

# **ACADEMIC AUDIT REPORT 2018**



**INTERNAL QUALITY ASSURANCE CELL**

**COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**KOCHI, KERALA- 682022**

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## *Members of the Internal Quality Assurance Cell*

1. Dr. J. Letha, Vice Chancellor - **Chairperson**
2. Dr. P.G Sankaran, Pro Vice Chancellor
3. Dr. S. David Peter, Registrar
4. Dr. K.Girish Kumar, Professor, Department of Applied Chemistry - **Director, IQAC**
5. Shri.Sebastian Ouseph, Finance Officer
6. Dr. S. Harikumar, Professor, Department of Applied Economics
7. Dr. G. Madhu, Professor, School of Engineering
8. Dr. Sangeetha K.Prathap, Assistant Professor, School of Management Studies
9. Dr. S.M. Sunoj, Professor, Department of Statistics
10. Dr. A.A. Mohamed Hatha, Professor, Department of Marine Biology, Micro Biology & Biochemistry
11. Dr. Sunil K Narayanankutty, Professor, Department of Polymer Science and Rubber Technology
12. Dr. Aneesh V. Pillai, Assistant Professor, School of Legal Studies
13. Dr. George Mathew, Professor, School of Engineering
14. Dr. Pramod Gopinath, Professor, International School of Photonics
15. Dr. Satheesan K., Associate Professor, Department of Atmospheric Sciences
16. Dr. Supriya M.H, Professor, Department of Electronics
17. Dr. A. Vijayakumar, Professor, Department of Mathematics
18. Shri. George Paul, Member of Syndicate & Managing Director, Synthite Industries Limited
19. Dr. M.K. Jayaraj, Member of Syndicate & Professor, Department of Physics
20. Dr. M. Bhasi, Member of Syndicate & Professor, School of Management Studies
21. Dr. K. Paulose Jacob, Nominee from Local Society & Former ProVice Chancellor, CUSAT
22. Dr. N.G.K. Pillai, Nominee from Local Society & Director(Retd.), CMFRI
23. Dr. K.R. Suresh Nair, Nominee from Local Society & Chief Technology Officer, Nest Group

## *Message from the Vice Chancellor*

*I am indeed happy that the academic audit of various university departments/schools has been conducted recently to review the quality of academic processes in the University and that the IQAC is releasing the report of the same. We have commenced it as a process of assuring quality and self introspection for the better growth of the institution.*

*The National Assessment and Accreditation Council (NAAC) assessed the University in 2016 and accredited with A grade. This process had been given us an opportunity to realize our strengths as well as weaknesses and the corrective measures are being taken according to the suggestions of the peer team.*

*As a strive to enhance and maintain the quality of teaching learning and related processes, young faculty members who have high-quality academic and research expertise as well as international exposure have been appointed during the past few years. Further, the infrastructure and research facilities are being augmented, so as to cope with global standards, through various schemes of the Government and other agencies. These endeavours attribute to enhance the expertise and competitiveness of students and to channelize all the activities to expedite our quest for quality.*

*This Academic Audit Report is a tool to strengthen University's efforts to be an Institute of International Excellence.*

*Dr.J.Letha  
Vice Chancellor*



## *Message from the Pro-Vice Chancellor*

*We have started the Academic Audit in the University as a continuous and constant exercise of self-evaluation and up-gradation. The University has decided to conduct academic audit once in two years. The departments have been given an opportunity to conduct this review process independently with the support of two three external experts.*

*The present audit reveals that the major strength of the University are a pool of highly qualified and internationally recognized faculty members who excel in their fields as well as strong research collaborations with the national and international research institutes. The shortage of faculty members is being resolved by the ongoing recruitment process.*

*This academic audit has given an opportunity to examine every aspect of teaching learning process as well as research activities of each department in detail and to assure its quality. I request the academic community to go through the report meticulously and facilitate essential support to the University in taking necessary corrective measures.*

***Dr. P.G. Sankaran***  
*Pro Vice Chancellor*



## ***Preface***

*The academic audit is very important, IQAC believes, for identifying strengths and weaknesses of academic activities in an institution. Further, as a globally approved tool and as per NAAC's directives, University has conducted the academic audit recently, first time in the history of CUSAT, to introspect and improve quality in the academic sector.*

*The process involves self-study by the departments and assessment by the experts from the relevant fields. The report is an exhaustive study result of all aspects of academic activities in the departments including teaching learning to evaluation, student support to progression, research to extension. The IQAC is optimistic that the corrective measures which are being taken by the departments as well as by the University will definitely enhance the quality and level of teaching and research in the University.*

*I express my sincere gratitude to all heads of departments and faculty members for their active cooperation in this new endeavour and expect a detailed examination of the report which will be helpful to achieve new benchmarks in academic and research outcomes.*

***Dr. K. Girish Kumar***

*Director*

*Internal Quality Assurance Cell*





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## **1. INTRODUCTION**

The Internal Quality Assurance Cell (IQAC) is established in the University to evolve tools and guidelines for improving quality at different levels of the institution. The monitoring and evaluation of the institutional processes require a carefully structured system of internal and external review. Internally it is being done by the IQAC through various processes such as student feedback analysis, preparation of yearly academic performance report of departments etc. Academic audit can be understood as a scientific and systematic method of reviewing the quality of academic process externally.

The Academic Audit is a peer review process including self-study by the departments and a site visit by peers from outside the institution. The purpose of the academic audit is to encourage departments to evaluate quality of their education processes there by assure and regularly improve the quality of teaching and learning processes as well as academic and research outputs.

### **Objectives**

- i. To understand the existing academic and research processes in the departments.
- ii. To ensure quality of teaching learning processes, research activities as well as other related processes.
- iii. To ensure quality of research and academic outputs and to set new benchmarks in these outcomes.

### **Process**

The Internal Quality Assurance Cell (IQAC) of the university has identified the following six criteria and prepared a format for conducting the



academic audit based on these criteria.

- i. Curricular Aspects
- ii. Teaching, Learning & Evaluation
- iii. Research and Consultancy
- iv. Learning Resources
- v. Extension Activities and Best Practises
- vi. Basic Amenities and Green Initiatives

The teaching departments/ schools/ centres were conducted a self study by assimilating information regarding the academic activities in the departments as per the format. The audit has been conducted at individual departments with the help of external experts from within and outside the state. The peer reviewers visited the departments and did physical verification of the processes, documents and facilities. Each team critically reviewed the academic processes in the departments and their suggestions for taking necessary corrective measures, as detailed in the report of individual departments, shall be helpful for the university to attain its targets.

#### Major Observations by the Peer Reviewers

- More add on courses may be included in the curriculum for meeting the demands of the day.
- Shortage of faculty at different levels as stipulated by UGC.
- Recruitment of faculty members is going on in many departments and many of them have good teaching and research experience as well as international exposure.
- Recruitment process in the remaining departments may be expedited as academic activities including teaching, learning, research and extension

are severely affected by shortage of faculties in these departments.

- Newly recruited teachers may be given guide ship; need not wait for the probation to be declared.
- The faculty members who do not have book publication may be encouraged to publish books on specialized topics with international publishers.
- Good number of research publications. Ensure paper publications by each and every faculty member.
- Most of the departments have major research projects whereas some departments do not have.
- Steps may be initiated so that every faculty member should have at least one major research project.
- More focus may be given to promote consultancy services.
- The ramp facility in some departments building will not cater the need of the differently abled people.
- Library timing in some departments may be changed 8 AM to 8 PM with some working arrangements.
- Student support and mentoring services in some departments may be improved. The service of a councillor also may be utilized in between for the fine tuning.
- Additional coaching may be given to PG students to improve the performance in national level tests.
- Pooling of Resources may be encouraged through interdisciplinary approach.



## 2. Department Wise Academic Audit Reports

### 2.1 Department of Applied Chemistry

#### External Experts:

1. Dr C.T Aravind Kumar  
Professor  
Mahatma Gandhi University  
Kottayam, Kerala
2. Dr Abraham Joseph  
Professor  
Calicut University  
Kerala

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE		DEPARTMENT OF APPLIED CHEMISTRY			
1	Name of the Department	DEPARTMENT OF APPLIED CHEMISTRY			
2	No: of Full time Permanent Faculty	7 + 5 (from August 2017)			
3	No: of Adjunct Faculty	2 (Till December 2017)			
4	No: of Contract Faculty	1 (Till December 2016)			
5	No: of Guest Faculty	-			
6	No: of Academic Programmes	P. G, M. Phil., M. Tech., Ph D			
7	No: of core courses and electives in each programme				
	M.Sc	Core course – 18 Electives – 15 (5 in each Semester out of which student chooses one)			
	M.Phil	Core Course – 4 Electives - 13 (Student chooses one)			
	M.Tech	Core course – 12 Electives - 8			
8	Student Strength				
	M.Sc IV Sem – 24	24 { Sanctioned Strength, 22+2+2}			
	II Sem – 22	22 { Sanctioned Strength, 22+2+2}			
	M.Phil	9{ Sanctioned Strength, 9}			
	M.Tech	9 + 3 { Sanctioned Strength, 15}			
9	No: of Ph D Students	FT	55	PT	6

<b>II-CURRICULAR ASPECTS</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
10	Coverage of syllabus	A	Syllabus meet the requirement of the time	More electives may be included
11	Information on curriculum revisions	A		Syllabus revision takes place once in three years. May revised every year so that each batch will get the flair of the revision.
12	Add on Courses/ Skill Development Courses conducted	C	No add on courses	Add on courses may be included outside the syllabus for meeting the demands of the day
13	Students feedback on Curriculum	C	Not started	Feedback on the curriculum may be taken from the students, alumnus and other well-wishers and the same may be evaluated by the DC and if needed curriculum may be revised.
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	B	Needs to be improved	Apart from the traditional methods of teaching, and evaluations, innovations are not being practiced in the department. May be focused on other modes based on the feedback on TLE by students
15	Remedial Courses Conducted	C	Not started	Weaker sections may be identified based on the results, evaluation and remedial classes may be arranged for weaker students





16	Use of Supplementary Teaching tools and Application of ICT	B	Needs to be improved	Apart from the use of PowerPoint, no other ICT enabled methods are being practiced in the class room. May be focused on other modes based on the feedback on TLE by students
17	Conduct of Internal Examinations	A	Internal examinations are conducted based on pre-planned schedule under the leadership of a teacher appointed by the HOD as controller of examinations	Excellent
18	Result Analysis	B	Not yet implemented	Results may be analyzed in the DC and remedial measures may be taken
	P.G			
	M.Phil			
	M.Tech			
19	Faculty Development Initiatives, if any	B	Junior teachers are promoted to attend Orientation and Refresher courses. Others are also promoted to attend seminars and workshops.	More initiatives may be taken to increase the visibility of the teachers in national and international events.
20	Students feedback on teaching, learning and evaluation	A	Excellent	Feedback taken from the students may be communicated to the teacher and the teacher may be advised to improve the grade next time.

<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	A	At present there are Seven Supervising teachers	Newly recruited teachers also may be given guide ship. Need not wait for the probation to be declared
22	No: of Ph D produced	A	Nine PhD's Awarded	Output can be improved by granting guide ship to the new Faculties
23	Research Papers published during the assessment period			
	International	A	46 research papers of good quality have been published by the department during this period.	Target may be fixed in such a way that every full time Research SchOolar should publish at least one research paper.
	National	-		Publications in nationally reputed journals also may be promoted
24	Papers Presented during the Assessment Period	A	Excellent	145 Papers presented in various conferences
	International	A	Excellent	50 papers presented in International seminars
	National	A	Excellent	95 papers presented in National seminars
25	Books Published	C		Faculties may be encouraged to publish books on specialized topics with international publishers.
26	Chapters in Books	C		Faculties may be encouraged contribute book chapters.
27	Books Edited	C		Faculties may be encouraged to publish edited books with international publishers.



28	Seminars/Workshops/Training Programmes Conducted	B		More programmes may be arranged to increase the visibility of the department.
	National			
	State			
29	Ongoing/ New MoU	B	No MoU's	MoU's may be signed with premier national and international research institutions to improve research output.
30	Research Collaborations	C	Collaborative Research activities are promoted	Collaborative research activities may be promoted through MoU's
31	Awards/ Achievements/Recognitions of students and Teachers	B		More Research Scholars may be promoted for oral and poster presentations.
32	Ongoing and Newly implemented research Projects	B	Good	Goal may be fixed in such a way that every faculty should have at least one Major research project
33	Consultancy Services	C		More focus may be given to promote Consultancy services
34	Subject/ Department Related Extension activities	C		Subject related extension activities may be promoted
35	Other Extension Activities, if any	C		Apart from Learning Chemistry, students may be permitted to understand diversity of the society, the people and their lifestyle through which they can improve a lot.
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	A	Excellent	Four new equipment have been installed.
37	Justification of the use of these equipments	A	Excellent	Log books may be maintained for each and every major equipment.

38	Details of outcomes/publications after the institution of these equipments	A	Good	Quality of publications improved. More stress may be given to increase the number of publications.
39	e-classrooms (Number and Usage)	B	Class rooms with white and black boards with projection facility	At least one class room may be made fully automated with interactive white board and recording facility.
40	Computer Labs (No: of labs and working systems)	A	Excellent	Adequate facilities are available
41	Access timings of the library	B		Library timing may be changed 8 to 8 with some working arrangements.
42	No: of printed books added during the assessment period	A	Good	
43	e-resources and e-journals	A	Excellent	
44	Facilities for disabled students	A	Good	The ramp to the ground floor of every building will not cater the need of the differently abled people.
45	Maintenance of drinking water	A	Excellent	
46	Maintenance of sanitation	A	Excellent	
47	Restroom for women students	A	Excellent	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	B		Student support and mentoring services may be improved. The service of a councillor also may be utilized in between for the fine tuning.
49	Student Aid fund/ Endowments etc.	B	Placement cell is working in the department under the leadership of a faculty	Placement Cell may be revamped



50	Placement details	B	Not available	
	No: of Students applied			
	No: of students placed			
51	No: of students qualified in the following examinations	B	Good	Additional coaching may be given to PG students to improve the performance in National level Tests.
	NET			
	SET/SLET			
	GATE			
	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department		Not Mentioned though there are number of best practices.	The DC may identify the best practices that is to be highlighted apart from the conduct of Chem. Com.
53	Innovative Practices followed by the Department		Yet to be identified	May be identified and highlighted by the DC
54	Green Initiatives		Good	More green initiatives may be taken by improving the curriculum
45	Actions taken on the recommendations made by the peer team during NAAC visit		Not available	NAAC report may be critically evaluated by the DC and remedial measures may be taken.
55	Strengths of the Department	A	Good	*Excellent Faculty *Almost cent percent Results for MSc, MTech and MPhil *Good research Out put *Good teacher student relationship
56	Weaknesses of the Department	C		*Research Collaboration in terms of MoU's *Extension and Outreach programmes

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57	Overall Report and Suggestions for Improvement	A	Good	The Overall performance of the department in the period of assessment is commendable .Certain areas need to be strengthened.
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## 2.2 Department of Applied Economics

