

## EVALUATIVE REPORT OF THE DEPARTMENT

1. Name of the Department & its year of establishment : **Physics (PG and Research) 1961 – 62**
2. Names of Programmes/Courses offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., etc.)

Sl. No.	Name of Programme	Subject	Year of affiliation	No. of sections	Sanctioned strength	Total Student strength (2011-12)	Remarks
1.	B.Sc.	Physics	1961-62	2	96	213	I, II & III Year
2.	M.Sc.	Physics	1972-73	03	104	219	I & II year
3.	M. Phil.	Physics	1982-83	1	32	26	---
4.	Ph.D.	Physics	1982-83	-	48	22	----
5.	Certificate Course	AC and Refrigeration	2005-06	1	30	12	One year

3. **Interdisciplinary courses and departments involved**
  - In UG level, in **Part IV** interdisciplinary Courses like **Skill Based Elective** are offered in all the six semesters and **Non-Major Elective** in the final year as mandatory to all the students.
  - In PG level, in the final year **Extra Disciplinary Courses** are offered mandatory to all the students.

Interdisciplinary courses		Departments involved
UG Level	Skill Based Elective	Chemistry, Botany, Zoology, Computer Science and Mathematics
	Non – Major Elective	English, Commerce, Mathematics, Chemistry, Physical Education and Computer science
PG Level	Extra Disciplinary	Chemistry, Mathematics, Botany, Zoology, Computer Science

4. **Annual/ Semester/Choice Based Credit System:**  
Semester pattern with Choice Based Credit System
5. **Participation of the department in the courses offered by other departments:**
  - Our department participates in the courses offered by other departments by extending Skill Based Elective and Non-Major Elective at UG level and Extra Disciplinary Courses at PG level to all the students.
  - In addition to the ancillary Physics for departments like Mathematics, Chemistry and Computer Science, the department of Physics offers the following subjects for the benefit of students of other departments.

### Skill Based Courses – UG Level

- ❖ Basic Electrical Wiring & fundamentals
- ❖ Electrical appliances and repairing
- ❖ Basics of instrumentation and transducers
- ❖ Principles of Electrical and Electronic devices
- ❖ Troubleshooting- Electrical and Electronic equipments
- ❖ Electrical and Electronics Practical

**Non Major Elective courses – UG Level**

- ❖ Basic Physics
- ❖ Non- Conventional Energy Sources

**Extra disciplinary course – PG Level**

- ❖ Laser and Its Applications

**6. Number of teaching posts sanctioned and filled (Professors/Associate Professors/Asst. Professors)**

**AIDED SECTION**

Post	Sanctioned	Filled	Vacant
Associate Professors	-	01 (Promoted)	-
Asst. Professors	16	12	03

**SELF-FINANCE SECTION**

Post	Sanctioned	Filled	Vacant
Asst. Professors	10	13*	-

\* including 3 teachers appointed temporarily against permanent vacancies.

**7. Faculty profile with name, qualification, designation, specialisation (D.Sc./D.Litt./ Ph.D./M.Phil., etc.)**

Sl. No.	Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. students guided in the last 4 years		Remarks
						Guided	Guiding	
<b>Aided Section:</b>								
1.	Dr.P.Philominathan	Ph.D.	Assoc. Prof.	Nonlinear dynamics & Materials research	22	06	06	---
2.	Dr.K.Ravichandran	Ph.D.	Asst. Prof.	Materials science	23	-	08	---
3.	Dr.B.Sakthivel	Ph.D.	Asst. Prof.	Materials science	12	01	07	---
4.	Dr.G.Pasupathi	Ph.D.	Asst. Prof.	Materials science	12	--		---
5.	Dr.V.S.Nagarathinam	Ph.D.	Asst. Prof.	Crystal growth and Thin films	23	--		---
6.	Dr.A.R.Balu	Ph.D.	Asst. Prof.	Thin films	12	--		---
7.	Mrs.N. Manjula	M.Phil.	Asst. Prof.	Thin films	6	--		Doing Ph.D.
8.	Mrs.R.Manimekalai	M.Phil.	Asst. Prof.	Crystal growth	22	--		Doing Ph.D.
9.	Mrs.B.Deepa	M.Phil.	Asst. Prof.	Crystal growth	6	--		Doing Ph.D.
10.	Mrs.M.Vasanthi	M.Phil.	Asst. Prof.	Thin films	14	--		Doing Ph.D.
11.	Mr.S.Ravishankar	M.Phil.	Asst. Prof.	Thin films	11	--		Doing Ph.D.
12.	Mrs.M.Suganya	M.Phil.	Asst. Prof.	Thin films	6	--		Doing Ph.D.
13.	Ms.C.Rajashree	M.Phil.	Asst. Prof.	Thin films	6	--		Doing Ph.D.
<b>Self – Finance Section:</b>								
1.	Mr.P.Krishnamurthy	M.Phil.	Principal (Retd.)	Materials research	34	--		--
2.	Mr.K.Murugananthan	M.Phil.	Asst. Prof.	Instrumentation	10	--		Doing Ph.D.
3.	Dr.G.Muruganatham	M.Phil.	Asst. Prof.	Thin films	09	--		--

