General Tamil – IV	6	3
	I	Lang	23UGH41	Hindi – IV		
	I	Lang	23UGF41	French - IV		
	II	Lang	23UGE41	General English - IV	4	3
	III	Core-T4	23xxx41	Core theory	4	4
	III	Core-P4	23xxx42	Core Practical	2	3
	III	EC-T4	23UEC41	Elective Course (Allied Theory)	4	2
	III	EC-P4	23UEC42	Elective Course (Allied Practical)	2	1
	IV	SEC6	23USE41	Skill Enhancement Course (NME)	2	2
	IV	SEC7	23USE42	Discipline Specific/Generic	2	2
	IV	AECC4	23UAE41	Naan Muthalvan-Digital Skills for Employability	2	2
	IV	EVS	23UES41	Environmental Studies	2	2
					30	24
V	III	Core-T5	23xxx51	Core Theory	5	3
	III	Core-T6	23xxx52	Core Theory	5	3
	III	Core-T7	23xxx53	Core Theory	4	3
	III	Core-P5	23xxx54	Core Practical	2	3
	III	Core-P6	23xxx55	Core Practical	2	3
	III	EC-T5	23UEC51	Elective theory	4	3
	IV	Project	23xxx55	Project	6	4
	IV	VE	23UVE51	Life Issues and Coping Skill Development	2	1
		Internship		Internship	-	2
					30	25
VI	III	Core-T8	23xxx61	Core Theory	5	3
	III	Core-T9	23xxx62	Core Theory	5	3
	III	Core-T10	23xxx63	Core Theory	4	3
	III	Core-P7	23xxx64	Core Practical	2	2
	III	Core-P8	23xxx65	Core Practical	2	2
	III	EC-T6	23UEC61	Elective theory	4	3
	III	EC-P6	23UEC62	Elective Practical	2	2
	IV	SEC8	23USE61	Professional Competency Skill Enhancement (Competitive Exam)	4	2
	IV	VE	23UVE61	Human rights and Social Analysis	2	1
	V	Extension		STAND	-	1
					30	22
				TOTAL	180	140

PG Science Programme Pattern
(With Effect from June 2023)

Sem	Part	Status	Sub Code	Title of the Paper	Hrs	Cdt
I	A	Core-1 Core-2 Core- 3	23xxx11 23xxx12 23xxx13	Core (T/P) Core (T/P) Core (T/P)	15	12
		EC-1 EC-2	23PEC11 23PEC12	Discipline Specific Elective Generic (open to all)	6 4	4 2
	B	SEC1 AECC1	23PSE11 23PAE11	Discipline Specific Discipline Specific	3 2	2 2
					30	22
II	A	Core-4 Core-5 Core- 6	23xxx21 23xxx22 23xxx23	Core (T/P) Core (T/P) Core (T/P)	15	12
		EC-3 EC-4	23PEC21 23PEC22	Discipline Specific Elective Generic (open to all)	6 4	4 2
	B	SEC2 AECC2	23PSE21 23PAE21	Discipline Specific Discipline Specific	3 2	2 2
					30	22
III	A	Core-7 Core-8 Core-9	23xxx31 23xxx32 23xxx33	Core (T/P) Core (T/P) Core (T/P)	15	12
		EC-5	23PEC31	Discipline Specific	5	3
		Core Industry module	23xxx34	-	4	3
	B	SEC 3	23PSE31	Professional Communication Skill (Term Paper &Seminar Presentation)	4	2
		AECC3	23PAE31	Soft Skill 3 – Foundation Course (Skills for employability)	2	2
		Internship	23xxx35	Carried out in summer vacation at the end of Sem II	-	2
					30	24
IV	A	Core-10 Core-11 Core-12	23xxx41 23xxx42 23xxx43	Core (T/P) Core (T/P) Core (T/P)	15	12
		EC-6	23PEC41	Discipline Specific	5	3
		Project with Viva voce	23xxx44	-	4	3
	B	SEC 4	23PSE41	Training for competitive Examination	4	2
		AECC3	23PAE41	Soft Skill 3 – Foundation Course (Skills for employability)	2	2
	C	Extension Activity		STAND carried out in the I year	-	1
					30	23
				Total	120	91

(vi) To implement the syllabus revision for PG program as per TANSCHE syllabus the board suggested further clarifications are needed.

(vii) Also to finalize the core papers and practical papers clarifications are needed.

(viii) The hours will be adjusted for core and practical papers after further clarifications.

Signatures:

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25/04/2023
UG

Minutes of the Board of Studies.

The Board of Studies meeting of the Department of Physics was held on 25.04.2023 at 10.30 a.m. The meeting started with a prayer followed by the welcome address of the Head of the Department.

Agenda of the meeting:

1. Minutes of the previous Board of Studies meeting
2. Finalizing programme pattern for UG/PG as per the TANSCHE model
3. Finalizing detailed syllabus for UG/PG programmes
4. Finalizing new panel for Board of Studies
5. Any other matter.

Members present:-

1.	Dr.S. Helina	– Chairman
2.	Dr.S. Paulraj	– Member.
3.	Dr. D. Prem Anand	– " .
4.	Dr. V. Sivasankar	– "
5.	Dr. G. David Rathinavelu	– "
6.	Dr.S. Anna Venus	– "
7.	Dr. P. Selvarajan.	– External Expert
8.	Dr. R. Mary Jenila.	– Member.
9.	Dr S.G. Rejith	– Member.
10.	Dr.L. Arun Jose	– "
11.	Mr. R. Christhu raja	– "
12.	Dr. D.E. Jain Ruth	– "
13.	Dr. S. Aron Rabi	– " .
14.	Dr. L. Antony Selvam	– " .
15.	Dr.M. Sheela Udaya Roselin	– "
16.	Mr. M. Sappani Muthu	– "
17	Mr Lokesh	– Student Representative
18.	Mr. Ronald	– " .

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The following members could not attend the meeting due to various reasons.

1. Dr. A. Justin Tenus (University Representative)
Associate Professor, Dept of Physics, Anna University
Chennai - 600 025.

