Scott Christian College (Autonomous), Nagercoil

DEPARTMENT OF PHYSICS & RESEARCH CENTRE

MINUTES OF THE 16TH MEETING OF THE BOARD OF STUDIES OF THE PHYSICS DEPARTMENT HELD ON 09.12.2023.

The 16thMeeting of the Board of Studies (BoS) of the Physics Department was held on 09.12.2023 in the Physics library in which the following members were present:

Sl.No.	NAME	AFFILIATION	ROLE
1.	PROF. A. CHARLES HEPZY ROY	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous), Nagercoil. charleshepzyroy@scottchristian.org +91 9944261881	Chairman
2.	Dr. C. JAMES	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. james@scottchristian.org +919489500237	Member
3.	Dr. C. BESKY JOB	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. beskyjob@scottchristian.org +919487026024	Member
4.	Dr. Y. PREMILA RACHELIN	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. premilarachelin@scottchristian.org +919489620591	Member
5.	Dr. J.V. BYNAJA	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. bynaja@scottchristian.org +919443284135	Member
6.	Dr. V. ANSLIN FERBY	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. anslinferby@scottchristian.org+919443595694	Member

7.	**Dr. B.S. BENILA**	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. benila@scottchristian.org +919843626563	**Member**
8.	**Dr. Y. SHEEBA SHERLIN**	Associate Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. sheebasherlin@scottchristian.org +919442304397	**Member**
9.	**Dr. T. R. BEENA**	Assistant Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. beena@scottchristian.org +919487386199	**Member**
10.	**Dr. S. SHARMILA JULIET**	Assistant Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. sharmilajuliet@scottchristian.org +919487094860	**Member**
11.	**Dr. D.J. JEEJA MOL**	Assistant Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. jeejamol@scottchristian.org +917598629087	**Member**
12.	**Dr. H. ADLINE MAHIBA**	Assistant Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. adline@scottchristian.org+919408657877	**Member**
13.	**Dr. D. HUDSON OLIVER**	Assistant Professor Department of Physics & Research Centre Scott Christian College (Autonomous) Nagercoil. hudsonoliver@scottchristian.org +919952654515	**Member**
14.	**Dr. C. RAVIDHAS**	Faculty Head PG & Research Department of Physics Bishop Heber College (Autonomous) Thiruchirapalli – 620 017 cravidhas@gmail.com +919443076209	**Subject Expert**
15.	**Dr. I. HUBERT JOE**	Associate Professor Department of Physics University of Kerala Thiruvananthapuram – 695 034 hubertjoe@gmail.com +919447220563	**Subject Expert**

16.	Dr. R. SHEELA CHRISTY	Professor and Head Department of Physics & research Centre, Nesamony Memorial Christian College, Marthandam - 629165 sheelachristy64@yahoo.com +91 9442382469	Vice-Chancellor's Nominee
17.	Mr. D. GILBERT CHANDRA	Group Head, Instrumentation, ISRO Propulsion Complex, Mahendragiri– 627 133 gilbertd26@gmail.com +919442180572	Representative
18.	Dr. V. SHALLY	Assistant Professor, Department of Physics & research Centre Holy Cross College (Autonomous) Kurusady, Nagercoil – 629 002 shally.v@holycrossngl.edu.in +917598854466	Post Graduate Meritorious Alumnus

The meeting of the Board of Studies of the Physics Department was held at 10 am on 09.12.2023 in the Physics Library.

In the beginning, the Chairperson Prof. A. Charles Hepzy Roy introduced and welcomed the members.

Thereafter, the agendas were taken up for discussion.

Minute No.	Minutes
1	Confirmation of the Minutes of the 15th BoS meeting held on 24.06.2023. Member Secretary Dr. B.S. Benila read the minutes of the 15thBoS meeting held on 24.06.2023 and the minutes were confirmed.
2	Action Taken Report on the Minutes of the 15th BoS meeting. The members of BoS carefully perused the "Action Taken Report (ATR)" presented by the Member Secretary Dr. B.S. Benila and expressed their satisfaction and appreciation.
3	Review of Academic and Administrative Audit (AAA) Report 2022-23. The Member-Secretary Dr. B.S. Benila presented the AAA report criteria-wise and the members of BoS carefully reviewed the AAA report and proposed the following suggestions for improvement. a) To improve the facilities of the lab b) To conduct workshops/practical sessions related to the course papers. c) Visiting nearby government schools and make them know basic concepts of Physics

4	Review of Feedback Report on curriculum obtained from 1) Students, 2) Teachers, 3) Employers, 4) Alumni Dr. B.S. Benila presented the Feedback Report obtained from 1) Students, 2) Teachers, 3) Employers and 4) Alumni on the curriculum of B.Sc., M.Sc., and M.Phil. Physics from in the academic year 2022-23. The members of BoS carefully reviewed the Feedback Report received from the stake holders and proposed the following actions to be taken in the curriculum. a) Assignments/projects for each unit. b) To have field visit to the industry per semester c) To include a Library hour per week
5	Introduction of new courses from the academic year 2023-24. **Prof. A. Charles Hepzy Roy** proposed the introduction of the following NEW course(s) in the curriculum of **B.Sc. Physics** from the academic year 2023-24. 1. Core/Elective courses with local/regional/national/global relevance