Sl. No.	Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. students guided in the last 4 years	Remarks
4.	Mrs.K.Uma	M.Phil.	Asst. Prof.	Crystal growth	08	--	--
5.	Ms.R.Sridevi	M.Phil.	Asst. Prof.	Thin films	07	--	--
6.	Mr.N.Balaguru	M.Phil.	Asst. Prof.	Thin films	14	--	Doing Ph.D.
7.	Ms.C.Priyatharshini	M.Phil.	Asst. Prof.	Thin films	06	--	--
8.	Mr.K.Thirumurugan	M.Phil.	Asst. Prof.	Thin films	05	--	Doing Ph.D.
9.	Ms.K.Karthika	M.Phil.	Asst. Prof.	Thin films	04	--	--
10.	Ms.N. Karpaga Priya	M.Phil.	Asst. Prof.	Materials research	04	--	--
11.	Ms. S.Bhuvaneshwari	M.Phil.	Asst. Prof.	Thin films	02	--	--
12.	Ms.T.R.Suganya	M.Phil.	Asst. Prof.	Thin films	03	--	--
13.	Mr.M.Suresh	M.Phil.	Asst. Prof.	Thin films	06	--	--
14.	Ms.S.Anitha	M.Sc.	Asst. Prof.	Thin films	--	--	--

### 8. Percentage of classes taken by temporary faculty – programme-wise information

Sl. No.	Programmes	Morning session	Evening session
1.	UG	20	90
2.	PG	40	75

### 9. Programme-wise Student Teacher Ratio

Sl. No.	Name of the programme	Student teacher ratio
1.	UG	25:1
2.	PG	20:1
3.	M.Phil.	20:1

### 10. Number of academic support staff (technical) and administrative staff: sanctioned and filled

Sl. No.	Staff	Sanctioned	Filled
1.	Technical	08	06
2.	Administrative	01	01

### 11. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Mention names of funding agencies and grants received project-wise.

#### Completed Projects:

S. No.	Name of the Faculty	Project title	Name of the project	Name of the funding agency	Amount sanctioned (Rs.)
1.	Dr.A.Thayumanavan	Fabrication and characterization of certain oxide films	Minor	UGC	1,00,000/-
2.	Dr.P.Philominathan	A Study on influence of perturbations in nonlinear systems and their characterization	Major	UGC	6,01,000/-
3.	Dr.K.Ravichandran	Fabrication of low-cost solar cell layers using a simplified spray pyrolysis technique	Minor	TNSCST, Chennai.	1,98,000/-
4.	Dr.K.Ravichandran	Gas sensor using Tin Oxide thin film prepared by spray pyrolysis technique	Minor	UGC	55,000/-

S. No.	Name of the Faculty	Project title	Name of the project	Name of the funding agency	Amount sanctioned (Rs.)
5.	Dr.B.Sakthivel	Fabrication of low-cost solar energy materials using a simplified spray pyrolysis technique	Minor	UGC	1,00,000/-
6.	Dr.G.Pasupathi	Investigation on Growth and characterization of semi organic NL O crystals for Opto-Electronic applications	Minor	UGC	1,90,000/-

### On-Going Projects:

S. No.	Name of the Faculty	Project title	Name of the project	Name of the funding agency	Amount sanctioned (Rs.)
1.	Dr.P.Philominathan	Realization of certain potentially significant nonlinear systems driven by parametric perturbation	Major	UGC, New Delhi	14,02,000/-
2.	Dr.P.Philominathan	Investigation on influence of perturbation on certain nonlinear Dynamical systems	Major	CSIR, New Delhi	7,62,000/-
3.	Dr.P.Philominathan	Investigation on certain potentially significant thin films fabricated using economically simple techniques	Major	Rajiv Gandhi National Fellowship Programme, UGC, New Delhi	12,22,000/-
4.	Dr.K.Ravichandran	Fabrication of transparent conducting oxide films using three different low-cost techniques for solar cell applications	Major	UGC, New Delhi	10,92,800/-