### External Experts:

1. Dr K.X Joseph  
Professor, University of Calicut  
Kerala
  
2. Dr K.C Baiju  
Professor & HOD Department of Economics  
Central University of Kerala

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DEPARTMENT OF APPLIED ECONOMICS		
2	No: of Full time Permanent Faculty	3		
3	No: of Adjunct Faculty	1		
4	No: of Contract Faculty	Nil		
5	No: of Guest Faculty	Nil		
6	No: of Academic Programmes	P. G		
7	No: of core courses and electives in each programme	Core course – 14 Electives - 5		
8	Student Strength	17		
9	No: of Ph D Students	FT	19	PT 25
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	4		
11	Information on curriculum revisions	3		To be revised
12	Add on Courses/ Skill Development Courses conducted	0		
13	Students feedback on Curriculum	5	Good	
III-TEACHING, LEARNING AND EVALUATION				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement

14	Innovations in Teaching introduced	2	Needs to be improved	
15	Remedial Courses Conducted	0	100% result	
16	Use of Supplementary teaching tools and Application of ICT	3	Only access of software	Pooling of Resources through Interdisciplinary approach
17	Conduct of Internal Examinations	5		
18	Result Analysis	5		
	UG	-		
	PG	5		
19	Faculty Development Initiatives, if any	3	Participation	FDP Programme
20	Students feedback on teaching, learning and evaluation	5	Yes	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	5	6	
22	No: of Ph D produced	4	5	
23	Research Papers published during the assessment period			
	International	0	Nil	
	National	3	6	
24	Papers Presented during the Assessment Period			
	International		Nil	
	National	4	25	
25	Books Published		Nil	
26	Chapters in Books		Nil	
27	Books Edited		Nil	
28	Seminars/Workshops/Training Programmes Conducted	4	2	
	International		-	
	National		2	
	State		-	
29	Ongoing/ New MoU	0	Nil	





30	Research Collaborations	0	Nil	
31	Awards/ Achievements/ Recognitions of students and Teachers	0	Nil	
32	Ongoing and Newly implemented research Projects	0	Nil	
33	Consultancy Services	0	Nil	
34	Subject/ Department Related Extension activities	0	Nil	
35	Other Extension Activities, if any	0	Nil	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	0	Nil	
37	Justification of the use of these equipments	-	NA	
38	Details of outcomes/ publications after the institution of these equipments	-	NA	
39	e-classrooms (Number and Usage)	4	3	
40	Computer Labs (No: of labs and working systems)	4	Lab with 5 systems	
41	Access timings of the library	4	9.00 am to 4.00 pm	
42	No: of printed books added during the assessment period	3	183	
43	e-resources and e-journals	4	Centralised	
44	Facilities for disabled students	3	Facility available	Suitable software may be procured
45	Maintenance of drinking water	5	Yes	
46	Maintenance of sanitation	5	Yes	
47	Restroom for women students	5	Yes	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	3		
49	Student Aid fund/ Endowments etc.	4		

50	Placement details	0	Nil	
	No: of Students applied	-	NA	
	No: of students placed	-	NA	
51	No: of students qualified in the following examinations			
	NET	3	4	
	SET/SLET			
	GATE			
	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department	0	Nil	
53	Innovative Practices followed by the Department	0	Nil	
54	Green Initiatives	3	Maintaining a garden	
55	Actions taken on the recommendations made by the peer team during NAAC visit		Strengthen the research activities in pursuance to the NAAC recommendations	
56	Strengths of the Department		*Good library *Adequate statistical packages *Infrastructure facility	
57	Weaknesses of the Department		Shortage of faculty at different levels as stipulated by UGC	
58	Overall Report and Suggestions for Improvement		Academic activities including teaching, learning, research and extension are severely affected by shortage of faculties in the department. Recruitment process may be expedited	



## 2.3 Department of Atmospheric Sciences

### External Experts:

1. Dr. A.C Narayana  
Professor, UCESS, University of Hyderabad
2. Dr. P. K Dinesh Kumar  
Chief scientist, Kochi

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1.	Name of Department	DEPARTMENT OF ATMOSPHERIC SCIENCES		
2.	No. of Full Time Permanent Faculty	8		
3.	No. of Adjunct faculty	Nil		
4.	No. of Contract Faculty	Nil		
5.	No. of Guest faculty	Nil		
6.	No. of Academic Programmes	3		
7.	No. of core courses and electives in each programmes in each subject	M.Sc Meteorology	Core: 17	Elective: 7
		M.Tech Atmospheric Sciences	Core: 10	Elective: 5
		Ph. D	Core : 2	Elective : 2
8.	No. of Students Strength	M.Sc Meteorology (Atm. Sci)	M.Tech	29 16
9.	No. of PhD Students	30	FT: 19	PT: 11

### II-CURRICULAR ASPECTS

	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
10.	Coverage of syllabus	4	4	
11.	Information on Curriculum Revision	5	5	
12.	Add-on courses / skill development courses conducted	3	3	
13.	Student's feedback on Curriculum	4	5	

**III-TEACHING, LEARNING AND EVALUATION**

14.	Innovations in Teaching introduced	5	<p>*Started offering courses using Moodle</p> <p>*A unique programme of regular map discussions using all the available meteorological data from different sources like IMD, NCMRWF, ECMWF etc. On the progress of the SW Monsoon over Kerala were conducted on every Fridays during South West Monsoon period. The participants include teachers and students. The weather during that week and also the forecast for the next week were discussed in detail with the help of the model output and the IMD analysis. This has increased our confidence in local weather forecast. Generally, the discussion is lead by students in turn. This program helps the students to become practitioners of Weather Science rather than sticking to mere theoretical knowledge.</p>	
15.	Remedial courses conducted	0	So far no remedial courses were required	
16.	Use of supplementary teaching tools and applications of ICT	4	All the class rooms are supported with LCD Projectors and Wi-Fi. Interactive white board is also used as a teaching tool.	Use ICT only as a supplementary tool
17.	Conduct of Internal Examinations	5	100 % internal.	
18.	Result Analysis	4	During the assessment period pass percentage for M.Sc Meteorology was 75% and that of M.Tech (Atm. Sci) was 100%	
19.	Faculty development initiatives, if any	4	3	
20.	Students Feedback on Teaching, Learning & Evaluation	5	Feedbacks from students are collected at the end of a semester and are being discussed in the DCM. Remedial measures are taken before the commencement of the next semester.	Feedback seems to be genuine



**IV- RESEARCH, CONSULTANCY AND EXTENSION**

	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Experts</b>	<b>Suggestions for Improvement</b>
21.	No. of Research Guides in the Department		6	
22.	No. of Ph. Ds produced during 1-09-2016 to 31-12-2017		2	
23.	Research papers published during the assessment period		14	Try to increase number of publications
	International			
	National			
	State			
24.	Papers presented during the assessment period			
	International		6	
	National		7	
	State		4	
25.	Books published		1	Publication of book is to be further encouraged
	Single Author			
	Co author		1	
26.	Chapters in Books		Nil	
27.	Books Edited		Nil	
28.	Seminars/Workshops/Training Programme conducted		4	
	International			
	National		3	
	State		1 (Erudite)	
29.	Ongoing / New MoU s		1 (Dr. Satheesan / Swedish Institute of Space Physics)	
30.	Research Collaborations		4	
31.	Awards / Achievements / Recognitions of students and teachers		1. Post Doctoral Fellowship 2. Nine students of M.Sc Meteorology (2016-2018) batch have done their summer	

			<p>internship programme constituted by Indian Academy of Science during April – June 2017</p> <p>3. IndiaBhavanarayan award</p>	
32.	Ongoing & Newly implemented Research Projects – No. , Outlay & Funding Agency		<p>14</p> <p>Outlay Rs. 3002.5 Lakhs</p>	Very good
33.	Consultancy Services		M/s. Auberon Technology LLC, Abudhabi, UAE (Rs. 12 Lakhs – 2015-2016)	
34.	Subject / Department Related Extension Activities		<p>Lectures on various aspects of Atmospheric Science delivered in schools, colleges and research institutes. Some of the faculty served as Resource Persons in various Training/ Refresher courses. Faculty and students used to participate in the discussion for public through media/ channel on weather and climate related issues. Competitions like Essay and Quiz were conducted to create the awareness among school students on weather and climate</p>	
35.	Other Extension Activities, if any		<p>In cooperation with the India Meteorological Society (IMS)-Cochin Chapter-the Department of Atmospheric Sciences is actively involved in conveying the message of the influence of the atmospheric parameters</p>	



			on the day to day activities. Extension lectures are being given to different schools and colleges.	
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**V- INFRASTRUCTURE AND LEARNING RESOURCES**

	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
36.	New Equipment and Infrastructure Added	4	Three Laptops (Acer) 12 (Core i5) PC. Hot & Cold water Purifier 3 KVA UPS	
37.	Justification for the use of these equipments	4	Purchased three Laptops (Acer) exclusively for classroom. 12 new Core i5 PCs have been added to the Modelling Lab.	
38.	Details of outcomes / publications after the installation of these equipments	4	Papers were published	
39.	e-class rooms ( Number & Usage)		3	
40.	Computer Labs (no. of labs & working systems )		4 labs and 35 systems	
41.	Access timings of the library		No separate Library for the Department	
42.	No. of printed books / No. of printed journals added during the assessment period		NA	
43.	e- resources & e-journals		NA	
44.	Facilities for disabled students		No student so far under this category	
45.	Maintenance of drinking water		One water cooler and one Hot and Cold water purifier are maintained in the Department. Regular cleaning of the filters are ensured.	

46.	Maintenance of Sanitation		Department is well kept, neat and tidy and proper cleanliness is strictly maintained.	
47.	Rest room for women students		Common with School of Marine Science	

#### VI-STUDENT SUPPORT AND PROGRESSION

	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
48.	Availability of a system for student support and mentoring		Every class has a course – coordinator who is in charge of the academic guidance of the students of that class	
49.	Student Aid Fund / Endowments		9 students from M.Sc Meteorology were granted Students Aid Fund. 4 Students of M.Tech (Atmospheric Science) are getting GATE Fellowship	
50.	Placement Details No. of students applied No. of Students placed		NA	Any chance of placement to be exploited
51.	No. of students qualified in the following examinations			Give special training to students. Try to increase the number
	NET		3	
	SET/SLET			
	GATE			
	CAT			
	IAS/IPS etc			
	UPSC			
	State PSC			
	Others			

#### VII-INNOVATIONS AND BEST PRACTICES

52.	Best practices followed by the Department	4	Examination results are announced immediately within a week after the exams.	Good
53.	Innovative practices followed by the Department	4	Field Trip to Naval Met Office and India Meteorological Department are conducted.	Good





			Students are involved in field campaigns like launching Radio Sonde, daily weather observations etc.	
54.	Green Initiatives	4	Plastic or disposable items are banned in meetings and functions of the Department, keeping the campus and premises green and clean. On the occasion of the Birthday of the Department, students take initiatives to plant a fruit bearing plant.	Good
55.	Actions taken on recommendations made by the Peer Teams during the previous NAAC Visit		Remedial measures are taken	
56.	Strengths of the Department (one page)	<ul style="list-style-type: none"> <li>*Well experienced and academically enthusiastic faculty</li> <li>*Strong link with all the national and international research institutes in the field of Atmospheric Sciences</li> <li>*High speed computational facilities</li> <li>*Full-fledged surface and upper air weather observatory with sophisticated meteorological equipments established at ACARR</li> <li>*Data Bank in Atmospheric Sciences</li> <li>* Alumni.</li> </ul>		
57.	Weaknesses of the Department (one page)	<ul style="list-style-type: none"> <li>*Space constraints for establishing Meteorological Observatory at the Lakeside Campus</li> <li>*Lack of High Performance Computing Facility</li> <li>*Access and downloading of global data archives on a day to day basis is restricted because of the existing bandwidth speed of the internet.</li> </ul>		
58.	Overall Report and Suggestions for Improvement	Very good performance of the department. But all the steps for further improvement is to be exploited		

## 2.4 Department of Biotechnology

### External Experts:

1. Dr. T.V Sankar  
Director of Research,  
Kerala University of Fisheries and Ocean Studies (KUFOS)
2. Dr P.R Unnikrishna Pillai  
Associate Professor of Botany  
S.D College, Alappuzha, Kerala

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of the Department	DEPARTMENT OF BIOTECHNOLOGY			
2	No: of Full time Permanent Faculty	4			
3	No: of Adjunct Faculty	3			
4	No: of Contract Faculty	2 (DST-Inspire & DBT - RLF)			
5	No: of Guest Faculty	2			
6	No: of Academic Programmes	UG: -			
		PG: 1			
7	No: of core courses and electives in each programme	Core course – 17 Electives - 11			
8	Student Strength	UG: -			
		PG: 25			
9	No: of Ph D Students	FT	14	PT	3
II-CURRICULAR ASPECTS					
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement	
10	Coverage of syllabus				
11	Information on curriculum revisions				
12	Add on Courses/ Skill Development Courses conducted		Since department has both Add-on courses / skill development courses conducted, these can be identified separately.		
13	Students feedback on Curriculum		Seen, Need to be compiled		



<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced			
15	Remedial Courses Conducted		Maintain details, if any	
16	Use of Supplementary teaching tools and Application of ICT			
17	Conduct of Internal Examinations		Seen – students main sheet	
18	Result Analysis		Passing result - seen	
	UG			
	PG			
19	Faculty Development Initiatives, if any		Refresher courses attended / organised. Please compile	
20	Students feedback on teaching, learning and evaluation		Bring from students evaluation sheet	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		4	Order copy to be keep as proof
22	No: of Ph D produced(2016-17)		8	
23	Research Papers published during the assessment period			
	International		}31	Separate as required
	National			
24	Papers Presented during the Assessment Period			
	International	2		
	National	-		
	State	5		
25	Books Published			
	Single Author	1		
	Co Author			
26	Chapters in Books	2	1(Dr. Sarita G. Bhat)	
27	Books Edited	Nil		

28	Seminars/Workshops/Training Programmes Conducted			
	International	1		
	National	-		
	State	-		
29	Ongoing/ New MoU		2 Nos- Sri Chitra-2016- Ongoing/ Amritha	
30	Research Collaborations		2 Nos- IISc/ Sri Chitra- Keep project files	
31	Awards/ Achievements/Recognitions of students and Teachers		1- Student 2- faculty- Dr.Chandrasekar	
32	Ongoing and Newly implemented research Projects		3- Newly implemented projects 10- Ongoing projects 2- Completed	Keep documents in order as per the column 2
33	Consultancy Services	0	Nil	
34	Subject/ Department Related Extension activities	0	Nil	
35	Other Extension Activities, if any	0	Nil	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		14 Equipments 3- infrastructures- Animal ,Virology / Cell structure/ Research lab	
37	Justification of the use of these equipments		14- Along with list	
38	Details of outcomes/ publications after the institution of these equipment's		Identify and provide list from 31 publications	
39	e-classrooms (Number and Usage)	2	100%	
40	Computer Labs (No: of labs and working systems)	1	15 computers having networking	



41	Access timings of the library		9:00am to 4:00pm	
42	No: of printed books added during the assessment period	1891	Total 19 Nos during 2016-17	
43	e-resources and e-journals		At main library	
44	Facilities for disabled students		Ramp is available	
45	Maintenance of drinking water	1	Aqua guard/ cooler	
46	Maintenance of sanitation	1	Daily basis/ Incinerator	
47	Restroom for women students	1		
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		Inspire/ DST-INSA student projects	Keep proof
49	Student Aid fund/ Endowments etc.		SC/ST Aspire	
50	Placement details			
	No: of Students applied	13	Provide details	
	No: of students placed	10		
51	No: of students qualified in the following examinations			
	NET	3	Provide details	
	SET/SLET	-		
	GATE	-		
	CAT	-		
	UPSC	2		
	State PSC	-		
	Others	1		
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department		Departmental meeting DC/ RC, IAEC	
53	Innovative Practices followed by the Department		Identify few items and classify	
54	Green Initiatives		Herbal garden, Plastic recycling	