Name of the Course	Course Code	Relevance to the local, national, regional and global developmental needs.
CCE : Computer Programming using Java		To know about programming language for coding everything from mobile apps and enterprise software to big data applications
CCE : Computer Programming using Java (Practical Oriented)		To know about programming language for coding everything from mobile apps and enterprise software to big data applications
SEC: Electrical Technology		To know about the devices and systems we use every day, the electricity sources and the safety methods.
SEC: Fundamentals of IoT		To know about the concepts and definition of Internet of Things and to create and manage IoT devices.
SEC: Embedded Systems		To understand microprocessor-basedcontrol systems to system-on-chip design and device software development, since it is a growing field with many opportunities.

2. Courses for employability/ entrepreneurship/ skill development

Name of the Course	Course Code	Activities/Content with direct bearing on Employability/Entrepreneurship/ Skill development
Computer Programming using Java (Theory & Practical)		Develop skills to working with essential instructions, methods, loops, strings, statements, etc. in JAVA programming language.
Electrical Technology		Getting used in static electricity, conductors and insulators and study about electric motors, communication systems and power generation equipment.
Fundamentals of IoT		For the skill enhancement program,easy portion related IoT(Internet of Things) could be explained practically.
Embedded Systems		Know about the embedded systems in house hold appliances such as microwave ovens, washing machines, dish washers, etc.

3. Value-added courses for imparting transferable and life skills (Min. 30 hours)

Name of the Course	Course Code	Transferable and life skill development
Add-on Course on Reasoning and Aptitude		To appear for the competitive examinations and to clear it.

Resolved to introduce the above NEW course(s) in the curriculum of **B.Sc. Physics** from the academic year 2023-24. Also resolved to approve the proposed syllabuses for these new courses which are given in Section – I.

Dr. C. James proposed the introduction of the following NEW course(s) in the curriculum of **M.Sc. Physics** from the academic year 2023-24.

1. Core/Elective courses with local/regional/national/global relevance

Name of the Course	Course Code	Relevance to the local, national, regional and global developmental needs.
DSE:		This course fosters collaboration

	Quantum Computational Physics		and networking among professionals and researchers with an interest in quantum computing. This could lead to local, national, regional and global initiatives, joint research projects, and knowledge sharing.
	Quantum Computational Physics Practical		A course like the one you mentioned, which integrates GPT-prompting, likely incorporates advanced problem-solving techniques, making it valuable for researchers and professionals working at the intersection of different disciplines.

2. Courses for employability/ entrepreneurship/ skill development

Name of the Course	Course Code	Activities/Content with direct bearing on Employability/ Entrepreneurship/ Skill development
Arduino Programming (Theory & Practical)		With Arduino program we can control the home activities with control system such as motion, temperature sensors outlet control etc.
Quantum Computational Physics (Theory & Practical)		A course that teaches advanced problem-solving using Python and MATLAB in the context of quantum computational physics can help build a workforce capable of contributing to national R&D initiatives.

Resolved to introduce the above NEW course(s) in the curriculum of **M.Sc. Physics** from the academic year 2023-24. Also resolved to approve the proposed syllabuses for these new courses which are given in Section – I

6 Revision of syllabuses of existing courses from the academic year 2023-24.

Dr. D. Hudson Oliver proposed the revision of syllabus of the following course(s) in the curriculum of B.Sc. Physics from the academic year 2023-24.

Name of the Course	Course Code	Core/ Elective/ Skill/ Value added	% of content added or replaced
CC16: Digital Electronics		Core	To change fifth unit "microprocessor" to

			"integrated circuits". (20%)

Dr. V. Anslin Ferby proposed the revision of syllabus of the following course(s) in the curriculum of **B.Sc. Physics** from the academic year 2023-24.

Name of the Course	Course Code	Core/ Elective/ Skill/ Value added	% of content added or replaced
CC1: Properties of matter and sound		Core	i. To remove one module ie, "Determination of AC frequency using sonometer" from fourth unit to reduce the load. ii. In unit III, instead of "Determination of surface tension by Jaegar's method", "Determination of surface tension by Drop-weight method" to be added. (2%)

Dr. D.J. Jeejamol proposed the revision of syllabus of the following course(s) in the curriculum of **B.Sc. Physics** from the academic year 2023-24.

Name of the Course	Course Code	Core/ Elective/ Skill/ Value added	% of content added or replaced
Allied Physics I		Allied	i. In unit I, the topic opthalmology – advantages of noninvasive surgery is deleted. ii. In unit III, the module importance of cryocooler, thermodynamic system – thermodynamic equilibrium is deleted.(3%)
Allied Physics II		Allied	i. In unit II, the module Opto electric devices is deleted. ii. In unit III, nuclear energy, radio isotopes and uses, controlled and

			uncontrolled chain reaction, breeder reactor, importance of commissioning PFBR in our country, heavy water disposal, safety of reactors: seismic and floods are deleted. (5%)

Dr. I. Hubert Joe proposed the revision of syllabus of the following course(s) in the curriculum of B.Sc. Physics from the academic year 2023-24.

i. To remove the text book by G.R. Chatwal and S.K. Anand in the course Molecular spectroscopy.

ii. To make the SEC, "Electrical Technology" as both theory and practical based.

iii. To include basics of machine learning in IoT.