2. Dr. G. Ravi (Subject Expert).
Associate Professor & Head, Department of Physics
Alagappa University, Karaikudi.

3. Dr. P. Pandaram (Industrial Expert) & Alumnus
Scientist "G"
Nuclear Power Plant
Kudankulam.

Based on the discussions on the agenda, the following suggestions were made by the board.

(i) The board has approved to change the syllabus pattern for UG/PG as per the TANSCHE model.

UG Syllabus revision:

* The board has suggested, General Mechanics & classical Mechanics can be included instead of Electricity & Magnetism Paper in III Semester.
* In the IV Semester, for unit I. half of the syllabus can be removed.
* for Unit V also, half of the syllabus can be removed.
* In the I, II Semester no changes necessary for the papers Properties of matter & Sound, Heat & Thermodynamics respectively.

* In the IV Semester, Atomic Physics & Lasers paper, Relativity & Quantum mechanics paper. no changes are necessary

* Analog Electronics, Basics of Data Communication and Programming in C can be added as Elective papers.

* In the VI Semester, Nuclear & Particle physics paper no change is not necessary.

* In the paper "Solid state Physics" lattice translational vectors, lattice with basis, Unit cell, Brillouin zones, reciprocal lattice Sc, Bcc & fcc can be removed.

* In Unit 2, Linear monoatomic, diatomic chains, Qualitative description of the phonon Spectrum in Solids, Einstein & Debye Theory of Specific heat of solids, T^3 law can be removed.

* In Unit 3, magnetic alloys topic can be removed.

* In Unit 4, Normal, anomalous dispersion, Cauchy & Sellmeier (i.e) relations, Plasma oscillations can be removed.

* For, Digital Electronics & Microprocessors changes are not necessary

* Integrated Electronics, Nanoscience & Nanotechnology can be included as Elective papers.

* The following NME papers can be included in first four semesters

I Sem → Physics for Every day life.
II Sem → Home Electrical Installation.
III Sem → Basic Instrumentation Skills.
IV Sem → Energy Physics.

for I Semester, fundamentals of Physics can be included as Discipline Specific paper for Sem IV Material Science paper can be included as.

Desciphine specific paper.
Astro physics paper can be included
SRE paper in III Semester.

* For Allied Physics (for Maths Students), In unit I, colors of thin film Application of Sugar industries can be deleted
* For Unit - II from Atomic model Nucleons topics can be deleted.
* In unit III → from Nuclear reactor to IAEA topics can be deleted
* In Unit V → from USB cell phone chargers to EV charging status can be deleted.
* For chemistry Students Allied Physics paper can be adjusted for 3 hours

PG Syllabus revision.

* In the paper titled "Mathematical Physical - I" no change.
* In the paper "Classical Mechanics Electronics changes are not necessary
* In the paper Desciphine Specific "Photonics & Applications" can be changed into "Material Physics & Processing Techniques
* In the paper 'Soft Skill - I" Solar Energy Utilization can be modified for 2 hours as per TANSCHE Syllabus
* For Semester II Mathematical Physics Thermodynamics & Statistical Physics, Quantum Mechanics - I no changes are necessary
* In Desciphine Specific "Medical Physics (or) General Relativity & Cosmology changes are not necessary

* In the paper "Soft Skills", Research Methodology no change.

* In the III Semester Condensed matter Physics Unit I, Unit II are merged & modified. on the basis of TANSCHE Syllabus.

* In the paper "Professional Communication Skill" the total hours can be given for Mini Projects (8 hours). Seminar presentation (8 hrs). This can be modified later

* In the IV Semester in "Nano Physics" paper slight modification can be done in the IV Unit

* In the paper "Problems in Core Physics" is included on the basis of NET Syllabus.

* In the Elective paper "Nano Physics / Atmospheric Physics can be changed into "Practicals for C++ programming".

UG Science Programme Pattern
(With Effect from June 2023)

Sem	Part	Status	Sub. Code	Title of the Paper	Hrs	Cdt
I	I	Lang	23UGT11	General Tamil – I	6	3
	I	Lang	23UGH11	Hindi – I	6	3
	I	Lang	23UGF11	French - I	4	3
	II	Lang	23UGE11	Communicative English - I	6	6
	III	Core-T1	23xxx11	Core theory (Properties of matter & Sound)	2	2
	III	Core-P1	23xxx12	Core Practical "	4	2
	III	EC-T1	23UEC11	Elective Course (Allied Theory)	2	1
	III	EC-P1	23UEC12	Elective Course (Allied Practical)	2	2
	IV	SEC1	23USE11	Skill Enhancement Course (NME) (Physics for Everyday Life)	2	2
	IV	AECC1	23UAE11	Ability Enhancement Compulsory Course-English	2	2
	IV	FC	23UVE11	Foundation Course-Discipline Specific (Fundamentals of Physics-I))	30	23
II	I	Lang	23UGT21	General Tamil – II	6	3
	I	Lang	23UGH21	Hindi – II	6	3
	I	Lang	23UGF21	French - II	4	3
	II	Lang	23UGE21	Communicative English - II	6	6
	III	Core-T2	23xxx21	Core theory (Heat, Thermodynamics & Statistical Physics)	2	2
	III	Core-P2	23xxx22	Core Practical "	4	2
	III	EC-T2	23UEC21	Elective Course (Allied Theory)	2	1
	III	EC-P2	23UEC22	Elective Course (Allied Practical)	2	2
	IV	SEC2	23USE21	Skill Enhancement Course (NME) (Home Electrical Installation)	2	2
	IV	SEC3	23USE22	Value Education – Religion/Ethics	2	2
	IV	AECC2	23UAE21	Naan Muthalvan: Cambridge Effective English	30	23
III	I	Lang	23UGT31	General Tamil – III	6	3
	I	Lang	23UGH31	Hindi – III	6	3
	I	Lang	23UGF31	French - III	4	3
	II	Lang	23UGE31	Communicative English - III	6	6
	III	Core-T3	23xxx31	Core theory (General Mechanics & Classical Mechanics)	2	2
	III	Core-P3	23xxx32	Core Practical "	4	2
	III	EC-T3	23UEC31	Elective Course (Allied Theory)	2	1
	III	EC-P3	23UEC32	Elective Course (Allied Practical)	2	2
	IV	SEC4	23USE31	Entrepreneurial Based (Astro Physics)	2	2
	IV	SEC5	23USE32	Skill Enhancement Course (NME)(Basic Instrumentation Skill)	2	2
	IV	AECC3	23UAE31	Integrated Personality Development	30	23
	I	Lang	23UGT41	General Tamil – IV		
	I	Lang	23UGH41	Hindi – IV		

