



Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

A CHRISTIAN MINORITY RESIDENTIAL INSTITUTION

AICTE Approved & NAAC Accredited

MINUTES OF THE BOARD OF STUDIES – DEPARTMENT OF PHYSICS

Date: 25.06.2019 Time: 11.30 AM Venue: Department of Physics

Members Present

1. Dr. S. Rajesh, Professor and Head, Dept of Physics, Karunya Institute of Technology and Sciences
2. Dr. Ebenezer Chellasamy - Resident Scientist, Kodaikanal Solar Observatory, Indian Institute of Astrophysics, Kodaikanal
3. Dr.M.Haris, Dept of Physics, Karunya University
4. Dr.D.Khanna, Dept of Physics, Karunya University
5. Dr.B.Vidhya, Dept of Physics, Karunya University
6. Dr.A.Sakunthala, Dept of Physics, Karunya University
7. Dr. J. Suryakanth, Prof & Head, Dept of Physics, KPR Institute of Technology and Sciences – External Expert (Alumni)

The Meeting started with an opening prayer offered by Dr. A.Sakunthala. The Head of the Department welcomed the members for the Board of studies meeting. He explained the agenda of the meeting to the committee members.

The External expert Dr. Ebenezer Chellasamy - Resident Scientist, Kodaikanal Solar Observatory, Indian Institute of Astrophysics, Kodaikanal and the BoS members have discussed in detail to include various aspects of introducing the application based approach to the I BTech Courses. The syllabus has been revised as per the deliberations and the new content has been incorporated. The same has been mentioned in the following table.

LIST OF NEW COURSES

S.No.	Course Code	Name of the Course	Credits			
			L	T	P	C
1	19PH1001	Engineering physics – Mechanics, electromagnetic waves and optics	3	0	0	3
2	19PH1002	Engineering physics – Mechanics, electromagnetic waves and optics lab	0	0	2	1
3	19PH1003	Engineering Physics	2	0	0	2
4	19PH1004	Engineering Physics – Lab	0	0	2	1
5	19PH1005	Engineering Physics – Basic Mechanics	3	0	0	3

6	19PH1006	Engineering Physics –Basic Mechanics Lab	0	0	2	1
7	19PH1007	Engineering physics –Properties of matter, optics and quantum mechanics	3	0	0	3
8	19PH1008	Engineering physics – Properties of matter, optics and quantum mechanics lab	0	0	2	1
9	19PH1009	Engineering physics - Electromagnetics, optics and properties of matter	3	0	0	3
10	19PH1010	Engineering physics - Electromagnetics, optics and properties of matter Lab	0	0	2	1

The meeting came to an end with the closing prayer offered by Dr. D.Khanna .



Dr. S. Rajesh



Dr. Ebenezer Chellasamy



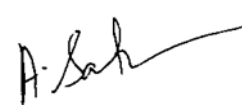
Dr. M. Haris



Dr. D. Khanna



Dr. B. Vidhya



Dr. A. Sakunthala



Dr. J. Suryakanth



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MINUTES OF THE BOARD OF STUDIES – DEPARTMENT OF PHYSICS

Date: 29.06.2018 Time: 10.30 AM Venue: Department of Physics - Seminar Hall

Members Present

1. Dr. S. Rajesh, Professor and Head, Dept of Physics, Karunya Institute of Technology and Sciences
2. Dr. Ebenezer Chellasamy - Resident Scientist, Kodaikanal Solar Observatory, Indian Institute of Astrophysics, Kodaikanal
3. Dr.M.Haris, Dept of Physics, Karunya University
4. Dr.D.Khanna, Dept of Physics, Karunya University
5. Dr.B.Vidhya, Dept of Physics, Karunya University
6. Dr.A.Sakunthala, Dept of Physics, Karunya University
7. Dr. J. Suryakanth, Prof & Head, Dept of Physics, KPR Institute of Technology and Sciences – External Expert (Alumni)

The Meeting started with an opening prayer offered by Dr. A. Sakunthala. The Head of the Department welcomed the members of the Board of Studies. The HoD explained the agenda of the meeting in detail in line with the **new AICTE guidelines**.

The External expert Dr. Ebenezer Chellasamy - Resident Scientist, Kodaikanal Solar Observatory, Indian Institute of Astrophysics, gave his valuable inputs for the I B.Tech course curriculum. Based on his comments and suggestions and as per the AICTE norms, the syllabus has been **revised** and specific syllabi for the engineering departments have been framed. The **new courses** have been listed in the following table.