Dr. R. Shally suggested tying up with the industry for better conduct of SEC courses.

Dr. C. James proposed to make the all skill based courses as 50 % theory and 50 % practical based.

Dr. C. Besky Job proposed To split the course Atomic and molecular physics in the VI semester to Atomic Physics (I sem CC2) and Molecular Spectroscopy (VI sem CC17).

Resolved to revise the syllabuses of the above course(s) in the curriculum of **B.Sc. Physics** from the academic year 2023-24. Also resolved to approve the modified syllabuses for these courses which are given in Section – II.

Dr. B.S. Benila proposed the revision of syllabuses of the following course(s) in the curriculum of **M.Sc. Physics** from the academic year 2023-24.

Considering the Net requirements and since TANSCE syllabus was followed in the last semester the following changes were made in the course Mathematical Physics.

Name of the Course	Course Code	Core/ Elective/ Skill/ Value added	% of content added or replaced
CC1: Mathematical Physics I		Core	Unit IV, Fourier and Laplace

			integral transform has been replaced by Partialdifferential equation. (20%)
CC5: Mathematical Physics II		Core	Abstract group theory 1, Representation theory of finite group 1, Tensor analysis, and Special function II, Fourier and Laplace integral transform was introduced. (100%)

Dr. Y. Premila Rachelin proposed the revision of syllabuses of the following course(s) in the curriculum of **M.Sc. Physics** from the academic year 2023-24.

Name of the Course	Course Code	Core/ Elective/ Skill/ Value added	% of content added or replaced
CC8: Electromagnetic Theory		Core	Unit V, "Dipole Radiation" was replaced the application of electromagnetic waves (20%)

Dr. I. Hubert Joe proposed the revision of syllabuses of the following course(s) in the curriculum of **M.Sc. Physics** from the academic year 2023-24.

Name of the Course	Course Code	Core/ Elective/ Skill/ Value added	% of content added or replaced
CC9: Molecular Spectroscopy		Core	In, unit II, ATR is included with techniques and instrumentation topic. IR spectrum of carboxylic acid and amines replaced by interpretation of IR spectrum of organic compounds. In unit IV, include NMR imaging and NMR spectral analysis. Unit V was totally replaced

			by surface analytical tools. (30%)

Dr. I. Hubert Joe & Dr. C. James proposed to include simulation for practical application in the core course Electromagnetic theory.

Dr. C. James proposed to give practical related to topics in Spectroscopy.

It was decided to combine two papers Quantum Mechanics I and Quantum Mechanics II together as Quantum Mechanics with topics related to NET requirements.

It was resolved to add interdisciplinary paper "Material Science" to chemistry discipline as Discipline Specific Elective-3.

Resolved to revise the syllabuses of the above course(s) in the curriculum of **M.Sc. Physics** from the academic year 2023-24. Also resolved to approve the modified syllabuses for these courses which are given in Section – II

7. Introduction of field projects/ internships/student projects from the academic year 2023-24.

Dr. I. Hubert Joe proposed the revision of syllabus of the following internship programmes in the curriculum of B.Sc. and M.Sc. Physics from the academic year 2023-24.

Name of the Programme	Semester	Field project/ internship / student project	Duration
Internship	IV	Sending them to various research lab and make them to submit proposal as one of the options for internship program	15 Days

Resolved to introduce the above field projects/internships/student projects in the curriculum of **B.Sc. Physics** from the academic year 2023-24. Also resolved to approve the method of grading the students undertaking field projects/internships/student projects, which are given in Section – III.

Name of the Programme	Semester	Field project/ internship / student project	Duration

	Internship	II	Sending them to various research lab and make them to submit proposal as one of the options for internship program	30 Days

Resolved to introduce the above field projects/internships/student projects in the curriculum of **M.Sc. Physics** from the academic year 2023-24. Also resolved to approve the method of grading the students undertaking field projects/internships/student projects, which are given in Section – III.

PROF. A. CHARLES HEPZY ROY

Dr. C. JAMES

Dr. C. BESKY JOB

Dr. Y. PREMILA RACHELIN

Dr. J.V. BYNAJA

Dr. V. ANSLIN FERBY

Dr. B.S. BENILA

Dr. Y. SHEEBA SHERLIN

Dr. T. R. BEENA

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Dr. D.J. JEEJA MOL

Dr. H. ADLINE MAHIBA

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Dr. C. RAVIDHAS

Dr. I. HUBERT JOE

Dr. R. SHEELA CHRISTY

Mr. D. GILBERT CHANDRA

Dr. V. SHALLY