IV	I	Lang	23UGF41	French - IV	6	3
	II	Lang	23UGE41	Communicative English - IV	4	3
	III	Core-T4	23xxx41	Core theory (Optics & Spectroscopy)	5	4
	III	Core-P4	23xxx42	Core Practical "	2	3
	III	EC-T4	23UEC41	Elective Course (Allied Theory)	3	2
	III	EC-P4	23UEC42	Elective Course (Allied Practical)	2	1
	IV	SEC6	23USE41	Skill Enhancement Course (NME) (Energy Physics)	2	2
	IV	SEC7	23USE42	Discipline Specific/Generic (Material Science)	2	2
	IV	AECC4	23UAE41	Naan Muthalvan: Digital Skills for Employability	2	2
	IV	EVS	23UES41	Environmental Studies	2	2
					30	24
V	III	Core-T5	23xxx51	Core Theory (Atomic Physics & Lasers)	5	3
	III	Core-T6	23xxx52	Core Theory (Relativity & Quantum Mechanics)	5	3
	III	Core-T7	23xxx53	Core Theory (Analog Electronics)	5	3
	III	Core-P5	23xxx54	Core Practical (E-I)	2	3
	III	EC-T5	23UEC51	Elective theory (Basis of Data Communication & Programming in C)	5	3
	III	EC-P5	23UEC52	Elective Practical (Programming in C)	2	3
	III	Project	23xxx55	Project with viva voce		4
	IV	VE	23UVE51	Life Issues and Coping Skill Development	4	1
	IV	Internship	23xxx56	Internship	2	2
					-	
					30	25
VI	III	Core-T8	23xxx61	Core Theory (Solid State Physics)	4	3
	III	Core-T9	23xxx62	Core Theory (Digital Electronics & Microprocessor 8085)	4	3
	III	Core-T10	23xxx63	Core Theory (Nuclear & Particle Physics)	4	3
	III		23xxx64	Core Theory (Integrated Electronics)	4	2
	III	Core-T11	23xxx65	Core Practical (E-II)	2	2
	III	Core-P7	23xxx66	Core Practical (Digital Electronics)	2	2
	III	Core-P8	23UEC61	Elective theory (Nano Science & Nano Technology)	4	2
	III	EC-T6	23UEC62	Elective Practical (Microprocessor 8085)	2	2
	IV		23USE61	Naan Muthalvan: Employability Readiness (Competitive Exam) (Problems Solving Skills in Physics)	2	1
		EC-P6		Human rights and Social Analysis		1
		SEC8		STAND (Student Training and Action for Neighbourhood Development)		1
	IV		23UVE61		2	
	V	VE Extension Activities			-	
					30	22
				TOTAL	180	140

EC – Elective Course
FC – Foundation Course

PG PHYSICS PROGRAMME PATTERN

Sem	Part	Status	Sub. Code	Title of the Paper	Hrs	Cdt
I	A	Core-1	23PPH11	Mathematical Physics-I	5	4
		Core-2	23PPH12	Classical Mechanics	5	4
		Core- 3	23PPH13	Electronics	5	4
		EC-1	23PEC11	Practical-I Electronics-I	4	3
		EC-2	23PEC12	Practical-II General Physics-I	4	3
	B	SEC1	23PSE11	PhotonicsandApplicatins/ EnergyPhysics	5	2
		AECC1	23PAE11	SolarEnergyUtilization	2	2
					30	22
II	A	Core-4	23PPH21	Mathematical Physics-II	5	4
		Core-5	23PPH22	Thermodynamics and Statistical Physics	5	4
		Core-6	23PPH23	Quantum Mechanics-I	5	4
		EC-3	23PEC21	Practical-III Electronics-II	4	3
		EC-4	23PEC22	Practical-IV General Physics-II	4	3
	B	SEC2	23PSE21	Medical Physics/General Relativity and Cosmology	5	2
		AECC2	23PAE21	Research Methodology	2	2
					30	22
III	A	Core-7	23PPH31	Condensed Matter Physics	5	4
		Core-8	23PPH32	Quantum Mechanics-II	5	4
		Core-9	23PPH33	Electromagnetic Theory	5	4
		EC-5	23PEC31	Microprocessor 8086 and microcontroller 8051 / Semiconductor Devices	5	3
		Core Industry module	23PPH34	Practical-V Microprocessor and microcontroller	4	3
	B	SEC 3	23PSE31	Professional Communication Skill (Term Paper &Seminar Presentation)	4	2
		AECC3	23PAE31	X-ray diffraction Analysis	2	2
		Internship	23PPH35	Carried out in summer vacation at the end of Sem II	-	2
					30	24
IV	A	Core-10	23PPH41	Nuclear and Elementary Particle Physics	5	4
		Core-11	23PPH42	Spectroscopy	5	4
		Core-12	23PPH43	Numerical Analysis	5	4
		EC-6	23PEC41	Nano Physics / Atmospheric Physics	5	3
		Project	23PPH44	Project with Viva Voce	4	3
	B	SEC 4	23PSE41	Problems in Core Physics	4	2
		AECC4	23PAE41	Quantitative Aptitude and Reasoning	2	2
	C	Extension Activities		STAND (Student Training and Action for Neighbourhood Development)	-	1
					30	23
				Total	120	91