LIST OF NEW COURSES

S.No	Course Code	Name of the Course	Credits
1	18PH1001	Engineering Physics - Electromagnetism, Optics and Properties of Matter	3:1:0
2	18PH1002	Engineering Physics - Electromagnetism, Optics and Properties of Matter Lab	0:0:1.5
3	18PH1003	Engineering Physics - Semiconductors and Optics	3:1:0
4	18PH1004	Engineering Physics - Semiconductors and Optics Lab	0:0:1.5
5	18PH1005	Engineering Physics - Semiconductors, Optics and Quantum Mechanics	3:1:0
6	18PH1006	Engineering Physics - Semiconductors, Optics and Quantum Mechanics Lab	0:0:1.5
7	18PH1007	Engineering Physics - Mechanics	3:1:0
8	18PH1008	Engineering Physics - Mechanics Lab	0:0:1.5
9	18PH1009	Applied Physics and Properties of Matter	3:1:0
10	18PH1010	Applied Physics and Properties of Matter Lab	0:0:1.5

The meeting came to an end with the closing prayer offered by Dr. D.Khanna.



Dr. S. Rajesh



Dr. Ebenezer Chellasamy



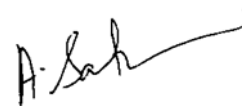
Dr. M. Haris



Dr. D. Khanna



Dr. B. Vidhya



Dr. A. Sakunthala



Dr. J. Suryakanth



**MINUTES OF THE BOARD OF STUDIES
DIVISION OF PHYSICS
DEPARTMENT OF PRE-ENGINEERING PROGRAM
Date: 31.03.2017 Time: 10.30 AM**

Venue: Department of Sciences - Conference Hall

Members Present

1. Dr. Daphy Louis Lovenia. Professor and Head, Department of Pre-Engineering Program
2. Dr. S. Rajesh, Professor, Physics, Karunya Institute of Technology and Sciences
3. Dr. Ebenezer Chellasamy - Resident Scientist, Kodaikanal Solar Observatory, Indian Institute of Astrophysics, Kodaikanal
4. Dr.M.Haris, Dept of Physics, Karunya University
5. Dr.D.Khanna, Dept of Physics, Karunya University
6. Dr.B.Vidhya, Dept of Physics, Karunya University
7. Dr.A.Sakunthala, Dept of Physics, Karunya University
8. Dr. J. Suryakanth, Prof & Head, Dept of Physics, KPR Institute of Technology and Sciences – External Expert (Alumni)

The Meeting started with an opening prayer offered by Dr. Daphy Louis Lovenia. The Head of the Department welcomed the members. The HoD informed the committee members about the agenda of the meeting. It was conveyed that the condensed syllabus should be elaborated and be presented in five units format.

The External Expert Dr. Ebenezer Chellasamy - Resident Scientist, Kodaikanal Solar Observatory, Indian Institute of Astrophysics, Kodaikanal discussed on the importance of introducing **new courses** in the I B.Tech. and M.Sc. Physics curriculum to meet the latest developments in the science and technology. The courses to be taught should have **industry oriented placements** and **skill oriented training** leading to **employability** and **entrepreneurship**. The following are the list of **new courses** introduced for various programs that were discussed and deliberated thoroughly and incorporated into the curriculum.

1. Applied Physics
2. Applied Physics Lab
3. Physics for Agricultural Engineers
4. Mechanics and properties of matter
5. Heat and Thermodynamics
6. Spectroscopy



The External member Dr. J. Suryakanth (Alumni), Prof & Head, Dept. of Physics, KPR Institute of Technology and Sciences and the other committee members deliberated on the need to introduce **technology oriented new courses** for M.Sc. Nano science and technology (Int.) program so that the students can have **skills** in electronics circuitry and thin film devices enhancing their **industrial employability**.

