

Minutes of the meeting of Board of Studies for Department of Physics

Venue: Department of Physics, CUK.

Date and Time: 8th March 2019 from 11:00 AM – 12:30 PM

Members attended:

1. Prof. T. S. Natarajan
2. Prof. G. Umesh
3. Prof. B. R. Kerur
4. Dr. Bharat Kumar
5. Dr. Rajeev Joshi
6. Dr. Deepak Samuel (Special Invitee)
7. Prof. P. S. Anil Kumar attended the meeting via skype
8. Dr. G. J. Reddy
9. Dr. N. Venkata Narayanan

Dr. Bharat Kumar, Coordinator-Dept. of Physics, welcomed all the members of the Committee. The following agenda points were discussed.

Agenda 1: Approval of the minutes of the previous Board of Studies (BoS) meeting.

Resolution: The minutes of the previous BoS meeting was approved.

Agenda 2: M.Sc. IV semester courses

M.Sc. (Physics) IV semester students (2017-19 batch) may be allowed to take either MOOCs course approved by the Department of Physics as an elective course or Microteaching course instead of only microteaching course – for ratification (approval was taken from BoS via circulation mode).

Resolution: The agenda item was approved.

Agenda 3: Change of course title in the II semester M.Sc. (Physics) programme from “Statistical Physics” to “Statistical Mechanics”.

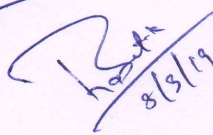
Resolution: The agenda item was approved. The course title may be changed effective from the current semester (from 2018 – 2020 M.Sc.(Physics) batch onwards).

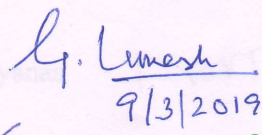
Agenda 4: Course structure for IV semester students (from 2018 – 20 batch onwards).

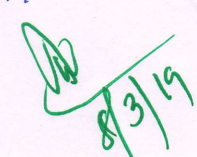
Resolution: It was suggested that the total number of credits must be increased to 20 from 16 credits. After detailed discussions on this agenda it was concluded that the following courses be offered in the IV semester M.Sc. (Physics) programme for students from 2018 – 2020 batch onwards.

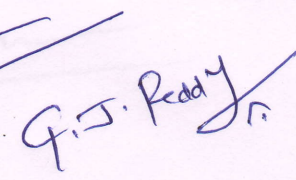
- a. Project work: 12 credits
- b. Two Seminars on project: 2 credit
- c. Elective 4 (3 credits): The course can be taken either via MOOCs or microteaching course. MOOCs courses must be approved by the Department.
- d. Elective 5 (3 credits): The course can be taken either via MOOCs or from the electives offered by the Department. MOOCs courses must be approved by the Department.

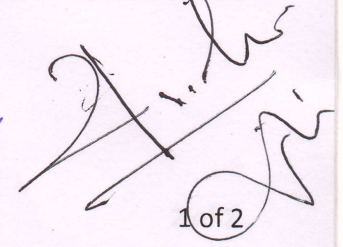

T. S. Natarajan


G. Umesh
8/3/19


B. R. Kerur
9/3/2019


Bharat Kumar
8/3/19


Rajeev Joshi
G. J. Reddy


Deepak Samuel
1 of 2

Agenda 5: Addition of a new elective course titled "Introduction to Particle Physics" for PhD course work.

Resolution: The agenda item was approved. The members suggested to prepare a detailed syllabus with a list of text books and reference books and circulate it.

Agenda 6: Course structure of PhD programme

Resolution: It was recommended that there be two mandatory courses covering theoretical concepts, experimental methods and Research methodology. The members suggested that a detailed syllabus with a list of textbooks and reference books be prepared for approval by circulation mode.

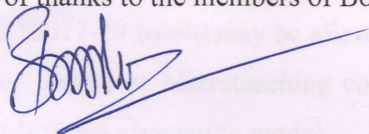
1. Course-1 (mandatory): 4 credits
2. Course-2 (mandatory): 4 credits
3. Elective course: 4 credits (The elective course may also be taken through MOOCs programme).

Agenda 7: Physics courses for a total of 6-credits for other UG programmes in the ongoing semester December 2018 – May 2019.

Resolution: The members recommended preparing an appropriate syllabus of courses for total of 6-credit physics course to be offered to UG students of other departments. As an interim **one time** measure, the students of other departments in the current semester (December 2018 – May 2019) can take a physics course (4 credits) offered for Int.(BSc.-MSc) programme along with a 2 credit laboratory course.

The meeting concluded with a vote of thanks to the members of BoS for their inputs and suggestions.