PAGE NO.
DATE

Signatures :-

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19/08/23

Minutes of the Board of studies

The Board of Studies meeting of the Department of Physics was held on 19/08/2023 at 10 AM. The meeting started with a prayer followed by the welcome address of the Head of the Department

Agenda of the meeting :-

1. Minutes of the previous Board of Studies meeting
2. To fix the programme pattern for I and II semester of UG and PG
3. To frame the programme pattern for the III, IV, V and VI semesters
4. Approval for Add-on, value added, and ECC courses for I, II and III UG students

Members present

1. Dr. S. Helina — chairman
2. Dr. D. Prem Anand — Member
3. Dr. V. Siva Sankar — "
4. Dr. G. David Rathinavelu — "
5. Dr. S. Anna Venus — "
6. Dr. S.G. Rejith — "
7. Dr. P. Selvarajan — External Expert
8. Dr. R. Mary Jenila — Member
9. Dr. L. Arun Jose — "
10. Dr. R. Christharaja — "
11. Dr. D.E. Jain Ruth — "

12. Dr. S. Aron Rabi Member
13. Dr. L. Antony Selvam "
14. Dr. M. Sheela Udaya Roselin "
15. Dr. Melvin David kumar "
16. Dr. I Loyola Poolraj "
17. C. Arockia Angeline (Student Repres
18 S. Antony Renith ("

The following members could not attend the meeting due to various reason

1. Dr. A. Justin Lenus (University Represen
Associate professor,
Dept. of physics, Anna University
chennai - 600 025.

2. Dr. R. Ramesh Babu (Subject Expert 2)
Associate Professor of physics,
Barathidasan University, Trichy.

3. Mr. A. Jerald Devotta (Alumnus)
Associate Director
Talent Acquisition Newt Global India
chennai Pvt. Ltd

4. Mr. U. John Peter (Industrialist)
Technical staff,
Zoho corporation,
Mathalamparai
Tenkasi district.

MINUTES OF THE BOARD OF STUDY MEETING HELD ON 19/08/2023

- The Board has approved to continue TANSCHE course pattern for the current I.B.Sc physics students only for this I Semester.
- The Board has decided to follow the old course pattern from the second semester.

In accordance with the new course pattern given by the College, the following changes have been approved by the Board.

- In the I semester the Core paper "Properties of Matter and Acoustics" can be followed and the number of Practical's can be reduced to eleven. The hours may be followed as 6+2.
- "Nuclear Energy and It's Applications" paper can be introduced as NME paper in the IIsemester. The content can be revamped.
- In the II semester, the Core paper "Heat and Thermodynamics" can be followed for six hours and the content can be adjusted accordingly. The practicals may be followed based on old syllabus for about two hours.
- In III semester, the Core paper "Electricity and Magnetism" can be followed for 6 hours and practicals can be followed about 2 hours.
- In III Semester "Introduction to Renewable Energy" paper may be introduced as NME.
- In IV Semester, for the Core paper "Optics and Lasers" the fundamentals of Fiber Optics can be included for the V unit which can be handled for 5 hours and Practicals can be handled for 2 hours.
- In IV semester "Mechanics" paper can be introduced as Discipline specific paper for 2 hours.

- "Every day Electronics" paper can be introduced in the IV Semester as NME.
- In V semester, Electronics 1, Digital Principles, Quantum Mechanics and Relativity, and Nuclear Physics will be the core paper and Programming with C and C++ will be the Elective paper.
- In V semester, "Physics for Competitive Examinations" can be followed as SBE paper
- In VI Semester, Electronics II, Instrumentation, Microprocessor and Solid State Physics will be the Core paper and Nanophysics will be the Elective paper.
- The Board has approved to remove the paper" Fiber Optics' and "Reactor Physics" from V and VI Semesters in accordance with the new course pattern.
- The Board has approved to offer Add-on courses, Value added and ECC courses. The papers details will be given later.

MINUTES OF BOARD OF STUDIES MEETING FOR M.SC PHYSICS

- We have framed our syllabus as per TANSCHE pattern with less than 20% modifications.
- The following corrections were made in paper "Linear and Digital IC and Applications".
  (a) Due to the broad topic coverage in Unit-III, PLL basic principle, phase detector/comparator, IC566, low pass filter, monolithic PLL and applications of PLL were removed. Instead, PLL introduction has been kept as it is.
  (b) In Unit V, CMOS AND-OR-INVERT and OR-AND-INVERT gates, implementation of any function using CMOS logic were removed due to heavy portion.
- All other papers were accepted by the external expert and appreciated that the content of all the papers are at par with standard given by CSIR.
- Semester vise extra credit courses and a value added course were made mandatory for the students from the present academic year (2023-2024)
- The following papers for extra credit course for PG students of Physics were proposed by us, and the same was approved by external expert.

Sem	Title of the Paper
1	Energy Physics
2	Characterization of Materials
3	Introduction to Particle Physics
4	Laser Physics

- Also, one value added course **"Application of Physics in Problem Solving"** was proposed for PG students of Physics to compete in the competitive exams like CSIR-NET, SET etc., This paper was approved by the external expert.

Signatures :-

1. B. Helina
2. Premanand
3. V. [illegible]
4. [illegible]
5. S. Amallem
6. S. G. B[illegible]
7. R. Sriragja
8. R. Naveen
9. [illegible]
10. [illegible]
11. E. Jayanth
12. [illegible]
13. Navi
14. [illegible]
15. Wandu
16. I. Lenel Pandi
17.
18. S. Antony Renith

ST. XAVIERS COLLEGE (AUTONOMOUS)

DEPARTMENT OF PHYSICS

Board of Studies Minutes Note

From 23.04.2022 to

Date : 23/02/2024

DEPARTMENT OF PHYSICS

ST.XAVIER'S COLLEGE (Autonomous), Palayamkottai.

MINUTES OF THE BOARD OF STUDIES

The Board of studies meeting of the Department of Physics was held on 23/02/2024at 10.00 a.m. The meeting started with a prayer followed by the welcome address of the Head of the Department.