1. Physics of semiconductor memories and microprocessors
2. Physics of linear integrated circuits and VLSI design
3. Vacuum and thin film technology
4. Condensed matter physics
5. Renewable energy sources
6. Electricity and Magnetism

Table 1
M.Sc (Physics) – 2017 Batch (90 credits)
Course Components

S.No	Subject Code	Program core- 52 credits & a full semester project	Credits
		Name of the Subject	
1	17PH3001	Classical Mechanics	3:0:0
2	17PH3002	Statistical Mechanics and Thermodynamics	3:0:0
3	17PH3003	Mathematical Physics I	3:1:0
4	17PH3004	Semiconductor Physics	3:0:0
5	17PH3005	Quantum Mechanics I	3:0:0
6	17PH3007	Mathematical Physics II	3:1:0
7	17PH3010	Quantum Mechanics II	3:0:0
8	17PH3008	Atomic and Molecular Spectroscopy	3:0:0
9	17PH3009	Electromagnetic Theory	3:0:0
10	17PH3011	Nuclear and Particle Physics	3:0:0
11	17PH3012	Spectroscopy	3:0:0
12	17PH3013	Solid State Physics	3:0:0
13	17PH3025	General Physics Lab I	0:0:2
14	17PH3026	General Physics Lab II	0:0:2
15	17PH3027	Advanced Physics Lab I	0:0:4
16	17PH3028	Advanced Physics Lab II	0:0:4
17	17VE3002	Value Education III/ IV	2:0:0
		Total Credits	52
18	FSP3999	Full Semester Project	20
		Total	72



Table 2

S.No	Subject Code	Soft Core- I (Nanoscience and Technology)	Credits
		Min. of 12 credits to be earned	
		Name of the Subject	
1	17PH3024	Nano Fluids	3:0:0
2	17PH3014	Physics of Nanomaterials	3:0:0
3	17PH3006	Physical Optics	3:0:0
4	17PH3021	Materials Characterization	3:0:0
5	16NT3002	Nanoelectronics	0:0:2
6	17PH3029	Materials Characterization Lab	3:0:0

Table 3

S.No	Subject Code	Soft Core- II (Optics)	Credits
		Min. of 12 credits to be earned	
		Name of the Subject	
1	17PH3018	Radiation treatment and Planning	3:0:0
2	17PH3015	Photonics	3:0:0
3	17PH3033	Astrophysics	3:0:0
4	17PH3030	Computational Physics Lab	0:0:2
5	17PH3031	Simulations in Statistical Physics Lab	0:0:2
6	17PH3032	Heat and Optics Lab	0:0:2

Table 4

S.No	Subject Code	Electives	Credits
		Min. of 12 credits to be earned	
		Name of the Subject	
2	17PH3016	Thin Film Technology	3:0:0
3	17PH3017	Renewable Energy Sources	3:0:0
4	17PH3022	Crystal Growth Techniques	3:0:0
5	17PH3023	Radiation Physics	3:0:0
6	17PH3033	Nanofluids	3:0:0

Table 5

Classification	Credits
Core Subjects	72
Soft core	12
Elective	6
Total Credits	90



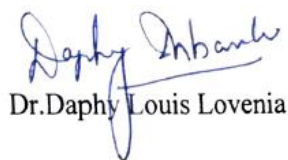
LIST OF NEW SUBJECTS

S.No	Course Code	Name of the Course	Credits
1	17PH1001	Applied Physics	3:0:0
2	17PH1002	Applied Physics Lab	0:0:2
3	17PH1003	Physics for Agricultural Engineers	3:0:1
4	17PH2001	Mechanics and properties of matter	3:0:0
5	17PH2002	Semiconductor Physics-I	3:0:0
6	17PH2003	Heat and Thermodynamics	3:0:0
7	17PH2004	Semiconductor Physics-II	3:0:0
8	17PH2005	Semiconductor Physics Lab-I	0:0:2
9	17PH2006	Semiconductor Physics Lab-II	0:0:2
10	17PH2007	Semiconductor logic devices	3:0:0
11	17PH2008	Spectroscopy	3:0:0
12	17PH2009	Physics of semiconductor memories and microprocessors	3:0:0
13	17PH2010	Physics of linear integrated circuits and VLSI design	3:0:0
14	17PH2011	Photonics	3:0:0
15	17PH2012	Vacuum and thin film technology	3:0:0
16	17PH2013	Condensed matter physics	3:0:0
17	17PH2014	Properties of matter lab	0:0:2
18	17PH2015	Electricity and Magnetism	3:0:0
19	17PH3001	Classical Mechanics	3:0:0
20	17PH3002	Statistical Mechanics and Thermodynamics	3:0:0
21	17PH3003	Mathematical Physics I	3:1:0
22	17PH3004	Semiconductor Physics	3:0:0
23	17PH3005	Quantum Mechanics-I	3:0:0
24	17PH3006	Physical Optics	3:0:0
25	17PH3007	Mathematical Physics-II	3:1:0
26	17PH3008	Atomic and Molecular Spectroscopy	3:0:0
27	17PH3009	Electromagnetic Theory	3:0:0
28	17PH3010	Quantum Mechanics-II	3:0:0
29	17PH3011	Nuclear and Particle Physics	3:0:0
30	17PH3012	Spectroscopy	3:0:0
31	17PH3013	Solid State Physics	3:0:0
32	17PH3014	Physics of Nanomaterials	3:0:0
33	17PH3015	Photonics	3:0:0
34	17PH3016	Thin Film Technology	3:0:0
35	17PH3017	Renewable energy sources	3:0:0
36	17PH3018	Radiation Treatment and Planning	3:0:0
37	17PH3019	Medical Radiation Dosimetry	3:0:0
38	17PH3020	Research Methodology	3:0:0
39	17PH3021	Material characterization	3:0:0