1. Prof. T. S. Natarajan



2. Prof. G. Umesh

G. Umesh
9/3/2019

3. Prof. B. R. Kerur

B. R. Kerur
8/3/19

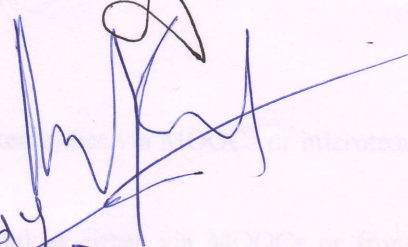
4. Dr. Bharat Kumar

Bharat Kumar
8/3/19

5. Dr. Rajeev Joshi

Rajeev Joshi
08/03/2019

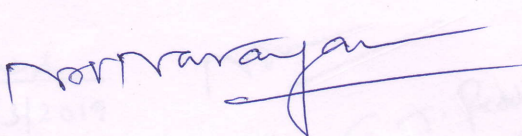
6. Dr. Deepak Samuel (Special Invitee)



7. Dr. G. J. Reddy

G. J. Reddy

8. Dr. N. S. Venkata Narayanan





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SCHOOL OF PHYSICAL SCIENCES

Department of Physics

Minutes of the BoS meeting held on 16 July 2022 (Online mode)

Members present:

- Dr. Deepak Samuel (Chairperson)
- Prof. Sharath Ananthamurthy
- Prof. Kajari Mazumdar
- Dr. Bharat Kumar
- Dr. Harish Holla
- Dr. Rajeev Joshi (invited member)
- Dr. Suchismita Sahoo (invited member)

Leave of absence:

- Prof. K P Ramesh
- Dr. G V Pavan Kumar
- Dr. Duraippandi

Agenda:

- Syllabus for NEP-based four-year UG programme leading to B.Sc in Research with Physics as Major

The Chairperson welcomed all the members of the BoS and presented the agenda items to be discussed in the meeting along with the draft copy of the syllabus. The comments and suggestions with regard to the agenda items are presented below:

a. Title of the Degree “B.Sc in Research with Physics as Major”:

- The members expressed their concerns regarding the Degree to be awarded at the end of fourth year and recommended that this be changed to “B.Sc in Physics by Research”, as the curriculum focuses more on physics rather than research. This matter will be placed before the administration and, if required, in the academic council for discussions.

b. Swapping of Nuclear Physics with Advanced Quantum Mechanics:

- Prof. Kajari Mazumdar suggested to shift the Nuclear Physics course to 6th semester and the Advanced Quantum Mechanics to 5th semester so as to maintain continuity between the introductory course on quantum mechanics and the advanced course in quantum mechanics.

c. **Addition of a course on Quantum Mechanics as minor:**

- i. It was suggested to add a course on Quantum Mechanics in the fourth semester as minor subject and the course on Mechanics be suitably merged with Properties of Matter.

d. **Suggestions on course titles:**

- i. In order to make the minor courses and generic electives sound more attractive to the students, it was decided to rename some of them:
1. "Basics of electronics" will be renamed to "Electronics made easy"
 2. "Quantum Mechanics" will be renamed to "The world of quantum mechanics"
 3. "Electricity and Magnetism" will be renamed to "Everyday electricity and magnetism"
 4. "Introduction to Machine Learning in Physics" will be renamed to "Applications of machine learning and data science"
- e. As the framework and the course structure are still evolving, it was decided minor changes to the syllabus may be approved in circulation mode.

The suggestions/comments were accepted by all the members and the revised syllabus will be circulated along with the minutes of the meeting, for approval from the members.

The meeting ended with a vote of thanks by the Chairperson.

All the following members approved the minutes and the revised syllabus with the suggestions incorporated, by email:


Dr. Deepak Samuel

21/7/22

(ONLINE)
Prof. Sharath Ananthamurthy

(ONLINE)
Prof. Kajari Mazumdar


Dr. Bharat Kumar

(ONLINE).
Dr. Harish.Holla



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SCHOOL OF PHYSICAL SCIENCES

Department of Physics

Minutes of the BoS meeting held on 12 Dec 2021 (Hybrid mode)

Members present:

- a) Dr. Deepak Samuel (Chairperson)
- b) Prof. Sharath Ananthamurthy
- c) Prof. Kajari Mazumdar
- d) Dr. G V Pavan Kumar
- e) Dr. Bharat Kumar
- f) Dr. Harish Holla
- g) Dr. Duraippandi
- h) Dr. Rajeev Joshi (invited member)
- i) Dr. Suchismita Sahoo (invited member)

Leave of absence:

- a) Prof. K P Ramesh

Agenda:

- a) Removal of mini project in 3rd semester of M.Sc Physics programme
- b) NEP-based courses to begin in the next year and course structure

The Chairperson welcomed all the members of the BoS and presented the agenda items to be discussed in the meeting:

- a) **Removal of Mini Project in 3rd semester M.Sc Physics:** The following points were brought to the notice of the BoS members:

- i) Though the students found the newly introduced Mini Project useful in terms of learning outcomes, they also reported 'online fatigue' due to extended hours of working online.
- ii) Since the Mini Project was carried out online, most of the projects were based on simulation and computational exercises with no scope for experimental work or training. However, some of the faculty members found it difficult to identify computational/simulation problems in their area of expertise.
- iii) In the current academic year with about 42 students admitted, each faculty is likely to get about 5-8 students to guide. This may deteriorate the quality of the training imparted to the students.