55	Actions taken on the recommendations made by the peer team during NAAC visit		*FDP- Action taken report *External mobilisation of funds-10% total fund generated *Interdepartmental	
56	Strengths of the Department	<ul style="list-style-type: none"> <li>* Qualified faculty with Ph.D</li> <li>* All have EH</li> <li>* 17 Ph.D scholars/ 6 PDF in different area of biotechnology</li> <li>* MoUs with institution of similar area.</li> <li>* Interaction between students- Personal of stand</li> </ul>		
57	Weaknesses of the Department	<ul style="list-style-type: none"> <li>* Action is required for filling staff</li> <li>* Space/ resource constraints</li> </ul>		
58	Overall Report and Suggestions for Improvement	The department has qualified faculty and organised teaching/ Research activities. However, they are advised/ recommended to document for improvement of the department, in general		



## 2.5 Department of Chemical Oceanography

### External Experts:

1. K. Ashok Kumar  
Principal scientist  
Centre Institute of Fisheries Technology, Kochi
  
2. Dr. T. R Gireesh Kumar  
Scientist  
C.S.I.R- National Institute of Oceanography  
Kochi

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of the Department	DEPARTMENT OF CHEMICAL OCEANOGRAPHY			
2	No: of Full time Permanent Faculty	3			
3	No: of Adjunct Faculty				
4	No: of Contract Faculty	1			
5	No: of Guest Faculty	1			
6	No: of Academic Programmes	UG: -			
		PG: 2			
7	No: of core courses and electives in each programme	M.Sc.- Total No. of credits for Core papers:58 Minimum number of credits to be taken as elective courses: 14 M.Phil: No. of Core Papers:4 No. of Elective: 1			
8	Student Strength	UG: -			
		PG: 37			
9	No: of Ph D Students	FT	14	PT	10
II-CURRICULAR ASPECTS					
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement	
10	Coverage of syllabus	4			
11	Information on curriculum revisions	5			
12	Add on Courses/ Skill Development Courses conducted	3			
13	Students feedback on Curriculum	4			

<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	5		
15	Remedial Courses Conducted	5		
16	Use of Supplementary teaching tools and Application of ICT	5		
17	Conduct of Internal Examinations	5		
18	Result Analysis			
	UG	-		
	PG	5		
19	Faculty Development Initiatives, if any	4		
20	Students feedback on teaching, learning and evaluation	5		
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		2	
22	No: of Ph D produced(2016-17)		11	
23	Research Papers published during the assessment period		16	
	International		16	
	National			
24	Papers Presented during the Assessment Period		6	
	International		1	
	National		5	
	State		-	
25	Books Published		1	
	Single Author		1	
	Co Author		-	





26	Chapters in Books		0	
27	Books Edited		0	
28	Seminars/Workshops/Training Programmes Conducted		1	
	International		1	
	National		-	
	State		-	
29	Ongoing/ New MoU		0	
30	Research Collaborations		0	
31	Awards/Achievements/Recognitions of students and Teachers		3	
32	Ongoing and Newly implemented research Projects		1	
33	Consultancy Services		1	
34	Subject/ Department Related Extension activities			
35	Other Extension Activities, if any		-	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipment's and Infrastructure added	0		
37	Justification of the use of these equipment's	-		
38	Details of outcomes/ publications after the institution of these equipments	-		
39	e-classrooms (Number and Usage)		MSc and Mphil Class rooms	
40	Computer Labs (No: of labs and working systems)		1 Lab, 10 Computers	
41	Access timings of the library		10:00 AM to 4:30 PM	
42	No: of printed books added during the assessment period		Common Marine Science Library/ University library	
43	e-resources and e-journals		Do	

44	Facilities for disabled students		Elevator	
45	Maintenance of drinking water		Purified water dispenser	
46	Maintenance of sanitation		Four toilets	
47	Restroom for women students		1	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
48	Availability of a system for student support and mentoring		Student advisors are available for each semester	
49	Student Aid fund/ Endowments etc.		State and central government	
50	Placement details		NA	
	No: of Students applied			
	No: of students placed			
51	No: of students qualified in the following examinations		11	
	NET	2		
	SET/SLET	1		
	GATE			
	CAT			
	UPSC	2		
	State PSC			
	Others	6		
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	Criteria			
52	Best practices followed by the Department	<ul style="list-style-type: none"> <li>*Monthly department council (DC) meeting and maintaining DC minutes book</li> <li>*Six-month progress report presentation for Ph.D. students</li> <li>*Monthly cleaning of M.Sc., M.Phil. And research labs</li> <li>*Maintaining instrument log books</li> <li>*Student grievance and interactive sections</li> <li>*Implemented strict lab safety protocols and awareness class for students</li> <li>*Actively participating extracurricular activities like 'Sastrayan', extension activities,etc.</li> </ul>		



		<p>*Implemented sample analysis service for students and research organizations</p> <p>*Department is Undertaking consultancy and research projects</p> <p>*Encourages M.Sc and M.Phil. Students to visit national and international institutions and pioneer research labs</p>
53	Innovative Practices followed by the Department	<p>* Conducted many talks inspiring student and staff</p> <p>* Organized national seminars</p> <p>* Participated social awareness programs</p> <p>* Conducted awareness classes for school students and public.</p> <p>* Held drinking water testing camp as a part of 'Sastrayan'.</p> <p>* Monitoring of sediment and water quality for environmental impact assessment.</p> <p>* Pesticide and insecticide analysis in the soil.</p>
54	Green Initiatives	<p>* Department is well equipped with recycling of organic solvents used in research experiments.</p> <p>* Drinking water quality awareness classes for school students and the public has conducted</p>
55	Actions taken on the recommendations made by the peer team during NAAC visit	<p>* We have strengthened the faculties by adding an assistant professor and two contract faculties.</p> <p>* The extension activities were expanded with water quality awareness classes for students and the public.</p>
56	Strengths of the Department	<p>The Department of Chemical Oceanography has excellent facilities for training, research, and consultancy in chemical studies on diverse aspects of the environment and has pioneered investigations in areas of nutrient chemodynamics, phase exchange of aquatic pollutants, biogeoorganics, trace metal speciation, marine natural products, aerosols, etc., and has contributed valuable inputs into the National/International Database. The Department of Chemical Oceanography has credentials of rich expertise in the hydrochemical analysis for well over two decades. It has well qualified and experienced scientific personnel as well as analytical facilities that include several sophisticated instruments. As part of its extension activities in the context of the national response to provide clean and pure drinking water, the Department is undertaking the testing of river/well-water samples to enable public ascertain the potable quality or otherwise of the freshwater sources that punctuate length and breadth</p>

		<p>of the state. The department has completed series research environmentally and challenging project funded by central and state government agencies, and also consultation works.</p> <p>The Department has credentials of rich experience and expertise in environmental samples analysis for trace chemicals, organic and inorganic pollutants, marine natural products, etc. The department has equipped with sophisticated instruments like UV-VIS Spectrometers, AAS,GC, HPCL, GCMS, LCMS, FTIR, Electrophoresis, High-Speed Centrifuge, Rotary Evaporator, ICP AAS etc. and the facility is available for the research community and the public.</p>
57	Weaknesses of the Department	<p>The Department of Chemical Oceanography was established in 1996 during the reorganization of the School of Marine Science. This small department has courses like M.Sc. (Hydrochemistry), M.Phil.(Marine Chemistry), Doctoral and Post-Doctoral Research studying about 65 students, three faculty members and supporting staff. The department requires filling existing two faculty positions and technical assistant vacancies. To accommodate the increased number of master's students and associated facilities we require more space. The sophisticated instruments installed in the department need more financial support for the purchase of consumable and annual maintenance contracts.</p>
58	Overall Report and Suggestions for Improvement	<p>Well updated academic curriculum and highly sophisticated instrumental facilities. Produced high quality Ph.Ds and publications. Faculty positions should be filled at the earliest. Immediate requirements of funds and highly trained technical staff for the maintenance.</p>



## 2.6 Cochin University College of Engineering, Kuttanad (CUCEK)

### External Experts:

Prof(Dr) P G Bhaskaran Nair  
 Dean,PG Studies,SNIT Adoor  
 Principal (Retd),NSS College of Engg.Palakkad

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of Department:	COCHIN UNIVERSITY COLLEGE OF ENGINEERING, KUTTANAD (CUCEK)		
2	No. of Full Time Permanent Faculty:	20		
3	No. of Adjunct Faculty:	0		
4	No. of Contract Faculty:	30		
5	No. of Guest Faculty	27		
6	No. of Academic Programme:	UG: 6	PG: 1	
7	No. of core courses and electives in each programme in each subject	Core : 267	Elective :107	
8	No. of Students Strength:	UG:1065	PG: 101	
9	No. of PhD Students:		FT: 3	PT: 49
<i>The External Experts can grade each parameter with points 0,1,2,3,4 or 5 based on assessment</i>				
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
10	Coverage of Syllabus	4	Satisfactory	Earnest efforts to be made for possible improvement
11	Information on Curriculum Revisions	4	Satisfactory	..
12	Add-on courses/skill development courses conducted	3	Satisfactory	..
13	Students' Feedback on Curriculum	3	Satisfactory	..
III-TEACHING, LEARNING & EVALUATION				
14	Innovations in Teaching introduced	3	Satisfactory	
15	Remedial courses conducted	Yes	Satisfactory	Nil
16	Use of supplementary teaching tools and application of ICT	3	Satisfactory	

17	Conduct of Internal Examinations	Yes	Good	Status to be continued
18	Result Analysis			
	UG	47.46%	Trial should be made to improve results	
	PG	82.46%	Satisfactory	
19	Faculty development initiatives, if any	Yes	Satisfactory	Status to be maintained
20	Students' Feedback on Teaching, Learning & Evaluation	3	Taken at the end of the each semester	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
21	No. of Research Guides in the Department	8	Satisfactory	Qualified faculty to registered as guides
22	No. of PhDs Produced	0	Speedy completion of Ph.D work required	
23	Research Papers Published during the assessment period	7	Satisfactory	Better encouragement to be made
	International	7	Satisfactory	
	National	-		
24	Papers Presented during the assessment period	4		Status to be improved
	International	4		Status to be improved
	National	-		
	State	-		
25	Books Published	-		Not encouraging, to be improved
	Single Author	-		"
	Co Author	-		"
26	Chapters in book	-		"
27	Books Edited	-		
28	Seminars/Workshops/Training Programme Conducted		Training programs 10 days	
	International	-		Seminar and short-term courses have to be organised



	National	-		''
	State	-		''
29	Ongoing/New MoUs	-		''
30	Research Collaborations	-		
31	Awards/Achievements/Recognitions of students and teachers	-	Incentives have to be given	
32	Ongoing & Newly implemented Research Projects-No, outlay & Funding Agency	-		
33	Consultancy Service	Yes		The consultancy services has to be increased
34	Subject/Department Related Extension Activities	-		
35	Other Extension Activities, if any	NA		
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
36	New Equipment and Infrastructure added	-	1 computer, 2 printer, 2 motherboard, 2 smps	
37	Justification for the use of these equipments	-	Conducting research programmes	
38	Details of outcomes/publications after the institution of these equipments	-	Preparation for class	
39	e-class rooms (Number & Usage)	-		
40	Computer labs (No. of labs & working systems)		5 Lab, 135 systems	
41	Access timings of the Library		9.30 am-6.00 pm	Time can be increased
42	No. of Printed books/No. of Printed Books added during the assessment period	20	Insufficient	More books to be processed
43	e-Resources & e-Journals		All e-resources and e-journals which are subscribed by the university are available.	
44	Facilities for disabled students	Yes	Toilet facility at ground floor	
45	Maintenance of drinking water	Yes	Good	
46	Maintenance of Sanitation	Yes	Good	

47	Rest room for women students	Yes	Good	
48	Availability of a system for student support and mentoring		Class Tutor	More number of mentors are required
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
49	Student Aid Fund/Endowments, etc.		Fund from University	
50	Placement Details			
	No. of students applied	235	Satisfactory	Efforts to be made to improve
	No. of students placed	48	Satisfactory	
51	No. of students qualified in the following examinations			Students to be advised to qualified the exams
	NET	5		
	SET/SLET			
	GATE	22		
	CAT			
	IAS/IPS, etc.			
	UPSC			
	State PSC	1		
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department		Conduct group discussions on topics, college website management	initiative students for conducting seminars associations, technical fests
53	Innovative practices followed by the Department		Planning to implement outcome based education on all subjects from next year onwards	
54	Green Initiatives		The NSS cell is organizing training to students to reduce the usage of paper	





			and other initiatives to protect the environment	
55	Actions taken on recommendations made by the Peer Team during the previous NAAC visit		Modification in students evaluation procedure	
56	Strengths of the Department (One page)	<ol style="list-style-type: none"> <li>1. Efficient,dedicated and qualified Faculty</li> <li>2. Practical orientation</li> <li>3. Good placement</li> <li>4. Facility to learn, research and innovation.</li> <li>5. Several qualified teachers with PhD from reputed institutions</li> </ol>		
57	Weakness of the Department (One page)	<ol style="list-style-type: none"> <li>1. Lack of permanent faculty</li> <li>2. Lack of sufficient copies of library books, lab Equipments</li> <li>3. No office for MCA division</li> <li>4. No department library for several departments</li> <li>5. No professors in many departments</li> </ol>		
58	Overall Report and Suggestions for Improvement	<ol style="list-style-type: none"> <li>1. Permanent faculty may be appointed</li> <li>2. Improve the syllabus categorization</li> <li>3. Separate office for MCA division</li> <li>4. Improve library and lab facilities</li> <li>5. More thrust to be given for research programmes</li> </ol>		

## 2.7 Department of Computer Applications

### External Experts:

Dr. R Vijayakumar  
Professor  
Mahatma Gandhi University

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of Department	:	<b>DEPARTMENT OF COMPUTER APPLICATIONS</b>	
2	No. of Full Time Permanent Faculty	:	6 (Associate Professor – 5, Assistant Professor – 1)	
3	No. of Adjunct Faculty	:	Nil	
4	No. of Contract Faculty	:	3	
5	No. of Guest Faculty	:	9	
6	No. of Academic Programmes	:	UG:	PG: 2 Courses (MCA, M.Sc)
7	No. of core courses and electives in each programme in each subject	:		Core - 15 (MCA), 10 (M.Sc) Elective - 9 (MCA), 5 (M.Sc)
8	No. of students strength	:	UG:	PG: 246
9	No. of Ph.D students	:	45	FT: 13 PT: 32
<i>The External Experts can grade each parameter with points 0,1,2,3,4 or 5 based on assessment</i>				
II- CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
10	Coverage of Syllabus	5	Good	-
11	Information on Curriculum Revisions	3	Took steps to revise M.Sc Syllabus	-
12	Add-on courses/skill development courses conducted	0	Syllabus itself include skill development courses	More innovative courses should be introduced
13	Students Feedback on Curriculum	5	Good	-
III-TEACHING, LEARNING & EVALUATION				
14	Innovations in Teaching introduced	5	-	-
15	Remedial courses conducted	5	Conducted by Equal Opportunity Cell	
16	Use of supplementary teaching tools and application of ICT	4	Animated videos, Moodle used for	