### 12. Departmental projects funded by DST-FIST; DBT, ICSSR, etc.; total grants received :

Applied for DST-FIST and also to Dept. of Biotechnology, Ministry of Science and Technology, New Delhi as a partner department in Star College Scheme

### 13. Research facility / centre with

#### • State recognition

- \* Seven Staff members pursuing research by guiding Ph.D., scholars as the Department has got the recognition of Bharathidasan University, Trichirappalli, as an affiliated “Research Centre”.
- \* All the research supervisors of the department are members of Department Research Committee and members of Doctoral Committees of other affiliated research centers of the University.
- \* Research Laboratories of the department have been recognized as a “nodal centre” for using research equipments by the scholars and Staff members of other institutions.

• **National and International recognition**

- \* Staff members of the department are entrusted with academic responsibilities like reviewer / referee in many reputed national and international journals.
- \* Research supervisors of the department are in the Panel of Indian Evaluators of Ph.D. theses in Universities like Manonmaniam Sundaranar, Periyar, Annamalai etc.
- \* Staff and Scholars of the department have presented research articles in many scientific forum of National and International Status and published research articles.
- \* **International School of Sultanate of Oman, Oman** has recognized the research centre of the department for exchange of academic expertise and signed a **MoU** for the academic period for 2011 to 2013.
- \* Out of 11 Ph.D., theses awarded during 2007-12 from the department, two of them got “**Highly Commended**” report by the national as well as International adjudicators.

**14. Publications:**

- \* **Number of papers published in peer reviewed journals (national/international)**

Sl. No.	Year of Publication	No. of papers Published	
		National	International
1.	2007 – 2008	01	01
2.	2008 – 2009	--	08
3.	2009 – 2010	--	10
4.	2010 – 2011	--	09
5.	2011 – 2012	--	13

\* Monographs : Nil

\* Chapter(s) in Books : 03

3 chapters in research book entitled “Nonlinear Dynamics” of Narosa Publications, New Delhi

\* Editing Books : Nil

\* Books with ISBN numbers with details of publishers : 01

Sl. No.	Book Title	Publisher	Date
1.	Research Methodology	<a href="http://www.arXIV.,Physics/0601009V2">http://www.arXIV.,Physics/0601009V2</a> [Physics.ed-Ph]	25 Jan.2006

- \* Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.) :

All the 41 research papers published during this assessment period found in

☞ Google Scholar

☞ Scopus



- ☞ EBSCO
- ☞ Web of Science

For instance, all the author names of our department are in almost all the scientific journals data base.

- \* **Citation Index – range / average** :  
The articles published from the department have Citation indices from **0 to 31**
- \* **SNIP and SJR** :  
The research articles were published in various reputed journals such as **PHYSICA A, Pramana, International Journal of Chaos, Soliton and Fractals, Materials letters, Journal solid thin films, Modern Physics letters B, International Journal of automation and Computation, International Journal Advance materials, Journal of surface Engineering, Solar cells**, etc., are covered by Scopus and other data base along with their SNIP (Source normalized Impact per journal) and SJR (SCImago Journal Rank).  
For example,
  - Journal of Physica A has SNIP in the range **0.95-0.99** and SJR between **0.7-0.8**
  - Journal of Materials letter has SNIP in the range **0.823- 0.909** and SJR between **0.322 – 0.378**
- \* **Impact factor – range / average** :  
All the papers with impact factor ranging from **0.1 to 4.7**
- \* **h-index** :  
All the Research Supervisors and Scholar with publications do have individual **h-index** ranging between **1 and 32**.

**15. Details of patents and income generated : ----**

**16. Areas of consultancy and income generated :**

Expertise of the faculty members in designing the teaching methodology and Physics Practical for nearby Matriculation Schools and Government Higher Secondary Schools, in the form of consultancy is regular practice of the department in a non-profitable basis.