AGENDA OF THE MEETING:

1. Minutes of the previous Board of Studies meeting
2. To frame the programme pattern for UG and PG Courses.
3. Approval for Add-on, Value added and ECC courses for I, II and III UG students.

Members Present :

1. Dr. B. Helina - Assistant Professor, St.Xavier's College, Chairman
2. Dr. D. Prem Anand - Assistant Professor, St.Xavier's College, Member
3. Dr. V. Sivashankar - Assistant Professor, St.Xavier's College, Member
4. Dr. G. David Rathinavelu - Assistant Professor, St.Xavier's College, Member
5. Dr. S. Anna Venus - Assistant Professor, St.Xavier's College, Member
6. Dr. S. G. Rejith - Assistant Professor, St.Xavier's College, Member
7. Dr. M. Mary Jenila - Assistant Professor, St.Xavier's College, Member
8. Dr. L. Arun Jose - Assistant Professor, St.Xavier's College, Member
9. Mr. R. Christhu Raja - Assistant Professor, St.Xavier's College, Member
10. Dr. S. Aron Rabi - Assistant Professor, St.Xavier's College, Member
11. Dr. L. Antony Selvam - Assistant Professor, St.Xavier's College, Member
12. Dr. M. Sheela Uaya Roselin - Assistant Professor, St.Xavier's College, Member
13. Mr.M. Melvin David Kumar - Assistant Professor, St.Xavier's College, Member
14. Dr.I. Loyola Poulraj - Assistant Professor, St.Xavier's College, Member
15. Ms.R.Jeyalakshmi - St.Xavier's College, Student Representative
16. Mr. P.Darricies Antony Joe - St.Xavier's College, Student Represntative
17. Dr.P.Selvarajan - Associate Professor, St.Xavier's College, External Expert
18. Dr. A. Justin Lenus - (University Representative) Associate Professor, Department of Physics, Anna University

The following members could not attend the meeting due to various reasons.

1. Dr.R.Ramesh Babu, Associate Professor of Physics, Barathidasan University, Trichy.
2. Mr.A.Jerald Devotta, Associate Director-Talent Acquisition, Newt Global India Pvt Ltd, Chennai.

3. Mr.L.John Peter, Member Technical Staff, Zoho corporation, Mathalamparai, Tenkasi District.

External Experts PANEL LIST
(w.e.f. Academic Year 2024-2025)

S.No.	CATEGORY	NAME & ADDRESS	MOBILE	E-mail ID
1.	University Nominee	Dr.A.Justin Lenus, Associate Professor of Physics, Anna University, Chennai-600 025.	9841157387	justinlenus@gmail.com
2.	Subject Expert 1	Dr.P.Selvarajan, Associate Professor of Physics, Adithanar College of Arts & Science, Tiruchendur.	8870428536	pselvarajanphy@yahoo.co.in
3.	Subject Expert 2	Dr.R.Ramesh Babu, Associate Professor of Physics, Barathidasan University, Trichy	9942060925	Rameshbabu.r@bdu.ac.in
4.	Alumnus	Mr.A.Jerald Devotta, Associate Director-Talent Acquisition, Newt Global India Pvt Ltd, Chennai.	9962489223	gdevotta82@gmail.com
5.	Industrialist	Mr.L.John Peter, Member Technical Staff, Zoho corporation, Mathalamparai, Tenkasi District.	8754455528	johnpeter.l@zohocorp.com

Based on the discussions on the agenda the following suggestions were made by the board : In accordance with the new course pattern given by the College, the following changes have been approved by the Board.

- **Plan for Board of Studies:**

We had the detailed analyses about the subjects to be taught in each semester. We have added some new papers and also we have modified the syllabus according to the staff member's suggestions. The details are presented here.

Semester : I

Core paper "Properties of Matter and Sound" will be carried out for 5 hours and practical for the same will be carried out for 2 hours. In theory, Basics of inkjet properties can be added in the part of applications of viscosity.
In the Practical paper, the topic Elasticity with laser experiment can be added.

NME paper "Physics For Everyday Life " will be followed for 2 hours and content of the current syllabus has to be reduced.

Semester : II

Core paper "Heat and Thermodynamics" will be carried out for 6 hours and practical for the same will be carried out for 2 hours.

NME paper "Nuclear Energy and its Applications" will be followed for 2 hours.
Allied physics II Practical's can be revamped.

Three experiments can be added instead of single stage amplifier, colpitts oscillator and Transistor amplifier as

1) Spectrometer Grating - Normal incidence method
2) Prism - Determination of refractive index of glass
3) Focal length of Convex (in contact and out of contact)

Semester : III

Core paper "Electricity and magnetism" will be carried out for 6 hours and practical for the same will be carried out for 2 hours. The content of theory paper can be modified for 6 hours.

The topics to be included,
In Unit 1, Coulombs law in vector form, Electric field, Electric lines of force, Gauss law proof and Electric field due to an uniformly charged infinite cylindrical change.
In Unit 2B, cylindrical capacitor, effect of dielectrics in capacitors.
In Unit 3, AC circuit containing L and R in series, LCR series resonance circuit and LCR parallel resonance circuit.

In Unit 4, Biot-Savart law, Magnetic induction at a point due to a straight conductor carrying current, Force on a current carrying conductor in a magnetic field, Force between two parallel current carrying conductors.
In Unit 5, Failures of Langevin's theory, Weiss theory of ferromagnetism, Experiment to draw M-H curve, Energy loss due to hysteresis.

And the topics to be removed:
In Unit 3, AC circuits containing, R only, L only and C only.
In unit 3, the topic "Electron theory of magnetism" can be modified as "Electron theory of dia, para and ferromagnetism.

NME paper "Space Science and Cosmology" will be followed for 2 hours.

Semester : IV
Core paper "Optics and Laser" will be carried out for 4 hours and practical for the same will be carried out for 2 hours. The content of theory paper can be modified and Introduction to Fiber Optics can be added.
In the unit II Optical path difference between the waves, Bright fringes, Dark fringes, separation between neighboring bright fringes can be removed.
In unit III Fresnel's diffraction pattern due to a straight edge, overlapping of spectral lines can be removed.
In unit IV polarization application - LCD can be added.
In unit V attenuation of light in an optical medium, thermal equilibrium, interaction of light with matter can be removed. The topics fiber optics introduction, types of fibers, numerical aperture and acceptance angle can be added.