			Assignments and Evaluations	
17	Conduct of Internal Examinations	5		
18	Result Analysis			
	UG	NIL		
	PG	5		
19	Faculty development initiatives, if any	3	5 days workshops and permit staff to attend FDP outside	
20	Students Feedback on Teaching, Learning & Evaluation	5		
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
21	No. of Research Guides in the Department	5	5	
22	No. of PhDs produced	2	4	
23	Research papers published during the assessment period			
	International	12	5	
	National	-	0	
24	Papers presented during the assessment period			
	International	13	5	
	National	-	0	
	State	-	0	
25	Books published			
	Single Author	0		
	Co Author	0		
26	Chapters in Books	0		
27	Books Edited	0		
28	Seminars / Workshops / training Programme conducted	0		
	International	-	0	
	National	2	4	
	State	2	4	
29	Ongoing / New MoUs	0		
30	Research Collaborations	4	3	M.Tech & M.Sc students doing their projects
31	Awards / Achievements / Recognitions of students and teachers	2	5	

32	Ongoing & Newly implemented Research Projects – No, Outlay & Funding Agency	2	4	
33	Consultancy Services	0		
34	Subject / Department Related Extension Activities	5		
35	Other Extension Activities, if any	3	Visit to Nirmala Sishu Bhavan, Kaloor	
<b>V- INFRASTRUCTURE AND LEARNING RESOURCES</b>				
36	New Equipment and Infrastructure added	5	Cyber Intelligence Lab ( ` 29.5L)	For setting Deep Learning & Big Data Analytics Lab ( ` 27L) allocated
37	Justification for the use of these equipments		Research & Development purpose	
38	Details of outcomes / publications after the institution of these equipments	5	Publication Journals – 2 Conference – 2 Technical Article – 1	
39	Class rooms (number & Usage)	6, 6	5	
40	Computer labs (No. of labs & working systems)	6	5	Total No. of Computers – 131 + 1 (Server)
41	Access timings of the Library	9am-4pm	5	
42	No. of Printed Books / No. of Printed books added during the assessment period	5	Total books including thesis - 6710 No. of Books purchased during the assessment year – 263	
43	e-Resources & e-journals	5	Journals - 5 e-journals - 9	
44	Facilities for disabled students	5	Extra coaching, Screen Reader software, 25% relaxation in final marks, scribe, extra time	
45	Maintenance of drinking water	5		



46	Maintenance of Sanitation	5		
47	Rest room for women students	5		
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
48	Availability of a system for student support and mentoring	5		
49	Student Aid Fund / Endowments etc.	5	Aid Fund	
50	Placement Details			
No. of students applied			TCS - 96 IBM - 46 Wrench - 27 Zoho - 10	
No. of students placed		5	TCS - 21 IBM - 6 Wrench - 3 Zoho - 1	
51	No. of students qualified in the following examinations			
NET		5	5	
JRF		2	5	
GATE			5	
CAT				
IAS / IPS etc.				
UPSC				
State PSC		3	5	
Others				
<b>VII- INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department	4	*Syllabus revision every 3 years *CBCS system *Industry Institution Academic Interaction	
53	Innovative practices followed by the Department		*Spoken tutorial *ICT enabled teaching techniques	
54	Green Initiatives		*Energy conservations *Use of paper	

			restricted *No use of plastics	
55	Actions taken on recommendations made by the Peer Team during the previous NAAC visit		*Steps for the implementation of lifts * Steps for standard fire & safety *Steps for centralization of new building of DCA	Solar Power Plant initiative
56	Strengths of the Department (One page)		*Research labs *MSc & MCA labs *Library *Student internships in R & D institutions	
57	Weaknesses of the Department (One Page)		*Shortage of building space *RAMP & Lifts *Lack of senior faculty positions *Rest room for Boys *No sufficient space for faculty *Shortage of Auditorium for whole students *Disabled friendly toilet facility	
58	Overall Report and suggestions for improvement		*More faculty to be recruited *More efforts for promotions of staff *Urgent need for more building space	



## 2.8 Department of Computer Science

### External Experts:

1. Dr. R. Vijayakumar  
Professor ,SOES  
M.G University
2. Dr. A. Unnikrishnan  
NPOL(DRDO)

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	<b>DEPARTMENT OF COMPUTER SCIENCE</b>		
2	No: of Full time Permanent Faculty	5(1 Prof + 4 Asst.Professor)(2 Professor +2 Associate Professor- Vacant)		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	2		
5	No: of Guest Faculty	Nil		
6	No: of Academic Programmes	UG: - PG: 1. M.Tech. Computer and Information Science(CIS) 2. M.Tech. Software Engineering (SE) 3. M.Tech Computer Science with Specialization in Embedded Systems( Part Time)		
7	No: of core courses and electives in each programme	CIS- 5 (Core), 5 (Elective) SE-5 (Core), 5 (Elective) CSE-7 (Core), 2 (Elective)		
8	Student Strength	UG: - PG: CIS- 18, SE- 18, CSE-15		
9	No: of Ph D Students	FT	10	PT 43
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	4		IV & V Course of SE
11	Information on curriculum revisions	4	✓	2015- Revise in use now 2018 -Revision submitted to Academic Council for approval
12	Add on Courses/ Skill Development Courses conducted	4	Spoken Tutorial Course	A Set of 3 Spoken Tutorial as a Package certified by Department may be introduced
13	Students feedback on Curriculum	5	✓	

<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	4	✓	Serious Auditing for PhD Students
15	Remedial Courses Conducted			Not relevant for PG
16	Use of Supplementary teaching tools and Application of ICT	5	Moodle, Puazza	
17	Conduct of Internal Examinations	5	2 internal /Semester	
18	Result Analysis			
	UG		NA	
	PG	5	Yes	
19	Faculty Development Initiatives, if any	5	✓	Cross Auditing of courses by researchers/ faculties are advised
20	Students feedback on teaching, learning and evaluation	5	✓	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	5	10	
22	No: of Ph D produced(2016-17)	4	4	
23	Research Papers published during the assessment period			List expected SCI , Web
	International	5	21	
	National	4	5	
24	Papers Presented during the Assessment Period		26	
	International	5	21	
	National	4	5	
	State			
25	Books Published			One good book SE & CIS is suggested
	Single Author			
	Co Author			
26	Chapters in Books	3	3	to be promoted
27	Books Edited	4	1	to be promoted
28	Seminars/Workshops/Training Programmes Conducted			
	International	5	1	
	National			
	State			
29	Ongoing/ New MoU			





30	Research Collaborations	4	1 with IUPUI Indiana started	Should be encouraged
31	Awards/ Achievements/Recognitions of students and Teachers	4	1	IEEE Senior Membership
32	Ongoing and Newly implemented research Projects	5	RUSA PURSE Stae Plan-Grant 2020	Duty Leave hours for consultancy
33	Consultancy Services			
34	Subject/ Department Related Extension activities	5	MOOC COURSERA Edex NPTEL	Better Universities
35	Other Extension Activities, if any			
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	5	Dell Power Edge R 730 Series for Rs 1596167/- on 6/ 3 /17	
37	Justification of the use of these equipments	5	Support Teaching and Research	
38	Details of outcomes/ publications after the institution of these equipments	4		High speed computing platform has increased the speed and quality of computation for research
39	e-classrooms (Number and Usage)	5	2	
40	Computer Labs (No: of labs and working systems)	5	5	
41	Access timings of the library	5	9am - 4 pm	
42	No: of printed books added during the assessment period	5	143	
43	e-resources and e-journals	5	535 / 72	
44	Facilities for disabled students	-	-	
45	Maintenance of drinking water	5	✓	
46	Maintenance of sanitation	5	✓	
47	Restroom for women students	5	✓	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	5	✓	

49	Student Aid fund/ Endowments etc.	4	✓	
50	Placement details			
	No: of Students applied		25	
	No: of students placed	4	11	
51	No: of students qualified in the following examinations			
	NET	5	2	
	SET/SLET			
	GATE			
	CAT			
	UPSC			
	State PSC	4	2	
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department		*Syllabus revise every 3years, *CBCS system followed *Industry Student Internship encouraged *Strict observation of Academic Calendar	
53	Innovative Practices followed by the Department		Spoken Tutorial Course ICT enabled teaching	
54	Green Initiatives		Reduced use of paper and plastics	
55	Actions taken on the recommendations made by the peer team during NAAC visit		1. Steps for the implementation of Lift started 2. Steps for standard fire & safety facility initiated 3. Steps for the centralisation of a new building for Computer Science	
56	Strengths of the Department		1. Good Computation Facility 2. Good Library 3. Student Internship at R&D Institutions and Industry	
57	Weaknesses of the Department		1. Senior Faculty positions vacant. 2. Shortage of building space for expansion	
58	Overall Report and Suggestions for Improvement		1. More Faculty to be Recruited 2. More efforts and Promotion for training/certification courses	



## 2.9 DEPARTMENT OF ELECTRONICS

### External Experts:

P.R.S Pillai  
(Retd) Professors  
Department of Electronics  
CUSAT

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of the Department	<b>DEPARTMENT OF ELECTRONICS</b>			
2	No: of Full time Permanent Faculty	6			
3	No: of Adjunct Faculty	Nil			
4	No: of Contract Faculty	Nil			
5	No: of Guest Faculty	7			
6	No: of Academic Programmes	UG: -			
		PG: M.Sc, M.Tech			
7	No: of core courses and electives in each programme	M.Sc- Core course :16, Electives :6 M.Tech-Core course :12, Electives :6			
8	Student Strength	UG: -			
		PG: 146 (M.Sc- 68, M.Tech- 78)			
9	No: of Ph D Students	FT	35	PT	18
II-CURRICULAR ASPECTS					
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement	
10	Coverage of syllabus	1	Observations and suggestions are given in the overall report		
11	Information on curriculum revisions	3		Inclusion of resource materials other than text books is a need of the hour	
12	Add on Courses/ Skill Development Courses conducted	0	Observations and suggestions are given in the overall report		
13	Students feedback on Curriculum	0	Observations and suggestions are given in the overall report		
III-TEACHING, LEARNING AND EVALUATION					
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement	
14	Innovations in Teaching introduced	1	Observations and suggestions are given in the overall report		
15	Remedial Courses Conducted	2	Observations and suggestions are given in the overall report		

16	Use of Supplementary teaching tools and Application of ICT	2	Observations and suggestions are given in the overall report	
17	Conduct of Internal Examinations	3		
18	Result Analysis	3	Observations and suggestions are given in the overall report	
	UG			
	PG			
19	Faculty Development Initiatives, if any	1	Observations and suggestions are given in the overall report	
20	Students feedback on teaching, learning and evaluation	4		
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	3		
22	No: of Ph D produced(2016-17)	3		
23	Research Papers published during the assessment period	4		
	International			
	National			
24	Papers Presented during the Assessment Period	4		
	International			
	National			
	State			
25	Books Published	0		
	Single Author			
	Co Author			
26	Chapters in Books	2		
27	Books Edited	4		
28	Seminars/Workshops/Training Programmes Conducted	4		
	International			
	National			
	State			
29	Ongoing/ New MoU	0		
30	Research Collaborations	0		
31	Awards/ Achievements/ Recognitions of students and Teachers	0		
32	Ongoing and Newly implemented research Projects	5		
33	Consultancy Services	2		
34	Subject/ Department Related Extension activities	0		
35	Other Extension Activities, if any	0		



<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	4		
37	Justification of the use of these equipments	2	Observations and suggestions are given in the overall report	
38	Details of outcomes/ publications after the institution of these equipments	2	Observations and suggestions are given in the overall report	
39	e-classrooms (Number and Usage)	2	Observations and suggestions are given in the overall report	
40	Computer Labs (No: of labs and working systems)	5		
41	Access timings of the library	3		
42	No: of printed books added during the assessment period	5		
43	e-resources and e-journals	2		
44	Facilities for disabled students	2		
45	Maintenance of drinking water	4		
46	Maintenance of sanitation	2		
47	Restroom for women students	2		
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentioning	2		
49	Student Aid Fund/ Endowment etc	2		
50	Placement Details	3		
	No of students applied			
	No of students placed			
51	No of students qualified in the following examinations	2		
	Net			
	SET/ SLET			
	GATE			
	CAT			
	UPSC			
	State PSC			
	Others			

<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department	1		
53	Innovative Practices followed by the Department	1		
54	Green Initiatives	1		
55	Actions taken on the recommendations made by the peer team during NAAC visit	2		
56	Strengths of the Department	4		
57	Weaknesses of the Department			
58	Overall Report and Suggestions for Improvement		Observations and suggestions are given in the overall report	

**Observation of Academic Audit Committee on the Self Study Report**

The Academic Audit Committee during its meeting held on 20 February 2018 evaluated the Self Study Report/ IQAC Report furnished by the Department for the period 1<sup>st</sup> September 2016 to 31<sup>st</sup> December 2017. The Committee also perused and verified the records as well as other documents handed over for its consideration during the meeting. Through the Committee is very appreciative on certain aspects have not been furnished properly. Hence the Committee enlists the following observations, to further help the Department in effecting the requisite improvements and initiating the appropriate corrective measures in course of time

- 1. Coverage of Syllabus**

The Committee is of the opinion that the information pertaining to this item need to be collected from the students and has a multitude of components such as, syllabus contents, ordering/ sequencing of topics, aptness/ availability of the resource materials, innovativeness in the learning and teaching processes, and so on, to name a few. These information are very critical, as some of the students may find it difficult with the contents and sequencing of the topics, if they have not undergone the right prerequisite course(s). Moreover, sometimes some of the teachers may not be covering the entire syllabus contents, for want of time or non-availability of the resource materials. The authorities can keep track of such situations, if this information is also collected from the students, for initiating appropriate corrective measures.
- 2. Add on Courses/Skill Development Courses**

The Add on Courses, as stipulated in the IQAC Format does not normally mean the short-term courses, rather it refers to the Diploma / Certificate courses that the students take along with their regular PG/Ph.D. programmes, without affecting their regular course work. (Normally it will be offered outside the office hours / course timings.)
- 3. Student Feedback on curriculum**

The Committee is of the opinion that the format for the Student Feedback on Curriculum should also encompass the aspects addressed in Para (1) above.



**4. Innovations in Teaching Introduced**

Introduction of innovative teaching practices is a need of the hour for the students to accomplish more in their academic pursuit of excellence and inculcating the concept of creativity in them. It will also help the teachers to formulate a frame work to capture the individual attention of the students and identifying the requisites of the future generations. Innovative teaching method is also establish the fact that modern pedagogical approaches in teaching and learning processes can enhance the student capabilities significantly and will help the best students to excel unimagably and the rest of the students to improve considerably.

**5. Remedial Courses Conducted**

The list or number of students, who had undergone the remedial courses during the period covered under the project is not seen furnished. The outcome of remedial courses offered are also not seen furnished

**6. Use of Supplementary Teaching Tools and Applications of ICT**

It has been recognized world over, that ICT can lead to improved learning and better teaching methods. Exposure of students to ICT based teaching and learning processes has a positive impact on the skills and achievements of the students in terms of presentation, matters considerably in enhancing the retentive capabilities of the students. The use of ICT in teaching and learning processes will also help the students to excel and achieve more in their performance

**7. Result Analysis**

Upon perusing the Result Analysis, it is observed that, for the M.Sc programme, the ratio of the students who passed in first class with distinction to first class is 33:67 for the 2016 pass out and 31:69 for the 2017 pass out batches, While the ratio for the M.Tech programme is 95:5 for the 2016 pass out and 190:9 for the 2017 pass out batches. This wide disparity in the result analysis warrants the need and requirements for the stringent review of the evaluation process.