**17. Faculty recharging strategies**

**Orientation / Refresher and Training Programmes**

Sl. No.	Year	Number of staff attended Orientation / Refresher
1.	2007 – 2008	04
2.	2008 – 2009	01
3.	2009 – 2010	07
4.	2010 – 2011	02
5.	2011 – 2012	04

### Papers presented in Seminars

Sl. No.	Year	No. of Papers Presented		
		State	National	International
1.	2007 – 2008	-	02	-
2.	2008 – 2009	01	01	02
3.	2010 – 2011	05	07	02
4.	2011 – 2012	06	02	01

### 18. Student projects

- percentage of students who have done in-house projects including inter-departmental

All the Post-graduate students are permitted to undertake a project work to gain extra-credit in the existing CBCS. They mostly make use of department of Chemistry and Computer Science. However, the percentage seems to be in decreasing trend in single digits.

All the M.Phil. students do their project as it is mandatory in curriculum. Apart from the parent department, they do collaborative work with institutions like CECRI, BHEL (for non-destructive measurements) etc. during their project work.

Sl. No.	Year of study	Students Strength in M.Phil.	Inhousing Project (%)	Collaboration Projects (%)
1.	2007-08	23	100	-
2.	2008-09	34	100	-
3.	2009-10	24	100	-
4.	2010-11	22	100	-
5.	2011-12	22	81.8	19.2

### 19. Awards / recognitions received at the national and international level by

- Faculty

- The **Autobiography of Dr.P.Philominathan** is in the prestigious register of ‘Who’s Who in the World’, USA, in the inventors’ category.
- DST-SERC Visiting Teacher Fellow** for the year 2005-06 to **Dr.P.Philominathan**
- DST sponsored Category A-speaker** status from 2008-2012 awarded to **Dr.P.Philominathan** for Theoretical Physics Seminar Circuit.
- Dr.P.Philominathan** and **Dr.K.Ravichandran** is reviewer/referee in many peer reviewed international and national journals.

- Doctoral / post doctoral fellows - Nil

• **Students**

- i. I PG student **Mr.E.Vinod**, won the **First Prize** in the International Conference in Science Teaching and Methodology held at University of Malaya, Malaysia.
- ii. **Miss.M.Santhiah**, Ph.D., scholar was awarded CSIR–SRF for 2011-13 by CSIR, New Delhi.
- iii. **Mr.G.Muruganandam**, Ph.D., scholar has won “**Best Paper Award**” in an International conference held at Annamalai University, Chidambaram.
- iv. **Miss. Rani**, M.Phil. scholar has won **Third Prize** in a National Seminar held at Tirnelveli.
- v. **Ms.A.Jeevarekha, Ph.D. Scholar** won **Gold Metal** for topper in M.Sc. Physics of Bharathiyar University, Coimbatore and also awarded with DST-Inspire fellowship by DST, New Delhi.

**20. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.**

Sl. No.	Seminar Title	Status	Date	Name of the sponsoring agency	Amount sanctioned Rs.
1.	Crystallography and Crystal Growth	State	29 August 2008	Management	5,000/-
2.	Recent Advances in Physics Research	State	27 August 2009	Management	3000/-
3.	Special Awareness Programme on Astronomy	State	20 August 2010	TNSCST, Chennai	6000/-
4.	Emerging Trends in Physics	State	27 August 2010	Management	3000/-
5.	Theme meeting on ‘Astrophysics and Planetary Sciences’	State	27 January 2012	Management	3000/-
6.	Awareness workshop on ‘FUKUSHIMA’ A year later, Re-assessment of risks of Nuclear power’	State	28 June 2012	Management	2500/-
7.	Recent technique in Crystal Growth and thin films	State	29 August 2012	Management	5,000/-

**Outstanding participants who graced the occasions**

1. **Prof.K.Ramamoorthy**, Bharathidasan University, Trichy.
2. **Dr.G.Vasuki**, KN Govt. College, Thanjavur
3. **Dr. J. Hemalatha**, National Institute of Technology, Trichy.
4. **Dr.N.Venkatanatha**, SASTRA University, Thanjavur.
5. **Prof. S. Rajasekar**, School of Physics, Bharathidasan University, Trichy.
6. **Dr.Ramachandra Athray**, Indian Space Research Organization, Bangalore.
7. **Dr.S.Gopirethinaraj**, School of inter-continental Policy, National University of Singapore, Singapore.