40	17PH3022	Crystal Growth Techniques	3:0:0
41	17PH3023	Radiation Physics	3:0:0
42	17PH3024	Nanofluids	3:0:0
43	17PH3025	General Physics Lab-I	0:0:2
44	17PH3026	General Physics Lab-II	0:0:2
45	17PH3027	Advanced Physics Lab-I	0:0:4
46	17PH3028	Advanced Physics Lab-II	0:0:4
47	17PH3029	Materials characterization lab	0:0:2
48	17PH3030	Computational Physics lab	0:0:2
49	17PH3031	Simulations in statistical physics Lab	0:0:2
50	17PH3032	Heat and Optics lab	0:0:2
51	17PH3033	Astrophysics	3:0:0

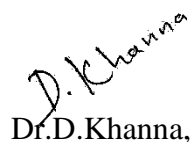
The meeting came to an end with the closing prayer offered by Dr.A.Sakunthala.

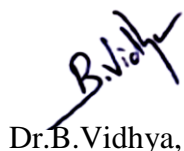

Dr.Daphy Louis Lovenia

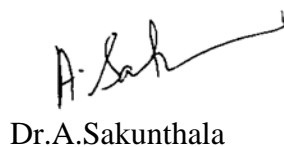

S. Rajesh

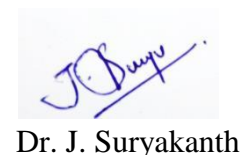

Dr. Ebenezer Chellasamy


Dr.M.Haris,


Dr.D.Khanna,


Dr.B.Vidhya,


Dr.A.Sakunthala


Dr. J. Suryakanth

BOARD OF STUDIES, DEPARTMENT OF PHYSICS

MINUTES OF MEETING

Date: 5.12.2015 Time: 10.00 am
VENUE: Director's Conference Hall, S & H

Members Present

1. Prof. S.Rajesh, HOD, Dept of Physics, Karunya University
2. Prof.P. Kolandaivel, Dept of Physics, Bharathiar University – External Expert
3. Dr.M.Haris, Dept of Physics, Karunya University
4. Dr.D.Khanna, Dept of Physics, Karunya University
5. Dr.B.Vidhya, Dept of Physics, Karunya University
6. Dr.A.Sakunthala, Dept of Physics, Karunya University
7. Mr.M.Jeyavelan, Junior Research Fellow, Central University of Tamilnadu, Thiruvavoor

The meeting started with a word of prayer by Dr. D. Khanna.

The Head of the Department of Physics welcomed the committee members. The agenda of the BoS was explained by him at the outset. He informed that the **revised course curriculum** for M.Sc Physics will be deliberated upon with particular focus on **employability, entrepreneurship and skill development**.

The External expert Dr P. Kolandaivel, Dept of Physics, Bharathiar University gave valuable inputs on introducing new courses in M.Sc Physics curriculum so that the students can have **skill oriented training and employability** and are equipped to write **competitive exams** like CSIR-NET, GRE, GATE, and JEST. The following are the list of new courses that were discussed and deliberated thoroughly and incorporated into the curriculum.