**8. Faculty Development Initiatives**

The concept of faculty development encompasses various approaches for enhancing the standard of teaching and learning processes in institutions of higher learning. It is characterized by a number of parameters, which include, but not limited to, up-keeping of a clear vision, maintaining the right perspective and effective campus relationship, proactive approach to faculty needs, exposition of integrity/credibility, and so on. In brief the faculty development initiative is a long-term process.

**9. Justification for the use of these Equipment**

The details of utilization of the major equipment by the Research Scholars, M.Tech.,M.Sc. Students need to be quantified in terms of number of hours per week, on the basis of the log register.

**10. Details of Outcomes**

The number and list of Research Scholars, M.Tec and M.Sc. Students who were trained in each of the major equipment in the Department need to be quantified.

**11. E-Class Rooms(Number & Usage)**

The information furnished seems inappropriate

## 2.10 SCHOOL OF ENGINEERING

### 2.10.1 Division of Civil Engineering

#### External Experts:

1. Dr. Shine U P  
Associate Professor, College of Engineering, Adoor
2. Dr. Shouri P V  
HOD, Mechanical Engineering Department, Model Engineering College, Kochi

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DIVISION OF CIVIL ENGINEERING, SCHOOL OF ENGINEERING		
2	No: of Full time Permanent Faculty	15		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	Sept '16 to Nov 16 : 11, Nov.'16- Jan'17 :10 , Jan 17 - April '17 : 9 , July '17 to Dec'17 :5 ,		
5	No: of Guest Faculty	Dec. '16 to April'17 : 5 July '17 to Nov.'17 : 12		
6	No: of Academic Programmes	UG:2 B.Tech (FT) and B.Tech (PT) PG:2 M.Tech (FT) and M.Tech(PT)		
7	No: of core courses and electives in each programme	<b>UG:</b> B.Tech (FT) Core -64, elective -3 B.Tech (PT) Core- 33, elective -3 <b>PG:</b> M.Tech (FT) Core -17, elective -4 M.tech (PT) Core- 17, elective -4		
8	Student Strength	UG: B.Tech (FT) - 393 , B.Tech (PT) - 44 (admitted in 2017) PG: (FT) - 36 , PG (PT ) - 42		
9	No: of Ph D Students	FT	4	PT 46
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	4	100%	Outcome based education to be implemented
11	Information on curriculum revisions	4	Last revision 2015	Revision to include personal from industries
12	Add on Courses/ Skill Development Courses conducted	3	Monthly workshop is conducted in Association with ICI (Indian Concrete Institute) Kochi Chapter	
13	Students feedback on Curriculum	4	Conducted course end survey	Conducted properly





<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	-	Implemented Active Cooperative Learning Techniques.	
15	Remedial Courses Conducted	-	Yes	
16	Use of Supplementary teaching tools and Application of ICT	-	Yes	
17	Conduct of Internal Examinations	-	Yes	
18	Result Analysis			
	UG		<b>2013 Admn.</b> S7 November 2016 Pass % - 71% S8 April 2017 Pass % - 76% <b>2014 Admn.</b> S6 April 2017 Pass % - 41% <b>2015 Admn.</b> S3 November 2016 Pass % - 61.8% S4 April 2017 Pass % - 51.5% S5 November 2017 Pass % - 65.6% <b>2016 Admn.</b> S1 December 2016 Pass % - 74.7% S2 May 2017 Pass % - 56.3% S3 November 2017 Pass % - 44.6%	
	PG		<b>2015 Admn.</b> S3 November 2016 Pass % - 100% S4 April 2017 Pass % - 100% <b>2016 Admn.</b> S1 November 2016 Pass % - 100% S2 April 2017 Pass % - 100%	
19	Faculty Development Initiatives, if any			
20	Students feedback on teaching, learning and evaluation			
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		12	
22	No: of Ph D produced(2016-17)		2017-1	
23	Research Papers published during the assessment period			
	International		18	
	National			

24	Papers Presented during the Assessment Period			
	International		3	
	National		7	
	State			
25	Books Published			
	Single Author			
	Co Author			
26	Chapters in Books			
27	Books Edited			
28	Seminars/Workshops/Training Programmes Conducted			
	International			
	National		11	
	State			
29	Ongoing/ New MoU			
30	Research Collaborations		MoU signed for the Collaborative project on ' Use of Coir fibers as a reinforcing material in Cement Mortar' with National Coir Research and management Institute	
31	Awards/ Achievements/ Recognitions of students and Teachers		Endeavour Awards Ambassador Australia Awards	
32	Ongoing and Newly implemented research Projects		KSCSTE sponsored project, NCRMI, sponsored collaborative project	
33	Consultancy Services		Total amount of Consultancy work of the Division during the Period : 2362900/-	
34	Subject/ Department Related Extension activities		Monthly workshop in Association with ICI, Kochi Chapter for Students and practicing Engineers	
35	Other Extension Activities, if any		IGBC congress(workshop)	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		Laptop -1, LCD projector-1, Printer -1	
37	Justification of the use of these equipments		For conducting workshops and presentations	
38	Details of outcomes/ publications after the institution of these equipments		Workshops conducted - 3	



39	e-classrooms (Number and Usage)		E- class rooms - 6	
40	Computer Labs (No: of labs and working systems)		Computer Lab -1, Working Systems- 24	
41	Access timings of the library			
42	No: of printed books added during the assessment period			
43	e-resources and e-journals			
44	Facilities for disabled students			
45	Maintenance of drinking water			
46	Maintenance of sanitation			
47	Restroom for women students			
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
48	Availability of a system for student support and mentoring		Class Committee, Student empowerment programme and Remedial classes	
49	Student Aid fund/ Endowments etc.		1. PTA Awards for Students of Toppers in each Semester 2. 'Hridhayaprakasham' awards for meritorious students with less income	
50	Placement details			
	No: of Students applied		25	
	No: of students placed		1	
51	No: of students qualified in the following examinations			
	NET			
	SET/SLET			
	GATE		12	
	CAT			
	UPSC		5	
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department		1. Students are constantly mentored by the faculty members. 2. Transparency is ensured in evaluating student's academic performance. 3. Teacher evaluation and course end survey is done systematically after each semester 4. PTA meetings are conducted in every semester to appraise parents of their wards performance	

53	Innovative Practices followed by the Department	<ol style="list-style-type: none"> <li>1. Civil Engineering Students Association (CESA) organizes Tech fest, seminars and workshops.</li> <li>2. Students are engaged to participate in Technical quizzes, competitions, workshops etc conducted by the Professional bodies, eminent Institutions etc.</li> <li>3. students are enrolled in NPTEL lectures</li> </ol>
54	Green Initiatives	<ol style="list-style-type: none"> <li>1. Students take part in NSS activities which include planting of trees, campus cleaning etc.</li> <li>2. Students are constantly reminded about keeping their class rooms clean, reduce wastage of paper, power etc.</li> <li>3. Indian Green Building Council (IGBC) student chapter is registered and the activities are proposed.</li> </ol>
55	Actions taken on the recommendations made by the peer team during NAAC visit	<ol style="list-style-type: none"> <li>1. Encouraged PhD. Scholars to publish their work in reputed Journals.</li> <li>2. Encouraged faculty and students to apply for funded research projects</li> </ol>
56	Strengths of the Department	<ul style="list-style-type: none"> <li>* Well qualified and experienced faculty.</li> <li>* Well equipped laboratories.</li> <li>* Excellent teaching learning environment.</li> <li>* Department is working on outcome based teaching-learning process.</li> <li>* Department organizes soft skill and technical skill development programmes in coordination with the placement cell. Students have to do internships after 3rd year</li> <li>* Provides collaborative interaction of students with industry experts.</li> <li>* Department organizes workshops and short term courses for knowledge uplift of faculty and students.</li> <li>* Experienced technical staff who take care of the maintenance of computers and other equipments.</li> </ul>
57	Weaknesses of the Department	<ol style="list-style-type: none"> <li>1. Shortage of permanent faculty and technical staff.</li> <li>2. Some of the elective subjects cannot be offered due to the shortage of faculty in certain specialized areas.</li> <li>3. Need to have more student projects that are useful to the society.</li> <li>4. Insufficient lab facilities for research scholars in the department.</li> <li>5. Number of Research publications have to be improved.</li> </ol>
58	Overall Report and Suggestions for Improvement	<ol style="list-style-type: none"> <li>1. More space required for classes and laboratories.</li> <li>2. More interaction with the alumni in the activities of the department.</li> <li>3. More interaction between the department and industry with regard to expert lectures, workshops internships, syllabus revision, collaborative projects etc.</li> <li>4. Vacancy of permanent faculty members and technical staff have to be filled.</li> <li>5. Outcome based Education has to be implemented and results of students are to be improved.</li> <li>6. Academic Calendar should be strictly followed in curricular and co-curricular activities.</li> </ol>



		<ul style="list-style-type: none"><li>7. Steps may be initiated for getting status of QIP centre</li><li>7. More number of Add on courses in the curriculum</li><li>8. More involvement of industry in the campus</li><li>9. Better result</li></ul>
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## 2.10.2 Division of Computer Science & Engineering

### External Experts:

1. Dr. Jaimon Jacob  
Director, Model Finishing School, Kochi.
2. Dr. Manlal D.L  
HOD, Computer Science & Engineering  
Model Engineering College, Thrikkakara

## ACADEMIC AUDIT

I-DEPARTMENT PROFILE				
1	Name of the Department	<b>DIVISION OF COMPUTER SCIENCE &amp; ENGINEERING, SCHOOL OF ENGINEERING</b>		
2	No: of Full time Permanent Faculty	9		
3	No: of Adjunct Faculty	-		
4	No: of Contract Faculty	11		
5	No: of Guest Faculty	2016 Sep – 2016 Nov : 2 2016 Dec – 2017 Dec : 2 2017 July– 2017 Nov : 3		
6	No: of Academic Programmes	UG: 1 PG:1		
7	No: of core courses and electives in each programme	<b>UG-2016 Sep – 2016 Nov</b> Core Subjects: 22 ,Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2 <b>UG-2016 Dec – 2017 Apr.</b> Core Subjects: 20, Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2 <b>UG-2017 July – 2017 Nov</b> Core Subjects: 22, Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2		
8	Student Strength	UG: 322 (Ongoing semester student strength) PG: 18		
9	No: of Ph D Students	FT	2	PT 25

II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus		100%	



11	Information on curriculum revisions		Last revision 2015	
12	Add on Courses/ Skill Development Courses conducted		Monthly workshop conducted under ACES (Association of Computer Engineering Students)	
13	Students feedback on Curriculum		Conducted Course End Survey	
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	-	Implemented Active Cooperative Learning Techniques.	
15	Remedial Courses Conducted	-	Yes	
16	Use of Supplementary teaching tools and Application of ICT	-	Yes	
17	Conduct of Internal Examinations	-	Yes	
18	Result Analysis			
	UG		<p><b>2013 Admn.</b> S7 November 2016 Pass % - 56.7% S8 April 2017 Pass % - 44.33%</p> <p><b>2014 Admn.</b> S5 November 2016 Pass % - 36.46% S6 April 2017 Pass % - 40% S7 November 2017 Pass % - 63.83%</p> <p><b>2015 Admn.</b> S3 November 2016 Pass % - 58.51% S4 April 2017 Pass % - 40% S5 November 2017 Pass % - 66.3%</p> <p><b>2016 Admn.</b> S1 December 2016 Pass % - 62.6% S2 May 2017 Pass % - 55.17% S3 November 2017 Pass % - 71.73%</p>	
	PG		<p><b>2015 Admn.</b> S3 November 2016 Pass % - 100% S4 April 2017 Pass % - 100%</p> <p><b>2016 Admn.</b> S1 November 2016 Pass % - 100% S2 April 2017 Pass % - 100%</p>	
19	Faculty Development Initiatives, if any		Short Term Training Programme Teachers attended many FDPs, Orientation Courses and the Refresher Courses periodically.	
20	Students feedback on teaching, learning and evaluation		Collected Students' Feed Back every semester	

<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	3		
22	No: of Ph D produced(2016-17)	Nil		
23	Research Papers published during the assessment period			
	International			
	National	-		
24	Papers Presented during the Assessment Period	-		
	International	-		
	National	-		
	State	-		
25	Books Published	-		
	Single Author	-		
	Co Author	-		
26	Chapters in Books	-		
27	Books Edited	-		
28	Seminars/Workshops/Training Programmes Conducted			
	International	-		
	National	-		
	State		Short Term Training Programme on "Machine learning Tools & Techniques" under TEQIP phase II 29 August to 2 September 2016	
29	Ongoing/ New MoU	-		
30	Research Collaborations	-		
31	Awards/ Achievements/Recognitions of students and Teachers			
32	Ongoing and Newly implemented research Projects	-		
33	Consultancy Services	-		
34	Subject/ Department Related Extension activities	-		
35	Other Extension Activities, if any	-		





<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		1) Raspberry PI3 Model B 2)8051 Trainer Kit and Accessories 3) Hard Disc for HP server 4) Air Conditioners	
37	Justification of the use of these equipments		Used in CS15-15L2 Microprocessors Laboratory.	
38	Details of outcomes/ publications after the institution of these equipments		To enable the students to implement assembly language programming using microcontrollers	
39	e-classrooms (Number and Usage)	-		
40	Computer Labs (No: of labs and working systems)		No. Of Labs – 5 No. of working Systems – 135	
41	Access timings of the library	-		
42	No: of printed books added during the assessment period	-		
43	e-resources and e-journals	-		
44	Facilities for disabled students	-		
45	Maintenance of drinking water	Yes		
46	Maintenance of sanitation	Yes		
47	Restroom for women students	Yes		
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	Yes		
49	Student Aid fund/ Endowments etc.	-		
50	Placement details	-		
	No: of Students applied	-		
	No: of students placed	-		
51	No: of students qualified in the following examinations	-		
	NET	-		
	SET/SLET	-		
	GATE	-		
	CAT	2		
	UPSC	-		
	State PSC	-		
	Others	-		

<b>VII-INNOVATIONS AND BEST PRACTICES</b>		
52	Best practices followed by the Department	<ol style="list-style-type: none"> <li>1. Remedial coaching classes are conducted for students with less exposure to good academics and those from poor background.</li> <li>2. Students are constantly mentored by the faculty members.</li> <li>3. Students are encouraged to enrol in interdisciplinary electives.</li> <li>4. Transparency is ensured in evaluating student's academic performance.</li> <li>5. Appraisal of teacher's performance by students is done systematically in every semester.</li> <li>6. Faculty members are provided with computer.</li> <li>7. PTA meetings are conducted in every semester to appraise parents of their wards performance</li> </ol>
53	Innovative Practices followed by the Department	<ol style="list-style-type: none"> <li>1. The students association 'ACES' (Association for Computer Engineering Students) conducts workshops and seminars by experts. Students are also encouraged to conduct seminars which facilitated their active participation in discussion and interaction.</li> <li>2. All class rooms are provided with LCD projectors. This approach facilitates teachers to complete portions in time with ample time for revision</li> </ol>
54	Green Initiatives	<ol style="list-style-type: none"> <li>1. Students take part in NSS activities which include planting of trees, campus cleaning etc.</li> <li>2. Students are constantly reminded about keeping their class rooms clean, reduce wastage of paper, power etc.</li> <li>3. Teachers and students take special care to minimize the use of electric power. Special instructions are given to switch off lights and fans when not in use.</li> </ol>
55	Actions taken on the recommendations made by the peer team during NAAC visit	Encouraged PhD. Scholar to publish their work in reputed Journals.
56	Strengths of the Department	<ul style="list-style-type: none"> <li>* Well qualified and experienced faculty.</li> <li>* Well equipped laboratories</li> <li>* Department is working on outcome based teaching-learning process.</li> <li>* Department has a good placement record.</li> <li>* Department organizes soft skill and technical skill development programmes in coordination with the placement cell.</li> <li>* Provides collaborative interaction of students with industry experts.</li> <li>* Department organizes workshops and short term courses for knowledge uplift of faculty and students.</li> <li>* Experienced technical staff who take care of the maintenance of computers and other equipments.</li> </ul>