After discussing these factors, the BoS unanimously decided to remove the Mini Project component from the academic year 2021 onwards. It was also decided to increase the credits of other courses, namely the laboratory courses in the 3rd semester and the seminar course in the 4th semester, appropriately.

- b) **NEP-based courses:** In light of the need for implementation of National Education Policy (NEP) from the next academic year, the Chairperson requested the opinion of the members regarding the courses that may be

offered by the Department. In this context, the Chairperson also presented the academic roadmap envisaged for the Department. The roadmap presented a phase-wise implementation of the NEP to ensure a smooth and seamless transition. Accordingly, it was suggested that the 2-year M.Sc programme may continue until the end of 2024 with the 4-year B.Sc programme beginning in 2024. In 2026, the 1-year M.Sc programme may be started. The same was approved by the BoS.

- c) **NEP-based course structure for M.Sc Physics:** The Chairman presented the NEP-based course structure for the 2-year M.Sc Physics programme. However, the BoS felt that the course structure lacks important courses required for a post graduate programme. Therefore, the Chairperson was requested to modify the structure considering the inputs of the BoS.

It was decided that if the University arrives at a common consensus on the structure of NEP-based PG programmes, the Department may align their course structure with the same, without compromising on the quality of the programme.

The meeting ended with a vote of thanks by the Chairperson.

All the following members approved the minutes and the syllabus by email:

Dr. Deepak Samuel

Prof. Sharath Ananthamurthy

Dr. G V Pavan Kumar

Prof. Kajari Mazumdar

Dr. Bharat Kumar

Dr. Harish Holla

Dr. Duraippandi



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SCHOOL OF PHYSICAL SCIENCES
Department of Physics

Minutes of the BoS meeting held on 3 May 2021 (Online mode)

Members present:

- Dr. Deepak Samuel (Chairperson)
- Prof. Sharath Ananthamurthy
- Prof. K P Ramesh
- Prof. Kajari Mazumdar
- Dr. Bharat Kumar
- Dr. Harish Holla
- Dr. Duraippandi
- Dr. Rajeev Joshi (invited member)
- Dr. Suchismita Sahoo (invited member)

Leave of absence:

- Dr. G V Pavan Kumar

Agenda:

- Allotment of course codes - delegation to IQAC
- Syllabus: Modifications & Additions
- Enrolment of students in MOOCs courses
- Lab sessions during the pandemic- Experiences from other institutions
- NEP: first steps and suggestions from other institutions

The Chairperson welcomed all the members of the BoS and introduced the faculty members of the Department of Physics and the meeting was opened for discussions on aforesaid agenda items:

- Allotment of course codes:** It was unanimously decided to allow the Head of the Department to change the course codes to be consistent with the format and style set by the University, without seeking the explicit approval of the BoS anymore.
- Syllabus: Modifications & Additions:** The BoS approved the modifications to the course titled "Electromagnetic theory" and the addition of a new elective titled "Quantum Field Theory". These shall come into effect from the current batch of students itself.
- Enrolment of students in MOOCs courses:** With regards to the MOOCs related courses to be taken by the students of the Department of Physics, the following decisions were unanimously approved:
 - Only courses for which students register directly on platforms recommended by UGC (NPTEL/SWAYAM) and for which the evaluation and certification is done in accordance with the guidelines shall be called MOOCs, as stipulated in the UGC guidelines. Mere offering of downloaded material from MOOCs to students should not be termed as MOOCs.