1. Advanced Statistical Mechanics
2. Radiation Physics
3. Crystal Growth Techniques
4. Physics of Advanced Materials
5. Simulations of Nanoscale Systems
6. Astrophysics

The External member Mr.M.Jeyavelan (Alumni), Junior Research Fellow, Central University of Tamilnadu, Thiruvavur has given inputs on incorporating nano-technology based courses for the MSc Physics as it is gaining prominence in nano-technology based companies and it has tremendous **employment opportunities** in the coming years. The following are the subjects that are discussed and included in the curriculum.

1. Physics of Nanoscale Systems
2. Nano Fluids



Table 1

**M.Sc (Physics) – 2015, 2016 Batch (90 credits)
REVISED COURSE COMPONENTS**

S.No	Subject Code	Program core- 52 credits & a full semester project	Credits
		Name of the Subject	
1	15PH3002	Classical Mechanics	3:0:0
2	15PH3003	Statistical Mechanics and Thermodynamics	3:0:0
3	15PH3004	Mathematical Physics I	3:1:0
4	15PH3005	Semiconductor Physics	3:0:0
5	15PH3006	Quantum Mechanics I	3:0:0
6	15PH3008	Mathematical Physics II	3:1:0
7	15PH3009	Atomic and Molecular Spectroscopy	3:0:0
8	15PH3010	Electromagnetic Theory	3:0:0
9	15PH3011	Quantum Mechanics II	3:0:0
10	15PH3012	Nuclear and Particle Physics	3:0:0
11	15PH3013	Spectroscopy	3:0:0
12	15PH3014	Solid State Physics	3:0:0
13	15PH3030	General Physics Lab I	0:0:2
14	15PH3031	General Physics Lab II	0:0:2
15	15PH3032	Advanced Physics Lab I	0:0:4
16	15PH3033	Advanced Physics Lab II	0:0:4
17	14VE3001/3002	Value Education III/ IV	2:0:0
		Total Credits	52
18	FSP3999	Full Semester Project	20
		Total	72

Table 2

S.No	Subject Code	Soft Core- I (Nanoscience and Technology)	Credits
		Min. of 12 credits to be earned	
		Name of the Subject	
1	15PH3028	Physics of Advanced Materials	3:0:0
2	15PH3015	Physics of Nanomaterials	3:0:0
3	15PH3020	Physics of Nanoscale Systems	3:0:0
4	15PH3039	Simulations of Nanoscale Systems	3:0:0
5	15PH3034	Materials Characterization Lab	0:0:2
6	16NT3002	Nanoelectronics	3:0:0
7	16NT3013	Nanoscale transistors	3:0:0
8	16NT3017	Advanced Material Characterization Lab	0:0:2

Table 3

S.No	Subject Code	Soft Core- II (Optics)	Credits
		Min. of 12 credits to be earned	
		Name of the Subject	
1	15PH3007	Physical Optics	3:0:0
2	15PH3017	Photonics	3:0:0
3	15PH3029	Solitons in Optical Fibers	3:0:0
4	15PH3035	Computational Physics Lab	0:0:2
5	15PH3036	Simulations in Statistical Physics Lab	0:0:2
6	15PH3037	Heat and Optics Lab	0:0:2
7	16NT3011	Photovoltaics: Advanced materials and devices	3:0:0
8	16NT3012	Luminescent materials	3:0:0

Table 4

S.No	Subject Code	Electives	Credits
		Min. of 12 credits to be earned	
		Name of the Subject	
1	15PH3016	Advanced statistical mechanics	3:0:0
2	15PH3018	Thin Film Technology	3:0:0
3	15PH3019	Principles of Renewable Energy	3:0:0
4	15PH3025	Crystal Growth Techniques	3:0:0
5	15PH3026	Radiation Physics	3:0:0
6	15PH3027	Nanofluids	3:0:0
7	16NT3040	Astrophysics	3:0:0



Table 5

Classification	Credits
Core Subjects	72
Soft core	12
Elective	6
Total Credits	90

The BOS committee felt that there should be more emphasis on physics courses for M.Sc Nano science and Technology (Int.) so that the students are able to understand the physics concepts in a better manner. They have framed relevant subjects to be included in the curriculum. As suggested by the experts, the following are **the new basic physics courses** offered to all branches of B.Tech. (16PH1001) and M.Sc. Nano science and Technology (Int.).