57	Weaknesses of the Department	<ol style="list-style-type: none"> <li>1. Shortage of permanent faculty and technical staff.</li> <li>2. Some of the elective subjects cannot be offered due to the shortage of faculty in certain specialized areas.</li> <li>3. Need to have more student projects that are useful to the society.</li> <li>4. Need for more students to take part in internships.</li> <li>5. The support of the Department alumni has to be increased</li> <li>6. Insufficient facilities for research scholars in the department.</li> <li>7. Less number of research publications.</li> </ol>
58	Overall Report and Suggestions for Improvement	<ul style="list-style-type: none"> <li>* More space required for laboratories.</li> <li>* Computer Science labs may be open for a few more hours after the normal class hours.</li> <li>* More active involvement of the alumni in the activities of the department.</li> <li>* More interaction between the department and industry with regard to expert lectures, workshops internships, syllabus revision etc.</li> <li>* Fill vacancy of permanent faculty members and technical staff.</li> </ul>

### 2.10.3 Division of Electronics and Communication Engineering

#### External Experts:

1. Dr.Raphika P M  
HOD, Department of Electronics  
M.E.S College, Marampally
  
2. Dr. Jasmine P.M  
Associate Professors  
Department of Electronics  
M.E.S College Marampally

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DIVISION OF ELECTRONICS AND COMMUNICATION ENGINEERING, SCHOOL OF ENGINEERING		
2	No: of Full time Permanent Faculty	13		
3	No: of Adjunct Faculty			
4	No: of Contract Faculty	9		
5	No: of Guest Faculty	2016 Sep – 2016 Nov - 9 2016 Dec – 2017 Dec- 9 2017 July – 2017 Nov -3		
6	No: of Academic Programmes	UG: 1 PG: 2		
7	No: of core courses and electives in each programme	UG-2016 Sep – 2016 Nov Core Subjects: 22 , Elective Subjects : 1 PG in WT Core Subjects: 4 Elective Subjects : 2 UG-2016 Dec – 2017 Apr. Core Subjects: 20 , Elective Subjects : 2 PG in WT Core Subjects: 4 Elective Subjects : 2 UG-2016 Dec – 2017 Apr. Core Subjects: 20 , Elective Subjects : 2 PG in WT Core Subjects: 4 Elective Subjects : 2		
8	Student Strength	UG:380 PG:38		
9	No: of Ph D Students	FT	25	PT 44
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus			
11	Information on curriculum revisions			



12	Add on Courses/ Skill Development Courses conducted			
13	Students feedback on Curriculum			
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced			
15	Remedial Courses Conducted		Yes	
16	Use of Supplementary teaching tools and Application of ICT		Yes	
17	Conduct of Internal Examinations		Yes	
18	Result Analysis			
	UG		<b>2013</b> S7 November 2016 Pass % - 67% S8 April 2017 Pass % - 62.36% <b>2014</b> S5 November 2016 Pass % - 46% S6 April 2017 Pass % - 45% S7 November 2017 Pass % - 54% <b>2015</b> S3 November 2016 Pass % - 46% S4 April 2017 Pass % - 43.5% S5 November 2017 Pass % - 64% <b>2016</b> S1 December 2016 Pass % - 72% S2 May 2017 Pass % - 58% S3 November 2017 Pass % - 56.47%	
	PG		<b>2015</b> S3 November 2016 Pass % - 100% S4 April 2017 Pass % - 100% <b>2016</b> S1 November 2016 Pass % - 100% S2 April 2017 Pass % - 100%	
19	Faculty Development Initiatives, if any		Conducted one week STTP on RF and Microwaves	
20	Students feedback on teaching, learning and evaluation		Collected Students' Feed Back every semester	

<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		11	
22	No: of Ph D produced(2016-17)		6	
23	Research Papers published during the assessment period			
	International		17	
	National		1	
24	Papers Presented during the Assessment Period			
	International		8	
	National		1	
	State		1	
25	Books Published			
	Single Author			
	Co Author			
26	Chapters in Books		2	
27	Books Edited			
28	Seminars/Workshops/Training Programmes Conducted			
	International		1	
	National		1	
	State		1	
29	Ongoing/ New MoU			
30	Research Collaborations			
31	Awards/ Achievements/ Recognitions of students and Teachers			
32	Ongoing and Newly implemented research Projects		3	
33	Consultancy Services			
34	Subject/ Department Related Extension activities			
35	Other Extension Activities, if any			
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		Our division has nearly 100 computers distributed in different laboratories like DSP lab, Wireless lab,	



			Communication lab, Digital lab, Circuits lab, etc.	
37	Justification of the use of these equipments			
38	Details of outcomes/ publications after the institution of these equipments			
39	e-classrooms (Number and Usage)			
40	Computer Labs (No: of labs and working systems)			
41	Access timings of the library			
42	No: of printed books added during the assessment period			
43	e-resources and e-journals			
44	Facilities for disabled students			
45	Maintenance of drinking water		Yes	
46	Maintenance of sanitation		Yes	
47	Restroom for women students		Yes	

**VI-STUDENT SUPPORT AND PROGRESSION**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
48	Availability of a system for student support and mentoring		Yes	
49	Student Aid fund/ Endowments etc.			
50	Placement details			
	No: of Students applied			
	No: of students placed			
51	No: of students qualified in the following examinations			
	NET			
	SET/SLET			
	GATE		2	
	CAT			
	UPSC			
	State PSC			
	Others			

**VII-INNOVATIONS AND BEST PRACTICES**

52	Best practices followed by the Department	<ol style="list-style-type: none"> <li>1. Remedial coaching classes are conducted for students with less exposure to good academics and those from poor background.</li> <li>2. Students are constantly mentored by the faculty members.</li> <li>3. Students are encouraged to enroll in interdisciplinary electives.</li> <li>4. Transparency is ensured in evaluating student's academic performance.</li> </ol>
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		<p>5. Appraisal of teacher's performance by students is done systematically in every semester.</p> <p>6. Faculty members are provided with computer.</p> <p>7. PTA meetings are conducted in every semester to appraise parents of their wards performance</p>
53	Innovative Practices followed by the Department	
54	Green Initiatives	<p>1. Students take part in NSS activities which include planting of trees, campus cleaning etc.</p> <p>2. Students are constantly reminded about keeping their class rooms clean, reduce wastage of paper, power etc.</p> <p>3. Teachers and students take special care to minimize the use of electric power. Special instructions are given to switch off lights and fans when not in use.</p>
55	Actions taken on the recommendations made by the peer team during NAAC visit	
56	Strengths of the Department	<ul style="list-style-type: none"> <li>* Well qualified and experienced faculty.</li> <li>* Well equipped laboratories.</li> <li>* Excellent teaching learning environment.</li> <li>* Department is working on outcome based teaching-learning process.</li> <li>* Department has a good placement record.</li> <li>* Department organizes soft skill and technical skill development programmes in coordination with the placement cell.</li> <li>* Provides collaborative interaction of students with industry experts.</li> <li>* Experienced technical staff who take care of the maintenance of computers and other equipments.</li> </ul>
57	Weaknesses of the Department	<p>1. Shortage of permanent faculty and technical staff.</p> <p>2. Some of the elective subjects cannot be offered due to the shortage of faculty in certain specialized areas.</p> <p>3. The support of the Department alumni has to be increased</p> <p>4. We have 70 research scholars in the division but the facilities are very much limited to accommodate all</p> <p>5. We need more space to grow as lab, class and staff room.</p>
58	Overall Report and Suggestions for Improvement	<ul style="list-style-type: none"> <li>* More space required for laboratories.</li> <li>* Computer Science labs may be open for a few more hours after the normal class hours.</li> <li>* Improvement in student evaluation system giving more emphasis on problem solving techniques</li> <li>* More active involvement of the alumni in the activities of the department.</li> <li>* More interaction between the department and industry with regard to expert lectures, workshops internships, syllabus revision etc.</li> <li>* Fill vacancy of permanent faculty members and technical staff.</li> </ul>





## 2.10.4 Division of Electrical & Electronics Engineering

### External Experts:

1. Dr. A Unnikrishnan  
Scientist H(Retd.)  
Associate Director DRDO Ministry of Defence
2. Dr. Bindu V  
Professor & Head  
Department of Electrical Engineering  
Model Engineering College, Thrikkakara

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of the Department	DIVISION OF ELECTRICAL & ELECTRONICS ENGINEERING, SCHOOL OF ENGINEERING			
2	No: of Full time Permanent Faculty	5			
3	No: of Adjunct Faculty	NIL			
4	No: of Contract Faculty	10			
5	No: of Guest Faculty	1			
6	No: of Academic Programmes	UG: 1 PG: 1 (PT)			
7	No: of core courses and electives in each programme	CORE: 41 ELECTIVE: 15			
8	Student Strength	UG: 259 PG: 42			
9	No: of Ph D Students	FT	0	PT	25
II-CURRICULAR ASPECTS					
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement	
10	Coverage of syllabus				
11	Information on curriculum revisions		It will be revised on 2019		
12	Add on Courses/ Skill Development Courses conducted		Self Awareness and integral development	Add more interactive sessions	
13	Students feedback on Curriculum		satisfactory	Add industrial visit as a part of the curriculum	

**III-TEACHING, LEARNING AND EVALUATION**

	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced			
15	Remedial Courses Conducted	Yes	Conducted for the subjects:- Electronic devices and circuits, Machines I, Field theory and power systems II	
16	Use of Supplementary teaching tools and Application of ICT			
17	Conduct of Internal Examinations	Yes	Conducting two internal examinations in a semester	
18	Result Analysis			
	UG		Final semester = 63.23%, Sixth semester = 60.3%, Fourth Semester = 61%, Second Semester = 53%	
	PG			
19	Faculty Development Initiatives, if any	Yes		
20	Students feedback on teaching, learning and evaluation		Satisfactory	<ol style="list-style-type: none"> <li>1. Program outcome is taken in every four year</li> <li>2. Course outcome at the end of every semester for all courses</li> <li>3. Faculty evaluation is conducting every year</li> </ol>

**IV-RESEARCH, CONSULTANCY AND EXTENSION**

	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		3	
22	No: of Ph D produced(2016-17)		0	
23	Research Papers published during the assessment period			



	International		13	
	National			
24	Papers Presented during the Assessment Period			
	International		12	
	National			
	State			
25	Books Published		0	
	Single Author		0	
	Co Author		0	
26	Chapters in Books	Nil		
27	Books Edited	Nil		
28	Seminars/Workshops/Training Programmes Conducted		Erudite Conducted by Electrical Dept. from Mar 6-10, 2017	
	International			
	National			
	State	1		
29	Ongoing/ New MoU			
30	Research Collaborations			
31	Awards/ Achievements/Recognitions of students and Teachers			
32	Ongoing and Newly implemented research Projects			
33	Consultancy Services			
34	Subject/ Department Related Extension activities			
35	Other Extension Activities, if any			
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		Analog trainer kit : 10, CRO: 6	
37	Justification of the use of these equipments		To conduct laboratory experiment as per the curriculum	

38	Details of outcomes/ publications after the institution of these equipments			
40	Computer Labs (No: of labs and working systems)		1. Advanced Electrical Lab : 22 systems Power Electronics Lab: 4	
41	Access timings of the library		9.00am -7.30pm	
42	No: of printed books added during the assessment period		Total volumes added- 135 Total titles added- 70	
43	e-resources and e-journals		total e-journals-100	
44	Facilities for disabled students	Yes	Ramp facility is available in every class rooms	
45	Maintenance of drinking water	Yes	Water cooler is placed in common areas	
46	Maintenance of sanitation	Yes		
47	Restroom for women students	Yes	Adequate no of toilets available, Separate rest room for women students	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		1. Students counsellor 2. Two faculty advisor for each batch	
49	Student Aid fund/ Endowments etc.		1. PTA fund for proficiency 2. Financial aid for needy students in Dept. level	
50	Placement details			
	No: of Students applied		51	



	No: of students placed		13	
51	No: of students qualified in the following examinations			
	NET			
	SET/SLET			
	GATE		No of students qualified = 4	
	CAT		No of students = 1	Percentile = 95
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department		1. Financial Aid for deserving students 2. Providing remedial classes 3. Recreational activities for faculty and students	
53	Innovative Practices followed by the Department		Sasthrayan	No. of participants- 20
54	Green Initiatives		NSS & Nature Club	Vegetable garden and Flower garden are the main initiatives of the nature club.
55	Actions taken on the recommendations made by the peer team during NAAC visit			
56	Strengths of the Department		1. Good student teacher ratio (259: 15) 2. Good faculty coordination in all activities 3. Organises short term courses and workshops for faculty as well as students 4. Two PhD's produced 5. Mentoring and support students. 6. Conducting PTA meeting once in a semester. 7. Identify weak students and providing remedial class.	

57	Weaknesses of the Department	1. Machine Lab up gradation has to be done 2. Space shortage (Doesn't meet AICTE norms) 3. No. of regular faculty is less 4. Lab, class rooms and staff rooms are not having enough space.
58	Overall Report and Suggestions for Improvement	1. No of class rooms, Faculty rooms and independent lab facility should be increased 2. No of regular / permanent faculty should be increased 3. More full time Research Scholars are required for the timely completion of Ph.D. 4. Alumni Association should be strengthened 5. Regular modernisation of Lab is needed.