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- ii) A course instructor may however use MOOCs materials (video lectures / tutorials) to supplement a given course to the extent gauged by the course instructor. In any case, such blended courses should not be called as MOOCs per se and must be treated on par with other regular courses offered by the department.
 - iii) The teaching-learning process must ensure maximal interactions and dialogue between the student and the instructor. Therefore, as far as possible, only Discipline Specific Elective courses may be offered through MOOCs.
 - iv) Core courses may be offered only in cases of extreme need due to shortage of teaching staff or when suitable teaching staff are not available for that course.
 - v) The proposal of offering Generic Electives for students of other departments through MOOCs is discouraged as it was felt that such practices may break the bridge between students of other disciplines with physics, leaving little space for students to explore areas beyond their normal course of study.
- d) **Lab sessions during the pandemic:** The BoS offered suggestions for the conduct of laboratory sessions online. Specifically, it suggested that online demonstrations of various experiments must be made wherever possible. Further it was suggested that evaluations be made more comprehensive by way of reports and Viva-voce.
- e) **NEP: first steps and suggestions:** The BoS sought inputs from all its members with regard to the implementation of NEP in the Department of Physics. Experiences on the 4-year B.Sc programme at IISc was shared by Prof. Ramesh. At the same time, the BoS requested the University to convene a workshop inviting all stakeholders to discuss the implementation of NEP at CUK. A suitable programme choice can only be made only after deliberations and dialogue between all the stakeholders across schools and departments.
- f) **Other items:** The Mini Project course offered in the 3rd semester was discussed by the members. While some members felt that it would be an additional burden on the students, others felt that it would enable students to gauge their own weaknesses and strengths and help understand the project supervisor, before they venture into the major project work offered in the 4th semester. After deliberations on this matter, the Mini project was retained in the syllabus.

The meeting ended with a vote of thanks by the Chairperson.

All the following members approved the minutes and the syllabus by email:

Dr. Deepak Samuel Prof. Sharath Ananthamurthy Prof. K P Ramesh Prof. Kajari Mazumdar

Dr. Bharat Kumar

Dr. Harish Holla

Dr. Duraipandi



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SCHOOL OF PHYSICAL SCIENCES

Department of Physics

Minutes of the BoS meeting held on 6th November 2020 (Online mode)

Members present:

- a) Dr. Deepak Samuel (Chairperson)
- b) Prof. Sharath Ananthamurthy
- c) Prof. K P Ramesh
- d) Dr. G V Pavan Kumar
- e) Dr. Bharat Kumar
- f) Dr. Harish Holla
- g) Dr. Duraippandi

Member absent:

- a) Prof. Kajari Mazumdar

Agenda of meeting:

- a) Introduction of the new BoS members
 - b) Introduction of faculty of physics
 - c) Overview of the department
 - d) Discussion of Learning outcome-based Curriculum Framework (LOCF)
 - e) Impact of COVID-19 on teaching-learning / labs - measures to be taken
 - f) MOOCs courses-student experiences and suggestions
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- a) The Chairperson welcomed all the members of the BoS and introduced the faculty members of the Department of Physics
 - b) The meeting was opened for discussions on the Learning Outcomes-based Curriculum Framework (LOCF) framed for the M.Sc Physics and the Ph.D program and the following suggestions were put forth by the members:
 - i) It was suggested to teach simple Laser experiments and teach optics from an electromagnetism perspective.
 - ii) It was recommended to add experiments demonstrating the failure of classical physics, for example, the measurement of the blackbody spectrum.
 - iii) It was suggested to add experiments showcasing the shielding properties of dielectrics and

propagation of EM waves. Further, it was suggested that a demonstration of Rutherford's scattering experiment be part of the nuclear physics course.

- iv) It was suggested that, as part of the laboratory sessions, a quiz on one of the experiments be part of the evaluation process.
 - v) Also, it was suggested that the senior students must be trained to teach simple experiments to junior students and such activities must be credited. This activity may be included in the mini-project.
 - vi) With all these suggestions and recommendations, the BoS prepared and approved the LOCF syllabus to implement from the current academic year 2020-21.
- c) In view of the COVID-19 pandemic, it was recommended by the BoS to allow exchange of theory and experiment courses between semesters as decided by the Head of the department.
 - d) It was also recommended that the students be permitted to take non-elective courses (i.e. compulsory courses) through MOOCs provided the syllabus of the concerned course is similar to the syllabus recommended by the BoS. The similarity may be judged by the Head of the department.
 - e) It was brought to the notice of the BoS, the constraints faced by students enrolling in MOOCs courses, namely, the limited student-teacher interaction channels in such online modes leading to lack of motivation to pursue the course further. It was recommended by the BoS to allow the department to address such concerns through hybrid mode of teaching. In this mode, part of lectures in a given course will be attended by the students through MOOCs and a faculty from the department will handle the rest, in addition to clarification of doubts in the MOOCs lectures. The assessment and evaluation of the student in that course may be made by the department in such cases. This will be applicable to all students including students from previous batches.
 - f) The meeting ended with a vote of thanks by the Chairperson.



Dr. Deepik Samuel

Prof. Sharath Ananthamurthy*

Prof. K P Ramesh*

Dr. G V Pavan Kumar*



Dr. Bharat Kumar



Dr. Harish Holla



Dr. Duraipandi