## 21. Student profile course-wise:

### UG Programmes

Year of study	Applications received	Selected		Pass percentage	
		Male	Female	Male	Female
2007-08	47	25	10	74	100
2008-09	42	18	09	78	85
2009-10	82	35	43	75	93
2010-11	113	56	64	76	100
2011-12	50	21	24	75	88

### PG Programmes

Year of study	Applications received	Selected		Pass percentage	
		Male	Female	Male	Female
2007-08	121	41	34	80	96
2008-09	133	43	25	83	84
2009-10	147	50	25	74	100
2010-11	146	68	61	86	96
2011-12	190	56	61	75	88

### M.Phil. Programmes

Year of study	Applications received	Selected		Pass percentage
		Male	Female	
2007-08	30	08	15	76
2008-09	38	13	21	97
2009-10	32	08	17	88
2010-11	37	13	19	47
2011-12	31	08	14	59

### Ph.D. Programmes

Doing		Awarded before the assessment period		Awarded during the assessment period	
Male	Female	Male	Female	Male	Female
21	16	05	--	09	03

### Certificate Course

Year of study	Applications received	Selected	Pass percentage
2007-08	15	15	100
2008-09	13	13	100
2009-10	16	16	100
2010-11	10	10	100
2011-12	12	12	100

## 22. Diversity of students

Name of the Course (refer question no. 2)	% of students from the College	% of students from the State	% of students from other States	% of students from other countries
B.Sc.	--	100	--	--
M.Sc.	40	60	--	--
M.Phil.	65	35	--	--
Ph.D.	30	70	--	--

**23. How many students have cleared Civil Services, Defence Services, NET, SLET, GATE and any other competitive examinations?**

Sl. No.	Name of the Examination	No. of Students
1.	Civil Services	03
2.	GATE	02
3.	Competitive examinations	25

- Mr.A.Jebarethinam, M.Phil. of 2008-09 batch has cleared GATE examination and pursuing research as JRF at IISER, Kanpur.
- Mr.Dhavamani, M.Sc., M.Phil. of 2007-10 batch has passed both PG Teachers' Examination and Group I Civil Service examination of Government of Tamil Nadu.
- Mr. Elamurugu, M.Sc., has passed SSB of Ministry of Defence at Bangalore and posted as Flying Officer.
- Mr. Senthilkumar, B.Sc. got selection as Sub-Inspector of Police, with distinction as No.1 in the examination processes.

**24. Student progression**

Student progression	Percentage against enrolled
UG to PG	80
PG to M.Phil.	65
PG to Ph.D.	06
Ph.D. to Post-Doctoral	--
Employed	
• Campus selection	05
• Other than campus recruitment	76
Entrepreneurs	20

**25. Diversity of staff**

Percentage of faculty who are graduates	
of the same parent university	91
from other universities within the State	09
from other universities from other States	--

**26. Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment period.**

Year	Management Financial Assistance			Government Financial Assistance		
	UG	PG	M.Phil	UG	PG	M.Phil
2007-08	19	12	1	85	74	12
2008-09	25	9	9	65	32	17
2009-10	25	18	3	182	66	21
2010-11	45	12	2	192	78	12
2011-12	21	15	2	182	120	13

## 27. Present details about infrastructural facilities

- a) Library : General : 3,694 books  
Department : 194 books

The Following Journals are available for the students and research scholars:

- i. Bulletin of Material Science
- ii. Pramana
- iii. Resonance
- iv. Journal of Astrophysics and Astronomy
- v. Journal of Earth system and Science
- vi. Current Science
- vii. International journal of Physics
- viii. Electric Maker
- ix. Electronics bazaar
- x. Electronics for you
- xi. Spectroscopy
- xii. ACTA – Indicia
- xiii. Span

b) Internet facilities for staff and students :

- 24 Hours unlimited Broad band internet facility is available in the theoretical physics research laboratory for the user of Staff members and research scholars.
- A total of four individual nodes with a dedicated server (IBM Xeon processor with 4 GBD DR3 RAM and 1 Terabyte HDD

c) Total number of class rooms : 06

d) Class rooms with ICT facility :

- One PG class room is equipped with wall mounted LCD projector and an independent desktop computer for audio visual learning.
- One mini conference cum smart class room is equipped with smart Board, audio-video projection and latest ICT gadgets.

e) Students' laboratories : 04

- All Major Practical equipments related to optics, properties of matter, electricity, magnetism, electronics, etc are available in two separate undergraduate laboratories.
- Latest equipments like micro processors / micro Controller kits, Guoy's and quinke's apparatus, carey balance, Hall effect apparatus, ESR Spectrogram, etc are available in two separate postgraduate laboratories for I and II year M.Sc. students.