## 2.10.5 Division of Mechanical Engineering

### External Experts:

1. Dr Shine U P  
Associate Professor, College of Engineering, Adoor
2. Dr.Shouri P V  
HOD, Mechanical Engineering Department  
Model Engineering College, Kochi

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DIVISION OF MECHANICAL ENGINEERING, SCHOOL OF ENGINEERING		
2	No: of Full time Permanent Faculty	14		
3	No: of Adjunct Faculty	-		
4	No: of Contract Faculty	10		
5	No: of Guest Faculty	2016 Sep – 2016 Nov : 2 2016 Dec – 2017 Dec : 2 2017 July – 2017 Nov : 3		
6	No: of Academic Programmes	UG: 1 PG: 1		
7	No: of core courses and electives in each programme	<b>UG-2016 Sep – 2016 Nov</b> Core Subjects: 22 ,Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2 <b>UG-2016 Dec – 2017 Apr.</b> Core Subjects: 20 ,Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2 <b>UG-2017 July – 2017 Nov</b> Core Subjects: 22, Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2		
8	Student Strength	UG: 322 (Ongoing semester student strength) PG: 18		
9	No: of Ph D Students	FT	1	PT 94
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	-		
11	Information on curriculum revisions	-		
12	Add on Courses/ Skill Development Courses conducted	-		

13	Students feedback on Curriculum	-		
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	-	Implemented OBE &Active Cooperative Learning Techniques.	
15	Remedial Courses Conducted	-	Yes	
16	Use of Supplementary teaching tools and Application of ICT	-	Yes	
17	Conduct of Internal Examinations	-	Yes	
18	Result Analysis	-		
	UG		2013 Admn. S7 November 2016 Pass % - 78% S8 April 2017 Pass % - 88.89% 2014 Admn. S5 November 2016 Pass % - 65% S6 April 2017 Pass % - 66% S7 November 2017 Pass % - 84% 2015 Admn. S3 November 2016 Pass % - 67% S4 April 2017 Pass % - 55% S5 November 2017 Pass % - 69% 2016 Admn. S1 December 2016 Pass % - 83% S2 May 2017 Pass % - 60.22% S3 November 2017 Pass % - 56%	
	PG		2015 Admn. S3 November 2016 Pass %- 100% S4 April 2017 Pass % - 100% 2016 Admn. S1 November 2016 Pass %- 100% S2 April 2017 Pass % - 100%	
19	Faculty Development Initiatives, if any		Conduct by the department /attend the faculty develop programs and skill development courses	
20	Students feedback on teaching, learning and evaluation		Collected Students' Feed Back every semester	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		13	
22	No: of Ph D produced(2016-17)		Nil	





23	Research Papers published during the assessment period			
	International			
	National			
24	Papers Presented during the Assessment Period	-		
	International		12	
	National		2	
	State		2	
25	Books Published	-		
	Single Author		Nil	
	Co Author	-		
26	Chapters in Books	-	Nil	
27	Books Edited	-		
28	Seminars/Workshops/Training Programmes Conducted		Nil	
	International		-	
	National		-	
	State			
29	Ongoing/ New MoU	-	Nil	
30	Research Collaborations	-	Nil	
31	Awards/ Achievements/Recognitions of students and Teachers			
32	Ongoing and Newly implemented research Projects	-	Nil	
33	Consultancy Services	-	Nil	
34	Subject/ Department Related Extension activities	-	Short term certification course on Industrial Automation,	
35	Other Extension Activities, if any		Short term certification course on AutoCAD	

**V-INFRASTRUCTURE AND LEARNING RESOURCES**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
36	New Equipments and Infrastructure added	-	Nil	
37	Justification of the use of these equipments	-	Nil	
38	Details of outcomes/ publications after the institution of these equipments	-	Nil	
39	e-classrooms (Number and	-	5 rooms	

	Usage)			
40	Computer Labs (No: of labs and working systems)	-	2, 50nos	
41	Access timings of the library	-	24Hrs	
42	No: of printed books added during the assessment period	-		
43	e-resources and e-journals	-		
44	Facilities for disabled students	-	provided ramps only	
45	Maintenance of drinking water	Yes		
46	Maintenance of sanitation	Yes		
47	Restroom for women students	Yes		

**VI-STUDENT SUPPORT AND PROGRESSION**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
48	Availability of a system for student support and mentoring		Yes	
49	Student Aid fund/ Endowments etc.		Yes	
50	Placement details		-	
	No: of Students applied		-	
	No: of students placed		-	
51	No: of students qualified in the following examinations			
	NET		-	
	SET/SLET		-	
	GATE		-	
	CAT		2	
	UPSC		-	
	State PSC		-	
	Others		-	

**VII-INNOVATIONS AND BEST PRACTICES**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
52	Best practices followed by the Department		<ol style="list-style-type: none"> <li>1. Remedial coaching classes are conducted for weak students with less exposure to good academics and those from poor background.</li> <li>2. Students are constantly mentored by the faculty members.</li> <li>3. Students are encouraged to enrol in interdisciplinary electives.</li> <li>4. Transparency is ensured in evaluating student's academic performance.</li> <li>5. Appraisal of teacher's performance by students is done systematically in every semester.</li> </ol>	



		<p>6. Faculty members are provided with computer.</p> <p>7. PTA meetings are conducted in every semester to appraise parents of their wards performance</p>
53	Innovative Practices followed by the Department	<p>1. The students association 'MESAC' (Mechanical Engineering Students Association) conducts workshops and seminars by Industrial/ Academic experts. Students are also encouraged to conduct seminars/Group discussions, which facilitated their active participation in discussion and interaction. Students are also encouraged to conduct Technical Fest Dhisna every year. Students are also encouraged to participate in competitions conducted by SAE through SAE Cusat Chapter</p> <p>2. All class rooms are provided with LCD projectors. This approach facilitates teachers to complete portions in time with ample time for revision</p>
54	Green Initiatives	<p>1. Students take part in NSS activities which include planting of trees, campus cleaning etc.</p> <p>2. Students are constantly reminded about keeping their class rooms clean, reduce wastage of paper, power etc.</p> <p>3. Teachers and students take special care to minimize the use of electric power. Special instructions are given to switch off lights and fans when not in use.</p>
55	Actions taken on the recommendations made by the peer team during NAAC visit	Encouraged PhD. Scholar to publish their work in Scopus indexed Journals.
56	Strengths of the Department	<ul style="list-style-type: none"> <li>* Well qualified and experienced faculty.</li> <li>* Well equipped laboratories.</li> <li>* Excellent teaching learning environment.</li> <li>* Department has a good placement record.</li> <li>* Department organizes soft skill and technical skill development programmes in coordination with the placement cell.</li> <li>* Provides collaborative interaction of students with industry experts.</li> <li>* Department organizes workshops and short term courses for knowledge uplift of faculty and students.</li> <li>* Experienced technical staff who take care of the maintenance of available equipments.</li> </ul>
57	Weaknesses of the Department	<p>1. Shortage of permanent faculty and technical staff.</p> <p>2. Some of the elective subjects cannot be offered due to the shortage of faculty in certain specialized areas.</p> <p>3. Need to have more student projects that are useful to the society.</p> <p>4. Need for more students to take part in internships.</p> <p>5. The support of the Department alumni has to be increased</p> <p>6. Insufficient facilities for research scholars in the department.</p> <p>7. Less number of research publications. Should increase full time research scholars</p>
58	Overall Report and Suggestions for Improvement	<ul style="list-style-type: none"> <li>* More space required for laboratories.</li> <li>* Computer Science labs may be open for a few more hours</li> </ul>

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		<p>after the normal class hours.</p> <ul style="list-style-type: none"><li>* More interaction between the department and industry with regard to expert lectures, workshops internships, syllabus revision etc.</li><li>* Fill vacancy of permanent faculty members and technical staff.</li><li>* Steps may be initiated for getting status of QIP centre</li><li>* More number of Add on course in the curriculum</li><li>* More involvement of industries in the campus</li><li>* Better results</li></ul>
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## 2.10.6 Division Of Information Technology

### External Experts:

1. Dr. Jaimon Jacob  
Director, Model Finishing School, Kochi.
2. Dr. Manlal D.L  
HOD, Computer Science & Engineering  
Model Engineering College  
Thrikkakara

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of the Department	<b>DIVISION OF INFORMATION TECHNOLOGY,SCHOOL OF ENGINEERING</b>			
2	No: of Full time Permanent Faculty	7			
3	No: of Adjunct Faculty	0			
4	No: of Contract Faculty	9			
5	No: of Guest Faculty	1			
6	No: of Academic Programmes	UG: 1 PG: 1			
7	No: of core courses and electives in each programme	UG: CORE: 42 ELECTIVE: 3 PG: CORE: 8 ELECTIVE: 4			
8	Student Strength	UG: 364 PG: 24			
9	No: of Ph D Students	FT	10	PT	30
II-CURRICULAR ASPECTS					
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement	
10	Coverage of syllabus		100%		
11	Information on curriculum revisions		Revised on par with the requirement of industry.		
12	Add on Courses/ Skill Development Courses conducted		Courses are conducting by the dept in collaboration with IT Association, CSI chapter and Placement cell.		
13	Students feedback on Curriculum		Feedback on curriculum has been taking from passing out batches.		

<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced		As by Pedagogical and Technological methods	
15	Remedial Courses Conducted		Conduct remedial classes for subjects suggest by the students.	
16	Use of Supplementary teaching tools and Application of ICT		Classrooms are equipped with projectors and laptops.	
17	Conduct of Internal Examinations		Conduct two Internal Exams per semester	
18	Result Analysis			
	UG		Above 60 %	
	PG		100%	
19	Faculty Development Initiatives, if any		Conduct by the department /attend the faculty develop programs and skill development courses	
20	Students feedback on teaching, learning and evaluation		Feedback on regular basis from students of each semester.	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		4 + 1 (retired)	
22	No: of Ph D produced(2016-17)		2	
23	Research Papers published during the assessment period			
	International		44	
	National			
24	Papers Presented during the Assessment Period			
	International		6	
	National			
	State			
25	Books Published			
	Single Author			
	Co Author			
26	Chapters in Books			
27	Books Edited			
28	Seminars/Workshops/Training Programmes Conducted			



	International			
	National			
	State			
29	Ongoing/ New MoU		2	
30	Research Collaborations		With Japan and Czech Republic	
31	Awards/ Achievements/Recognitions of students and Teachers		<ol style="list-style-type: none"> <li>1. Win third prize in Hackathon conducted by IIT Patna.</li> <li>2. Grace Hopper (GHI) scholarship won by two students.</li> <li>3. Got Best Project Award of 2017 by TCS.</li> <li>4. Come under best ten projects in Hackathon conducted by Rajasthan Govt.</li> </ol>	
32	Ongoing and Newly implemented research Projects			
33	Consultancy Services			
34	Subject/ Department Related Extension activities		CIITIC	
35	Other Extension Activities, if any		IT Association, CSI.	

**V-INFRASTRUCTURE AND LEARNING RESOURCES**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
36	New Equipments and Infrastructure added		One Projector and Two White board	
37	Justification of the use of these equipments	-	Nil	
38	Details of outcomes/ publications after the institution of these equipments		Easy understanding and Effective teaching.	
39	e-classrooms (Number and Usage)		All classrooms	
40	Computer Labs (No: of labs and working systems)		Six labs ( 80 computers, two projectors, one smart board, fifteen microprocessor kits and fifteen ECLD training kits)	

41	Access timings of the library			
42	No: of printed books added during the assessment period			
43	e-resources and e-journals		Available in Library	
44	Facilities for disabled students		YES	
45	Maintenance of drinking water		YES	
46	Maintenance of sanitation		YES	
47	Restroom for women students		YES	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		YES	
49	Student Aid fund/ Endowments etc.		YES	
50	Placement details			
	No: of Students applied		70	
	No: of students placed		30	
51	No: of students qualified in the following examinations			
	NET			
	SET/SLET			
	GATE		3	
	CAT		2	
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department		Use ICT tools for taking classes	
53	Innovative Practices followed by the Department		1. Student exchange program with foreign universities (Japan& Taiwan) 2. Support Start-up initiatives.	
54	Green Initiatives		NSS and Nature club are the part of the curriculum	
55	Actions taken on the recommendations made by the peer team during NAAC visit		Focus on improving the quality of research and research publications.	





56	Strengths of the Department	<ol style="list-style-type: none"> <li>1. NBA accredited department.</li> <li>2. Placements for all the eligible.</li> <li>3. Project Oriented Curriculum.</li> <li>4. Advanced Elective course options.</li> <li>5. Five of the faculties are PhD holders and they are research supervisors.</li> <li>6. Closer Interaction with Industry and R&amp;D organizations.</li> </ol>
57	Weaknesses of the Department	<ol style="list-style-type: none"> <li>1. Lack of space and infrastructure.</li> <li>2. With a student strength of 400 B Tech students, 36 M Tech students and 41 Ph D scholars, Division is not able to provide the necessary computing infrastructures for their need.</li> <li>3. Lack of fund for S/W purchase.</li> </ol>
58	Overall Report and Suggestions for Improvement	<ol style="list-style-type: none"> <li>1. Need more space for research activities and for setting labs for the same.</li> <li>2. Procurement procedures are time consuming.</li> <li>3. Lack of infrastructure and lab facilities for research work.</li> <li>4. Shortage of permanent faculties and lab staff</li> <li>5. Need more experienced faculty</li> <li>6. Interdisciplinary project activities need to be undertaken</li> </ol>

## 2.10.7 Division of Safety and Fire Engineering

### External Experts:

Dr. Bijoy Antony Jose  
Assistant Professor  
Dept of Electronics, CUSAT

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DIVISION OF SAFETY AND FIRE ENGINEERING, SCHOOL OF ENGINEERING		
2	No: of Full time Permanent Faculty	6		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	4		
5	No: of Guest Faculty	2016 Jan to March 2016 - 2 , 2017 July to October 2017 - 2		
6	No: of Academic Programmes	UG: 1 PG:1		
7	No: of core courses and electives in each programme	<b>UG-2016 Sep – 2016 Nov</b> Core Subjects: 22 , Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2 <b>UG-2016 Dec – 2017 Apr.</b> Core Subjects: 20 , Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2 <b>UG-2017 July – 2017 Nov</b> Core Subjects: 22 , Elective Subjects : 2 <b>PG</b> Core Subjects: 4 Elective Subjects : 2		
8	Student Strength	UG: 189 PG: 18		
9	No: of Ph D Students	FT	Nil	PT 6
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	-		
11	Information on curriculum revisions	-		
12	Add on Courses/ Skill Development Courses conducted	-		
13	Students feedback on Curriculum	-		



<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	-	Implemented Active Cooperative Learning Techniques.	
15	Remedial Courses Conducted	-	Yes	
16	Use of Supplementary teaching tools and Application of ICT	-	Yes	
17	Conduct of Internal Examinations	-	Yes	
18	Result Analysis	-		
	UG		2013 Admn. S7 November 2016 Pass % - 56.7% S8 April 2017 Pass % - 61% 2014 Admn. S5 November 2016 Pass % - 71% S6 April 2017 Pass % - 68% S7 November 2017 Pass % - 76% 2015 Admn. S3 November 2016 Pass % - 64% S4 April 2017 Pass % - 61% S5 November 2017 Pass % - 38% 2016 Admn. S1 December 2016 Pass % - 67% S2 May 2017 Pass % - 68% S3 November 2017 Pass % - 64%	
	PG		2015 Admn. S3 November 2016 Pass % - 100% S4 April 2017 Pass % - 100% 2016 Admn. S1 November 2016 Pass % - 99% S2 April 2017 Pass % - 100%	
19	Faculty Development Initiatives, if any			
20	Students feedback on teaching, learning and evaluation		Collected Students' Feed Back every semester	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		5	
22	No: of Ph D produced(2016-17)		1	
23	Research Papers published during the assessment period			
	International			

	National		-	
24	Papers Presented during the Assessment Period		-	
	International		5	
	National		3	
	State		-	
25	Books Published			
	Single Author		-	
	Co Author		-	
26	Chapters in Books		-	
27	Books Edited		-	
28	Seminars/Workshops/Training Programmes Conducted			
	International		1	
	National		0	
	State		2	
29	Ongoing/ New MoU		-	
30	Research Collaborations		-	
31	Awards/Achievements/Recognitions of students and Teachers		Prof. K M Bahavuddin Award for the Distinguished Engineering Teacher of Kerala.	
32	Ongoing and Newly implemented research Projects	-		
33	Consultancy Services		Training on Fire and Safety to staff of ITI Department Testing of core sample and assessment of damage to Neelimangalam Bridge.	
34	Subject/ Department Related Extension activities	-		
35	Other Extension Activities, if any	-		
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
36	New Equipments and Infrastructure added	-		
37	Justification of the use of these equipments	-		
38	Details of outcomes/ publications after the institution of these equipments	-		