Subject Code	Subject Title	Credit
16PH1001	Applied Physics for Engineers	3 : 0 : 1
16PH2001	Semiconductor Physics I	3 : 0 : 0
16PH2002	Properties Of Matter Lab	0 : 0 : 2
16PH2003	Semiconductor Physics Ii	3 : 0 : 0
16PH2004	Semiconductor Logic Devices	3 : 0 : 0
16PH2005	Semiconductor Physics Lab-I	0 : 0 : 2
16PH2006	Semiconductor Physics Lab-Ii	0 : 0 : 2
16PH2007	Physics Of Semiconductor Memories & Microprocessors	3 : 0 : 0
16PH2008	Physics Of Linear Integrated Circuits & Vlsi Design	3 : 0 : 0
16PH2009	Photonics	3 : 0 : 0

LIST OF SUBJECTS

S.No	Subject Code	Subject Name	Credits
1	16PH1001	Applied Physics	3 : 0 : 1
2	16PH2001	Semiconductor physics I	3 : 0 : 0
3	16PH2002	Properties of matter lab	0 : 0 : 2
4	16PH2003	Semiconductor physics II	3 : 0 : 0
5	16PH2004	Semiconductor logic devices	3 : 0 : 0
6	16PH2005	Semiconductor physics lab I	0 : 0 : 2
7	16PH2006	Semiconductor physics lab II	0 : 0 : 2
8	16PH2007	Physics of semiconductor memories & microprocessors	3 : 0 : 0
9	16PH2008	Physics of linear integrated circuits & VLSI design	3 : 0 : 0
10	16PH2009	Photonics	3 : 0 : 0
11	15PH3001	Advanced Mechanics of Solids	3:0:0
12	15PH3002	Classical Mechanics	3:0:0
13	15PH3003	Statistical Mechanics and Thermodynamics	3:0:0
14	15PH3004	Mathematical Physics I	3:1:0
15	15PH3005	Semiconductor Physics	3:0:0
16	15PH3006	Quantum Mechanics I	3:0:0
17	15PH3007	Physical Optics	3:0:0
18	15PH3008	Mathematical Physics II	3:1:0
19	15PH3009	Atomic and Molecular Spectroscopy	3:0:0
20	15PH3010	Electromagnetic Theory	3:0:0
21	15PH3011	Quantum Mechanics II	3:0:0
22	15PH3012	Nuclear and Particle Physics	3:0:0
23	15PH3013	Spectroscopy	3:0:0
24	15PH3014	Solid State Physics	3:0:0
25	15PH3015	Physics of Nanomaterials	3:0:0
26	15PH3016	Advanced statistical mechanics	3:0:0
27	15PH3017	Photonics	3:0:0
28	15PH3018	Thin Film Technology	3:0:0
29	15PH3019	Principles of Renewable Energy	3:0:0
30	15PH3020	Physics of Nanoscale Systems	3:0:0
31	15PH3021	Radiation Treatment and Planning	3:0:0
32	15PH3022	Medical Radiation Dosimetry	3:0:0
33	15PH3023	Research Methodology	3:0:0
34	15PH3024	Material Characterization	3:0:0
35	15PH3025	Crystal Growth Techniques	3:0:0
36	15PH3026	Radiation Physics	3:0:0
37	15PH3027	Nanofluids	3:0:0
38	15PH3028	Physics of Advanced Materials	3:0:0



39	15PH3029	Solitons in Optical Fibers	3:0:0
40	15PH3030	General Physics Lab I	0:0:2
41	15PH3031	General Physics Lab II	0:0:2
42	15PH3032	Advanced Physics Lab I	0:0:4
43	15PH3033	Advanced Physics Lab II	0:0:4
44	15PH3034	Materials Characterization Lab	0:0:2
45	15PH3035	Computational Physics Lab	0:0:2
46	15PH3036	Simulations in Statistical Physics Lab	0:0:2
47	15PH3037	Heat and Optics Lab	0:0:2
48	15PH3038	Properties of matter Lab	0:0:2
49	15PH3039	Simulations of Nanoscale Systems	3:0:0
50	15PH3040	Astrophysics	3:0:0

The above courses were approved by the BOS committee after detailed deliberations by the members and the external experts.

Prof. S. Rajesh

Prof. P. Kolandaivel

Dr. M. Haris

Dr. D. Khanna

Dr. B. Vidhya

Dr. A. Sakunthala

Mr. M. Jeyavelan