NME paper "Electronics in daily Life" will be followed for 2 hours.

In Discipline Specific, Mechanics paper can be followed and content can be modified for 3 hours. The content should be modified for three hours.

Allied physics for Chemistry students can be followed for 3 hours and the content of current syllabus can be reduced.

Semester : V

Core 1 , "Electronics I" can be followed with some additional content for 5 hours with 4 credits. In the practical paper, low pass / high pass can be added.
In unit I procedure for finding thevenin's equivalent circuit can be removed and Norton's theorem can be added. - Filter circuits - Types of filter circuits can be added.

In unit II Tunnel diode- Oscillator-Varacator diode-Applications of Varacator Diode - Shockley diode topics can be added.
In unit III faithful amplification, stabilization, need for stabilization and stability factor can be added.
In unit IV direct coupled amplifier and comparison can be added.

In unit V working principles of JFET, characteristics and advantages can be added.
Core 2, "Quantum Mechanics" can be followed for 5 hours with 3 credits.
Core 3 , "Digital principles" can be followed for 4 hours with3 credits.
Core 4 , "Nuclear physics" can be followed for 4 hours with 3 credits.
Elective, "Programming with C++" can be followed for 4 hours with 3 credits. Reference book can be added based on the suggestion of board of study members.
Three practical's will be followed for two hours each with two credits each.

Content has to be modified for Quantum mechanics and Electronics I paper for 5 hours.
Content of V unit in "Programming with C++" can be reduced.

Semester : VI

Core 1 , "Solid State Physics" can be followed for 4 hours with 3 credits.
It is suggested that the book titled "Principles of Electronic materials and devices" by S.O.Kasap to be added in the reference book list.
Core 2, "Nano Physics" can be followed for 4 hours with 3 credits.
Core 3 , "Electronics II" can be followed for 4 hours with 3 credits. In unit IV SCR for power control can be added.
Elective, "Microprocessor 8085" or "Reactor Physics" can be followed for 4 hours with 3 credits.
Three Practicals will be followed for two hours each with two credits each.
Project paper can be introduced for 6 hours.
For Professional competency, "Physics for Competitive Examination" can be followed for 2 hours.

Extra Credit Courses

1. 23UPH EC1 – Introduction to Solar Energy
2. 23UPH EC2 – Opto Electronics
3. 23UPH EC3 – Non-Conventional Energy Sources
4. 23UPH EC4 – Laser Physics
5. 23UPH EC5 – Astro Physics
6. 23UPH EC6 – Renewable Energy Sources

Certificate Courses

1. 23UPH CC1 – Biomedical Instrumentation
2. 23UPH CC2 – Basic Electrical and Electronics Circuits

Add-on Courses

1. 23UPH AO1 – Domestic Electrical Wiring
2. 23UPH AO2 – Basic Physics for Beginners

Finally the Board of Studies Meeting ended at 1.30 pm .

MINUTES OF BOARD OF STUDIES MEETING HELD ON 23/02/2024

The following suggestions were made by the experts

1. In Mathematical Physics,
    - Eigen values and eigen vectors are repeated in both Unit I and Unit III. It is removed from Unit I
    - Applications related to Physics should be added in Fourier and Laplace transforms which are in Unit III.
    - Shauam's Series books may be added in the reference section.
2. The book Quantum Mechanics I written by Zeittley should be added as a reference
3. In Condensed matter Physics, a reference book "Introduction to Quantum theory of solids" written Animaro A.Y should be added.
4. In Quantum Mechanics II,
    - Second order perturbation theory can be added in Unit I.
    - The book "Quantum Mechanics" by Ghatak & Loganathan may be added in the reference section.
5. Shauam's series book should be added in Electromagnetic Theory.
6. The reference book " Spectroscopy" authored by Silverstyn may be added in Spectroscopy.
7. Problems should be made compulsory in all the PG question papers.

Signatures :

1. Dr. B. Helina - 23/02/2019
2. Dr. D. Prem Anand - D. Prem Anand
3. Dr. V. Sivashankar -
4. Dr. G. David Rathinavelu -
5. Dr. S. Anna Venus -
6. Dr. S. G. Rejith - S G Rejith
7. Dr. M. Mary Jenila -
8. Dr. L. Arun Jose -
9. Mr. R. Christhu Raja -
10. Dr. D. E. Jain Ruth - ABSENT
11. Dr. S. Aron Rabi -
12. Dr. L. Antony Selvam -
13. Dr. M. Sheela Uaya Roselin -
14. Mr.M. Melvin David Kumar -
15. Dr.I. Loyola Poulraj - I. Loyola Poulraj
16. Ms.R.Jeyalakshmi - - R. Jeyalakshmi
17. Mr. P.Darricies Antony Joe - P. DArricies Joe
18. Dr.P.Selvarajan - P. Selvarajan
19. Dr. A. Justin Lenus` - A. Justin Lenus

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Date : 01/02/2025

DEPARTMENT OF PHYSICS

ST.XAVIER'S COLLEGE (Autonomous), Palayamkottai.

MINUTES OF THE BOARD OF STUDIES

The Board of studies meeting of the Department of Physics was held on 01/02/2025 at 10.00 a.m. The meeting started with a prayer followed by the welcome address of the Head in-charge of the Department.