f) Research laboratories : 02

- Research Laboratory – I : (Experimental lab for material research)

The newly added equipments are:

- 5 decimal digital balance (imported)
- Perkin Elmer Photo Spectrometer (imported)
- Doubly distilled water plant

- High temperature chamber for thin film coatings (upto 600°C)
- Research Laboratory – II : (Computational lab for theoretical physics research)
  - IBM dedicated server with Xeon processor and one terra byte memory
  - 4 independent systems in Networking
  - Facility for high performance computing through FTP and SSH

**28. Number of students of the department getting financial assistance from College.**

Year	No. of students getting financial assistance
2007 – 08	12
2008 – 09	20
2009 – 10	17
2010 – 11	16
2011 – 12	12

**29. Was any need assessment exercise undertaken before the development of new program(s)? If so, give the methodology.**

The basis for the importance for introducing a new programme will be discussed in the departmental meeting along with the copies of UGC/CSIR/DST brochures/syllabi. Then with the approval of IQAC, the formal drafting of the programme will be discussed in the BOS and resolved in the Academic Council for final implementation.

**30. Does the department obtain feedback from**

**a) Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize it?**

- Yes, the suggestions given by the Staff members directly involved in the new programme or syllabi are always considered as an effective feedback. The merits and demerits posed by the teacher concerned will be discussed in the BOS meeting and subsequent changes are updated periodically.
- Faculty members from other institutions are also involved in feeding feed-back in regular basis during Evaluation of scripts/practical examinations.

**b) Students on staff, curriculum as well as teaching-learning-evaluation and what is the response of the department to the same?**

- Students are free to make comments/suggestions upon the methodology of teaching process (class-room teaching as well as laboratory demonstrations) adapted by the individual teachers directly to the Head of the Department or Dean (Faculty of Sciences).
- Students’ nominees represent the BOS of the department to place their feedback and expectations while framing the curriculum.



- By the directions of the Principal and IQAC, the Head of the department meets all the classes to verify the completion of the syllabus, well in advance, before the last working day of each semester.
  - Every semester, Students’ Chapter of IQAC, conducts Feedback evaluation of teachers, infrastructure, laboratory conditions, etc., in all the departments and subsequently the report is considered with due weightage for further constructive and progressive implementation.
- c) **Alumni and employers on the programmes and what is the response of the department to the same?**
- Yes. Conducting the Annual Alumni association meet is a regular practice. Likewise, the meeting of a few noteworthy Entrepreneurs/ industrialists/Scientists is also the regular activity of the department.
  - Based on the interactions with Alumni and Experts, the curriculum is modified to meet out the current expectations of the Society and Scientific community. The induction of new programmes like Certificate Course on AC and Refrigeration and PG Diploma on Non-conventional Energy are being in the process.

**31. List the distinguished alumni of the department (maximum 10)**

SL. No.	Name of the Alumni	Designation	Place
1.	Dr. N.VIJAYAN	Scientist F, (CSIR young Scientist – President Awardee) Materials Science Division	National Physical Laboratory, New Delhi
2.	Mr. Benjamin Lionel	Director, Heavy Arms and Weapons Division	DRDO, New Delhi
3.	Prof. J. Jayapandian	Scientist F, MSD, IGCAR	Kalpakkam, Tamilnadu
4.	Dr. T.S. Gobirethinaraj	School of inter-continental Policies, National University of Singapore	Singapore
5.	Dr. James Bakiaya Arockia Samy	Scientist, Microwave Sensor Research, ICTP	Trieste, Italy
6.	Prof. S. Rajasekar	School of Physics, M.S. University	Tirunelveli, Tamilnadu
7.	Prof. Arumugam	Centre for High Pressure and Low Temperature, School of Physics	Bharathidasan University, Tirchirappalii, Tamilnadu
8.	Prof. Thilagan	Department of Green Technology, Central University of Pondicherry	Pondicherry
9.	Prof. Ganesan	Department of Physics, Anna University	Guindy, Chennai
10.	Dr. B. Ravi Kumar	Principal, Devanga Arts and Science college (Autonomous)	Aruppukkottai, Tamilnadu

**32. Give details of student enrichment programmes (special lectures/ workshops / seminar) with external experts.**

- a) Departmental seminars at UG, PG & M.Phil. levels are a routine academic process in the department
- b) Association of Physics conducts invited talks, theme meetings and celebrations for celebrities in Physics.