AGENDA OF THE MEETING:

1. Minutes of the previous Board of Studies meeting
2. Introduction of Indian Knowledge System (IKS) in the curriculum
3. Skill based curriculum enhancement (40 %)
4. Inclusion of MOOC Courses and Modalities

Members Present :

1. Dr. V. Sivashankar - Head In-Charge and Assistant Professor, St.Xavier's College, Chairman
2. Dr. D. Prem Anand - Assistant Professor, St.Xavier's College, Member
3. Dr. G. David Rathinavelu - Assistant Professor, St.Xavier's College, Member
4. Dr. S. Anna Venus - Assistant Professor, St.Xavier's College, Member
5. Dr. S. G. Rejith - Assistant Professor, St.Xavier's College, Member
6. Dr. M. Mary Jenila - Assistant Professor, St.Xavier's College, Member
7. Dr. L. Arun Jose - Assistant Professor, St.Xavier's College, Member
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9. Dr. D. E. Jain Ruth - Assistant Professor, St.Xavier's College, Member
10. Dr. S. Aron Rabi - Assistant Professor, St.Xavier's College, Member
11. Dr. L. Antony Selvam - Assistant Professor, St.Xavier's College, Member
12. Dr. M. Sheela Uaya Roselin - Assistant Professor, St.Xavier's College, Member
13. Ms.Josephine Gladiya.M - Assistant Professor, St.Xavier's College, Member
14. Ms.J.Snowlin Isvarya- - (III.B.Sc.Physics), St.Xavier's College, Student Representative
15. Mr. K.Abishek Kirubakaran - (II M.Sc. Physics) St.Xavier's College, Student Represntative
16. Dr. A. Justin Lenus - (University Representative), Associate Professor, Department of Physics, Anna University

The following members could not attend the meeting due to various reasons.

1. Dr.R.Ramesh Babu, Associate Professor of Physics, Barathidasan University, Trichy.
2. Mr.A.Jerald Devotta, Associate Director-Talent Acquisition, Newt Global India Pvt Ltd, Chennai.
3. Mr.L.John Peter, Member Technical Staff, Zoho Corporation, Mathalamparai, Tenkasi District.
4. Dr,B.Helina- Head and Assistant Professor, Department of Physics, St.Xavier's college due to Medical Leave

External Experts PANEL LIST
(w.e.f. Academic Year 2024-2025)

S. No.	CATEGORY	NAME & ADDRESS	MOBILE	E-mail ID
1.	University Nominee	Dr.A.Jestin Lenus, Associate Professor of Physics, Anna University, Chennai-600 025.	9841157387	justinlenus@gmail.com
2.	Subject Expert 1	Dr.P.Selvarajan, Associate Professor of Physics, Aditanar College of Arts & Science, Tiruchendur.	8870428536	pselvarajanphy@yahoo.co.in
2.	Subject Expert 2	Dr.R.Ramesh Babu, Associate Professor of Physics, Barathidasan University, Trichy	9942060925	Rameshbabu.r@bdu.ac.in
3.	Alumnus	Mr.A.Jerald Devotta, Associate Director-Talent Acquisition, Newt Global India Pvt Ltd, Chennai.	9962489223	gdevotta82@gmail.com
4.	Industrialist	Mr.L.John Peter, Member Technical Staff, Zoho corporation, Mathalamparai, Tenkasi District.	8754455528	johnpeter.l@zohocorp.com
5	Dr. D. E. Jain Ruth	Assistant Professor, St.Xavier's College, Member	6374607438	hccjradp@gmail.com

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BOS MINUTES

INTRODUCTION

Based on the inputs received from the external expert Dr. A. Jestin Lenus, Associate professor, Anna University Chennai and the board members the following suggestions will be incorporated into the syllabus. As per the UGC guidelines and the Jesuit Higher Education Commission guidelines the following key considerations were taken up for discussions.

Agenda 1:

As for as UG papers are concerned especially in the core papers we have identified the topics on Indian knowledge system (IKS) and these elements are seamlessly integrated.

Semester 1:

Core paper -Properties of matter and acoustics (23UPHC11):

- In the fifth unit acoustics of buildings & ultrasonic the following IKS systems are incorporated into the syllabus
- **Indian musical acoustics(IKS)** – Swaras can be included. This is pertaining to Indian classical music which corresponds to natural harmonics and physics
- **Architecture acoustics (IKS)** in ancient India temples and caves like Yellora and Banark where built with natural damping techniques

NME Paper- Physics for everyday life (23UPHN11):

- The 5th unit namely **Indian physicist and their contribution(IKS)** are completely prescribe to the IKS.

Semester II:

Core paper -Heat and thermodynamics (23UPHC12):

- In unit 2 low temperature physics **Warent pump(IKS)** which was invented by Indian scientist Parameswaran can be included as a part of IKS additionally - a brief depth on boson and Bose condensation is included.

Semester III:

Electricity and magnetism(23UPHC31):

- In unit 4 **wireless communication (IKS)** by Jagadish Chandra Bose can be included

Semester IV:

Optics and Laser (23UPHC41):

- In unit 5 **carbon dioxide laser(IKS)** by CKN Patil can be added as a part of IKS.
- introduction - Raman principle-**Raman effect-Raman scattering- Raman spectrometer - instrumentation(IKS)** can be introduced as a part of IKS
- A detailed study on Fiber optic wireless communication by Narendra Singh kapani an Indian scientist is impregnated as IKS.
- Until now optics and laser paper is a 4 hour paper with 5 units but now the board has suggested that total contents can be added in to Five hours.

Mechanics (23UPHS42):

- In unit 2 **Aryabhata contribution** (IKS) on fulcrum and wheel is incorporated into the syllabus as a part of IKS .
- Mechanics paper is a three hour paper as of now but the present board decide to reduce for 2 hours of NME paper with two credits. syllabus has been reduced as per the experts recommendation

Semester V:

Electronics 1 (23UPHC51):

- In unit 5 insulated **GATE by polar transistor (IKS)** formulated and fabricated by B. Jayant Baliga an Indian scientist is included as a part of IKS element

Quantum Mechanics and relativity (23UPHC52):

- In unit 2 **tachyons(IKS)** a particle superior to photon was discovered by Indian scientist E. C. George Sudarshan is incorporated as a part of IKS
- **Bose Statistics (IKS)** can be included

Digital principles (23UPHC53):

- In unit 2 of **digital processing imaging (IKS)** the topic on digital image processing by an Indian scientist is included as IKS

Nuclear physics (23UPHC54):