Few note-worthy enrichment programmes are:

Sl. No.	Seminar Date	Seminar Title	Resource Persons
1.	29.08.2008	Crystllography and Crystal Growth	Prof.K.Ramamoorthy, Bharathidasan University, Trichy and Dr.G.Vasuki, KNGC, Thanjavur
2.	27.08.2009	Recent Advances in Physics Research	Dr.J.Hemalatha, NIT, Trichy
3.	27.08.2010	Emerging trends in Physics	Prof.S.Rajasekar, Bharathidasan University, Trichy
4.	20.08.2010	Special Awareness Programme on Astronomy (TNSCST Sponsored)	Dr.N.Venakatanathan, SASTRA university, Thanjavur
5.	27.01.2012	Astrophysics and Planetary Sciences	Dr.Ramachandra Athray, ISRO, Bangalore.
6.	28.06.2012	FUKUSHIMA: A year later, Re-assessment of risks of Nuclear power	Dr. T.S. Gopirethina raj, National University Singapore, Singapore
7.	29.08.2012	Recent Techniques in Crystal growth and Tin Films	Prof.K.Ramamoorthy, Bharathidasan University, Trichy

**33. List the teaching methods adopted by the faculty for different programmes.**

Sl. No.	Programme	Teaching Methods Adopted
1.	UG	Conventional Chalk and Talk method, questioning and answering approach, displaying of charts, exhibiting the prototype models, usage of Slide projectors, Motion pictures, OHP presentations, assigning problems to solve independently, library hour, invited talks by external expertise, supply of well – prepared study materials and guidelines for Practical, and updated theory of practice well before the commencement of laboratory experimental Practical.
2.	PG	Chalk and Talk method, Interaction with individuals, exhibiting e-contents, Simulated circuit diagrams, simulation of physical models, presentation of downloaded talks of NPTEL (National Program on Technology Enhanced Learning) relevant to PG Students, OHP, Guest Lectures, seminars, library hour allotment, visit to out-side laboratories, and supply of study materials.
3.	M.Phil.	All the methods adopted for P.G. students and in addition, methods like <b>in-situ</b> learning, theme meeting, panel discussion, colloquiums, teaching skill-set, project/ dissertation work and practice towards presenting research results in a scientific forum, hands-on practice in computer networking and so on are in process of teaching.

**34. How does the department ensure that programme objectives are constantly met and learning outcomes monitored?**

- a) The system in curriculum facilitates to have a periodic and continuous assessment of the students through CIA and compulsory attendance.
- b) Inter-departmental analysis of both teachers and students in council of heads of the department level and departmental level after every semester ensures the status and directions of on-going trend in achieving the objectives of the programmes.
- c) An effective and result-oriented monitoring mechanism is practiced by the Secretary and Correspondent to review the results of students and performance of teachers, every year. All the supporting data provided by the office of the COE to the employer during annual review meetings, have an admirable impact on the improvisation of individual teachers.
- d) The interest and competition in selecting physics subject by the students in admission process is an indicator for the department to ascertain the fulfillment of the objectives of our well-designed programmes.
- e) No. of students appearing and getting succeeded in Competitive examinations is closely watched in regular manner.
- f) Periodic checking mechanism supported by feedback from students (of both current and out-going) and alumni and reports of IQAC chapter, helps to take suitable remedial measures regarding the framing of the syllabi.

**35. Highlight the participation of students and faculty in extension activities.**

- Students' participation in Extension activities is made mandatory for all UG programmes. The students of physics do participate in NSS, NCC, YRC, etc.
- Students have conducted awareness programmes on 'learning Science' and in particular, in physics for near school children by deliberations and demonstration.
- Entire Staff with supporting technical personnel have conducted more than 3 one-day programmes for the Higher Secondary School Students who have taken 'physics' in their curriculum.
- The department has conducted Science exhibitions along with other departments like Chemistry and life sciences.
- Many of the staff members are actively involved in society-involved Associations and Organizations for the purpose of serving their intellectual expertise.



### Participation of faculty in Extension Activities

Sl. No.	Name of the Faculty	Name of the Extension Activity Participated
i.	Dr. P. Philominathan	NSS Programme Officer

#### 36. Give details of “beyond syllabus scholarly activities” of the department.

- ☞ Coaching to students for the preparation of UGC-CISR JRF cum Lecturer Test, JEST, SLET, IES and other competitive examinations.
- ☞ Training the students to participate in Physics Quiz programmes
- ☞ Training the students to inculcate the learning skills, inter-personal and intra-personal skill and career choosing skills (through workshops)

#### 37. State whether the programme/ department is accredited/ graded by other agencies. Give details.: Nil

#### 38. Detail any five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department

##### Strengths:

- i. Effective Support in the form of laboratory equipments from the management for the introduction of any new and innovative programme.
- ii. Even with moderate research possibilities, the department is capable of pursuing research in par with University departments and many leading institutions.
- iii. Good and conducive opportunities for students’ vertical progress up to Research Level.
- iv. Thirst towards Adaptability and Zeal towards up-dating of academic programmes according to the demand.
- v. Female staff members outnumber the male staff members in the present and in student strength scenario where female students outnumber male students.

##### Weaknesses:

- i. Substantial decrement in science learning due to the invasion of engineering studies and more over, the programmes in Physics are purely basic.
- ii. Inability to network with other institutions (like other urban Colleges)
- iii. Low profile of Teachers’ exposure towards advancement in Physics.





- iv. Intermittent hurdles in the form of guidelines and directions by the parent University and Tamil Nadu State Council for Higher Education from Time to Time in Utilizing very concept of **Autonomy**.
- v. Abolition of minor projects for college teachers and financial assistance to individual departments in the form of DST-FIST, has become unforeseen difficulty while progressing towards upwards.

**Opportunities:**

- i. Wide scope for learning job-oriented certificate, diploma and PG Diploma course concurrently during the course duration.
- ii. Students have chance to appear confidently in competitive examinations as extra-coaching on specific skill set is made available.
- iii. Special coaching classes for NET/SLET/UGC-CSIR pave way the students to move further in their academic excellence.
- iv. Each student could enrich his/her technical skills as the related opportunities do exist in the department.
- v. The past history and positive trend which prevails in the department help each student to expand their knowledge in all aspects.

**Challenges:**

- i. Teaching Physics seems to be tough and that too to the first generation learns makes to task more challenging. The success rate of the department shows the success trend in meeting out such challenges in effective manner.
- ii. Sudden transition from local language to English, in Undergraduate students, is a regular but taunting task. However, training through Bridge courses and spoken English labs help to get rid of the challenge.
- iii. Teaching Physics to ancillary courses seems to be a tough task and adding to this, giving non-major physics subjects to students of commerce, physical education, information technology, etc., has been more challenging. Proper methodology with basic rudiments helps us to come out of this problem.
- iv. Decision of infusing girls students also in the main stream, in recent years, by our management has caused the teaching community to tackle the co-education system. However, with proper back-up system supported by counseling mechanism, the prevailing difficulties in managing both genders are managed.
- v. Net working with other institutions is a major problem which lies in the department. Recent advancements in the campus improvement, through technological connectivity, we attempt to reduce the same.



### Future plans of the department.

- i. To start Five-year Integrated Course in the Department – **M.Sc., (Physics)**
- ii. All set to introduce a Post-graduate Diploma for the graduates of physics, chemistry and life-science students from the forth-coming academic year – **PG Dip. In Non-conventional Energy.**
- iii. To set two Centres: one for **Materials research** and the other for **Nonlinear Dynamics** with the help of DST-FIST or CPE support from UGC.
- iv. To have more enriching programs for Staff and Students (like seminar, Symposia and Workshops).

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### Achievements of the Department:

- ☞ Since inception, the department has produced over 10,000 graduates in Physics
- ☞ One of the oldest research departments in Bharathidasan University to pursue both theoretical and experimental research.
- ☞ The department has grown with well structured programmes which include certificate course, Diploma, PG Diploma, Undergraduate, Post graduate, M.Phil. and Research programme with supportive programmes like job oriented Skill Based and Non Major Electives.
- ☞ The department has a wide spectrum of Alumni spread all over the world. For instance, in ICTP Italy, National University of Singapore, Berkely University of USA, Indian Institute of Bangalore, Indhira Gandhi Centre for Atomic Research for Kalpakkam, National Physical Laboratory New Delhi, Indian Space Research Organization Bangalore, Anna University Chennai, MS University, Tirunelveli, Bharathiyar University, Coimbatore, Periyar University Salem as faculties and Scientists.
- ☞ The department has grown to a greater extent to pursue research in the fields of Nonlinear Dynamics and Solar Photo Voltaics. Over 40 lakhs funding from UGC, DST, CSIR, TNSCST and IAS are the ample proof for the department of Physics.

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