- in unit 2 title name **Quantum reaction and nuclear Engineering (IKS)** by renowned Indian scientist Homi J baba and R. Chidambaram is included as a part of IKS

Programming with C and C++ (23UPHE 51) :

- In unit 1**Fuzzy logic (IKS)** and knowing graphs topic can be included in the unit as a part of IKS

Semester VI:

Solid state Physics(23UPHC61):

- In unit 3 of semiconductors a **hall experiment was invented by an Indian scientist (IKS)** R.Nambirajan is included as a part of IKS

Nano Physics (23UPHC62):

- In unit 4 a topic on **materials chemistry & nanotechnology** (IKS) by CN Rao a distinguished scientist from India is included as IKS
- in unit 5 of organic compounds and polymer a topic on **supramolecular Chemistry (IKS)** by Gautam R. Desiraju is included as a part of an IKS elements

Agenda 2:

Agenda 2 is based by defining the scope of skill based learning for four papers namely solid state physics, nuclear physics, Nano physics and quantum physics

- For solid state Physics paper 40% of skilled based outcome will be delivered in the form of growing crystals and characterizing them by XRD measurements
- For nuclear physics paper a visit to KKNP and its functions will be lively demonstrated at the center itself. This is a part of an industrial visit based on the visit a soft copy of the manual should be prepared by the students
- For Nano physics, 3rd year UG students will be allocated 2 hours per week to department research center where students will be able to synthesize various Nanomaterials and by taking UV- vis- NIR measurements in our laboratory. A soft copy of the module will be designed for them
- As for quantum mechanics paper is concerned students may do the experiments pertaining to black body radiations. students may be able to differentiate classical mechanics and quantum mechanics
- The papers comprising practicals are wholly skill based papers. These practicals are heather to skill-based papers.

Agenda 3:

Based on the students' representative feedback from both UG and PG and board members, it was decided that, MOOCS, NPTEL courses cannot be offered as core/elective papers. But we list out five 5 MOOC course papers for physics curriculum which can be offered as add-on/value added/ECC courses, which mean that the MOOCS, NPTEL are not mandatory for core/elective paper.

Five MOOC papers:

1. Advanced Robotic Applications
2. Physics of Materials
3. Experimental Physics- I
4. How Things Work
5. Particle Physics

The following details were discussed for PG in the Board of studies meeting conducted on 1.2.2025

Agenda 1:

Regarding implementation of Indian Knowledge System (IKS) to the curriculum of PG, staffs suggested to include a paper based on Indian scientists' contribution to the Astrophysics and the paper entitled **"Astrophysics through the Indian Knowledge System"** will be added in the PG syllabusto accommodate 5% Indian knowledge system.

Agenda 2:

Skill based curriculum Enhancement upto 40% in the Syllabus, for the theory papers ie, Quantum Mechanics, Nuclear Physics, Solid state Physics and Nanotechnology etc, the inclusion of the portions are as follows:

- **Mini project** to be included at the end of III semester – 3 hours weekly
- To include **Desmos software, graphical calculators, Adreno, Matlab and Python** in the syllabus
- To include **Koodankulam power plant** in syllabus for skill-based awareness in Nuclear Physics.
- **Skill based activities** will be added in the last part of the syllabus

For the practical oriented papers, the skill enhancement is already above 40% and inclusion of portions is not necessary.

Agenda 3:

Inclusion of MOOC courses (SWAYAM and NPTEL) in the curriculum of PG, efforts can be taken to **add five MOOC courses** for PG.

Agenda 4:

Corrections are carried out in the current syllabus based on students and staff's feedback

- In Mathematical Physics Paper in Unit-II Contour Integration and Applications irrelevant to physics are removed. Application related to physics concepts are included.
- In Unit-V Linear differential equations of first and second order are removed as these portions are already available in UG syllabus.
- In microprocessor 8086 and microcontroller 8051 changes are not required. As this paper has two practicals programming skills are developed by these practicals.
- In Numerical methods and computer programming, in Unit-I repetition of sentences are removed. In Unit-II matrix inversion method is removed as it is a part of the syllabus in Mathematical Physics in the first semester of PG program.
- In Unit-III no changes are required.

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- In Unit-IV the syllabus is completely modified due to irrelevant topics and not in any PG syllabus in university or NET syllabus. So, topics are changed according to the paper title. But some topics are maintained as before.
- In Unit-V the topics are not related to high level programming. They are related to microprocessor. But the paper title is computer programming. So, the topics are changed accordingly and the programs are changed based on that. Skill based activities are included in the final part of the syllabus.
- In Mathematical Physics Paper in Unit-II Harmonic functions, Complex integration, Contour Integration and Applications irrelevant to physics are removed. Application related to physics concepts are included.
- In Unit-V Linear differential equations of first and second order are removed as these portions are already available in UG syllabus.
- In Electronics-II practicals-III, Digital to Analog convertor experiment is added.
- In Physics of Nanoscience and Technology, the book Nanostructures and Nanomaterials by Guozhong Cao is added as text book.
- In Quantum Computing Value added paper the NPTEL link is added.

Based on PG student representative feedback, Agenda 1 and Agenda 2 are good initiatives. In Agenda 3, MOOC courses will be provided for Value added, Add on and ECC for both UG and PG syllabus. Based on staff feedback MOOC courses can be added as extra credits for PG curriculum.

Signatures :

1. Dr. V. Sivashankar (Head In-charge) -
2. Dr. D. Prem Anand -
3. Dr. G. David Rathinavelu -
4. Dr. S. Anna Venus -
5. Dr. S. G. Rejith -
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8. Mr. R. Christhu Raja -
9. Dr. D. E. Jain Ruth -
10. Dr. S. Aron Rabi -
11. Dr. L. Antony Selvam - 11/2/25
12. Dr. M. Sheela Uaya Roselin -
13. Ms.Josephine Gladiya.M -
14. Ms.J.Snowlin Isvarya(III.B.Sc.Physics) -
15. Mr. K.Abishek Kirubakaran(II M.Sc. Physics) -
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