39	e-classrooms (Number and Usage)	-		
40	Computer Labs (No: of labs and working systems)		No. Of Labs – 1 No. of working Systems – 9	
41	Access timings of the library	-		
42	No: of printed books added during the assessment period	-		
43	e-resources and e-journals	-		
44	Facilities for disabled students	-		
45	Maintenance of drinking water		Yes	
46	Maintenance of sanitation		Yes	
47	Restroom for women students		Yes	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		Yes	
49	Student Aid fund/ Endowments etc.		-	
50	Placement details		-	
	No: of Students applied		-	
	No: of students placed		-	
51	No: of students qualified in the following examinations			
	NET		-	
	SET/SLET		-	
	GATE		-	
	CAT		-	
	UPSC		-	
	State PSC		-	
	Others		-	
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department	<ol style="list-style-type: none"> <li>1. Remedial coaching classes are conducted for students with less exposure to good academics and those from poor background.</li> <li>2. Students are constantly mentored by the faculty members.</li> <li>3. Students are encouraged to enrol in interdisciplinary electives.</li> <li>4. Transparency is ensured in evaluating student's academic performance.</li> <li>5. Appraisal of teacher's performance by students is done systematically in every semester.</li> <li>6. PTA meetings are conducted in every semester to appraise parents of their wards performance</li> <li>7. All class rooms are provided with LCD projectors. This approach facilitates teachers to complete portions in time with ample time for revision</li> </ol>		

53	Innovative Practices followed by the Department	
54	Green Initiatives	<ol style="list-style-type: none"> <li>1. Students take part in NSS activities which include planting of trees, campus cleaning etc.</li> <li>2. Students are constantly reminded about keeping their class rooms clean, reduce wastage of paper, power etc.</li> <li>3. Teachers and students take special care to minimize the use of electric power. Special instructions are given to switch off lights and fans when not in use.</li> </ol>
55	Actions taken on the recommendations made by the peer team during NAAC visit	Encouraged PhD. Scholar to publish their work in reputed Journals.
56	Strengths of the Department	<ul style="list-style-type: none"> <li>* Well qualified and experienced faculty.</li> <li>* Excellent teaching learning environment.</li> <li>* Department is working on outcome based teaching-learning process.</li> <li>* Department has a good placement record close to 100% consultancy and training</li> <li>* Department organizes workshops and short term courses for knowledge uplift of faculty and students.</li> </ul>
57	Weaknesses of the Department	<ol style="list-style-type: none"> <li>1. Shortage of permanent faculty and technical staff.</li> <li>2. Some of the elective subjects cannot be offered due to the shortage of faculty in certain specialized areas.</li> <li>3. The support of the Department alumni has to be increased</li> <li>4. Insufficient built up space for labs.</li> <li>5. Shortage of technical staff &amp; office staff</li> </ol>
58	Overall Report and Suggestions for Improvement	<ul style="list-style-type: none"> <li>* provide laptops AMD pc's to all teachers.</li> <li>* Improvement in student evaluation system giving more emphasis on problem solving techniques</li> <li>* More active involvement of the alumni in the activities of the department.</li> <li>* provide office staff and new furniture for classroom.</li> <li>* Fill vacancy of permanent faculty members and technical staff.</li> </ul>



## 2.11 School of Environmental Studies

### External Experts:

Dr. P. Lakshmana Perumalsarry  
Former Emeritus Professor  
Department of Environmental Sciences  
Bharathiyar University, Coimbatore

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	<b>SCHOOL OF ENVIRONMENTAL STUDIES</b>		
2	No: of Full time Permanent Faculty	3 (1 Professor, 1 Associate Professor & 1 Assistant Professor)		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	1		
5	No: of Guest Faculty	6		
6	No: of Academic Programmes	UG: Nil		
		PG: M.Sc. Environmental Technology		
7	No: of core courses and electives in each programme	Stream I : Core 20 Elective 13 Stream II: Core 19 Elective 16		
8	Student Strength	UG: Nil		
		PG: 16/ Year		
9	No: of Ph D Students	FT	35	PT 8
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	4	Good	Instead of 2 streams, it may be merged into one, and the programme suggested is Environmental Science
11	Information on curriculum revisions	4	Revised in 2013	Syllabus may be suitably modified
12	Add on Courses/ Skill Development Courses conducted	3	English courses, communicating skills & personality development courses conducted for PG students. Interdisciplinary course in Environmental Studies is offered to CUSAT students	Satisfactory

13	Students feedback on Curriculum		Not obtained	Student feedback on curriculum must be obtained for every batch and curriculum revision may be planned accordingly
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	4	Power point, OHP	Smart classroom may be established
15	Remedial Courses Conducted	4	Extra classes, Retest, Counselling	Satisfactory
16	Use of Supplementary teaching tools and Application of ICT	4	Handouts given ppt. Copies, internet facilities	Internet facilities could be utilized fully
17	Conduct of Internal Examinations	5	Good	Scheme of evaluation may be prepared. Standard of question paper may be evaluated.
18	Result Analysis	5	Good	Result analysis of student/ semester/ course wise may be carried out to find out the progress of the student of a batch. Suitable remedial measures may be decided
	UG			
	PG			
19	Faculty Development Initiatives, if any	5	Refresher courses, orientation	It is advisable to conduct Refresher and orientation programmes in the department
20	Students feedback on teaching, learning and evaluation	5	Good	Semester wise students feedback on curriculum evaluation may be obtained
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	2	6 numbers (4 Retired)	Full time may be appointed to increase the research activities
22	No: of Ph D produced(2016-17)	3	8 awarded	3 (Submitted)
23	Research Papers published during the assessment period	4	18	More papers may be published in UGC indexed journals with high impact factor
	International	12		





	National	6		
24	Papers Presented during the Assessment Period	3	30 papers	Researchers may be encouraged to present more in international conferences
	International		13	
	National		1	
	State		16	
25	Books Published	-	Nil	
	Single Author			
	Co Author			
26	Chapters in Books	-	Nil	
27	Books Edited	-	Nil	
28	Seminars/Workshops/Training Programmes Conducted	3		International and National Conferences may be conducted at least one each in a year
	International			
	National		2	
	State			
29	Ongoing/ New MoU	2	IIT Chennai	Attempt may be made to have more MoUs in future towards exchange of research activities
30	Research Collaborations			Research collaboration may be established in future with industries and institutions
31	Awards/ Achievements/Recognitions of students and Teachers	3	UGC Net : 7 Competitions : 2	Students may be encouraged to participate in various programmes and competitions. Proper training may be given to them before participation. Teachers may work hard for their recognition and awards
32	Ongoing and Newly implemented research Projects	3	Sap Phase II Rs. 25 lakhs, DOECC, Govt. of Kerala	Faculty may be encouraged to apply for new projects
33	Consultancy Services	3	Study/ Noise pollution (High Court of Kerala) Rs. 1,30,000/-	Faculty may be involved to get more consultancy work to bring credit to the department
34	Subject/ Department Related Extension activities	3	Participation in relief work of Okhi hit area Chellanam	The students may be exposed to various types of environmental challenged area and get trained/ prepared to meet the challenges
35	Other Extension Activities, if any	2	Cultural activities, Vembanad lake quality improvement programme, Stake holders meet, Biodiversity conservations	Periodical meeting for wetland and other ecosystem conservations and awareness/ environmental quality, may be conducted

<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	3	AAS, HPLC, BET Surface Area Analyser, Carbonised furnace	Purchase orders have been placed. May be installed in suitable place
37	Justification of the use of these equipments	3	Carryout interdisciplinary research in the area of Environmental Science	The facility may be extended to other department and colleges
38	Details of outcomes/ publications after the institution of these equipments	-	-	Equipment yet to be received and installed
39	e-classrooms (Number and Usage)	4	Continuous usage	Fully utilized
40	Computer Labs (No: of labs and working systems)	3	1 Lab- 14 Nos. 9.00am to 5.00pm	Log book is being maintained
41	Access timings of the library	2	9.00am to 4.00pm	Issue register maintained
42	No: of printed books added during the assessment period	4	Present: 2500. Added: 120	Recent editions may be purchased
43	e-resources and e-journals	3	e-resource	Since e-journals are available in the Central Library it is not made available in the department
44	Facilities for disabled students	2	Ramp is made, 1 seat is reserved for disabled student	Since no students are admitted, this is not seriously looked into. However as per the recommendation of the High court necessary facilities may be provided to the department
45	Maintenance of drinking water	5	Adequate	Protected water available
46	Maintenance of sanitation	5	Good	Well maintained
47	Restroom for women students	5	Good	Well maintained
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	3	Teachers have given UGC NET training, placement guidance, counselling	A system/ procedure/ methodology may be developed. Each faculty may be assigned for each programme- placement/ carrier guidance, UGC NET Training, Counselling, Internship, Class committee



49	Student Aid fund/ Endowments etc.	3	Researchers – university, Students-University, SC/ST-State Govt.	The students councillor may be try to find out the sources of the fund for the research and PG students apart from already available sources
50	Placement details	3	1 placed in Forest department and 1 in Govt. Service, 3 joined in Pvt. companies	The placement officer may invite more companies and organizations in connection with placement and see that the needy students shall be placed
	No: of Students applied			
	No: of students placed			
51	No: of students qualified in the following examinations	4		
	NET		7, Excellent performance	Advanced training may be provided to compete for other examination conducted by state/ Central Boards
	SET/SLET			
	GATE			
	CAT			
	UPSC			
	State PSC			
	Others			

**VII-INNOVATIONS AND BEST PRACTICES**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
52	Best practices followed by the Department	3	Student – teacher Interaction, Dissemination of new knowledge through IT, student guidance and counselling	
53	Innovative Practices followed by the Department	3	Quality Management in academic administration collaboration with industries, syllabus updation based on current scenario	
54	Green Initiatives	5	Submitted proposal for developing a total waste management system for CUSAT, Sanctioned 50 lakhs by university, sullage water treatment plant designed by SES to CUSAT canteen	It is good initiative. This may be successfully implemented. Planting Rainwater harvesting. Tapping solar energy
55	Actions taken on the recommendations made by the		Concentration in consultation & extension activities	Society interact programme such

	peer team during NAAC visit			a visiting cyclone affected people at Chellanum. The department may have a Disaster management team & they may extend their services to the state govt. Whenever required
56	Strengths of the Department	Multidisciplinary faculty, Proximity to industrial zone, strong teacher –student relationship,PTA,strong alumni, good teacher- student ratio		
57	Weaknesses of the Department	Lack of Environmental Engineering faculty, faculty positions vacant, difficult in finding placement at +2 and UG level as the subject is not included in the B.Ed programme		
58	Overall Report and Suggestions for Improvement	The department with the available faculty and facilities has done a commendable job in curricular, co-curricular and research activities. Recent teaching methods have been followed. Addition of Smart classroom will be more effective in dissemination of knowledge. Although the department has established collaboration with industries, institutes and other organization, it shall work hard to establish fully. Frequent student- expert meet may be conducted so that the students get latest information. The research activities may be encouraged by appointing qualified faculty and providing them facilities. Placement activities may be strengthened. Conference/Workshop/Training programmes may be organised periodically. Interdisciplinary research may be encouraged. Social outreach programmes may be extended to village s and rural areas. Extension of knowledge orientation to the local Self governing bodies and self help groups, in the areas of environmentally fragile areas, may be conducted		



## 2.12 Department of Hindi

### External Experts:

1. Dr. B. Anirudhan  
Principal, Nehru Arts & Science College  
Coimbatore
2. Dr. Biju Vincent  
Assistant Professor  
Department of Sociology  
SSUS (Sri Shankaracharya University of Sanskrit, Kalady)

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DEPARTMENT OF HINDI		
2	No: of Full time Permanent Faculty	5		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	3		
5	No: of Guest Faculty	Nil		
6	No: of Academic Programmes	UG: Nil		
		PG: M.A Hindi, M.Phil Hindi, PG Diploma		
7	No: of core courses and electives in each programme	UG: Nil		
8	Student Strength	UG: Nil		
		PG: M.A Hindi Ist year -24, IInd Year -28 M.Phil Hindi - 10, PG Diploma- 29 .		
9	No: of Ph D Students	FT	37	PT 05
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus			
11	Information on curriculum revisions		Board of Studies meets regularly every three years. The last meeting was convened on 28 <sup>th</sup> September, 2016, when minor revisions and change in course structure were done.	1.Meet/Convene Board of Studies meetings occasionally (once in year) for discussing changes in the syllabi. 2.Create your own system for curriculum revision

12	Add on Courses/ Skill Development Courses conducted			<ol style="list-style-type: none"> <li>1. Start skill based add on programme,</li> <li>2. Create language lab</li> <li>3. Think on add on courses with certificate</li> </ol>
13	Students feedback on Curriculum		Every semester student's feedback is collected through questionnaire. A feedback survey was conducted for the former students, through Old students Forum. The feedback was that more practical and data oriented courses should be included.	<ol style="list-style-type: none"> <li>1. Department of Hindi can have its own feedback form that can help the department</li> <li>2. Address the issues highlighted in feedback</li> </ol>
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced		Enabled smart class rooms, internet and resources in teaching	<ol style="list-style-type: none"> <li>1. Make internet and e-resources as part of classroom teaching</li> <li>2. Ensure the use of ICT in T &amp;L practices</li> </ol>
15	Remedial Courses Conducted		As and when necessary remedial training is given	
16	Use of Supplementary teaching tools and Application of ICT		ICT is used in classrooms	Use web tool for T&L process
17	Conduct of Internal Examinations		Internal examinations are conducted on regular basis.	
18	Result Analysis			<ol style="list-style-type: none"> <li>1. Create e-Learning platforms</li> <li>2. Going for MOOCS and SWAYAM courses</li> </ol>
	UG		NA	
	PG		End semester Examinations April, 2017 M.A. Hindi IV Semester Total students appeared :- 28 Total students passed :-28 M.Phil Hindi II Semester Total students appeared :- 10 Total students passed :-10 PG Diploma in Translation	



			Total students appeared :- 25 Total students passed :-25	
19	Faculty Development Initiatives, if any		Can have sessions to improve teaching and research skills of regular teachers. Department can think it of having on its initiative	Ensure timely attendance for orientation and refresher courses of faculty members.
20	Students feedback on teaching, learning and evaluation			
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	5		1.Add area of expertise of each guide 2.Publish more in peer reviewed journals
22	No: of Ph D produced(2016-17)	12		Present guide wise details
23	Research Papers published during the assessment period	28		
	International			
	National			
24	Papers Presented during the Assessment Period	30		Need to strengthen publication of teachers
	International	0	No international presentation.	
	National	30		
	State	0	Not getting invited as key resource persons	
25	Books Published			
	Single Author			
	Co Author			
26	Chapters in Books		1. Samakaleen Mahila Natak (Dr. K.Ajitha) 2.Malayalam Bhasha, Bharateeya Bhasha Ki Pahachan (Dr. K. Vanaja)	Put in referencial style
27	Books Edited	1		
28	Seminars/Workshops/Training Programmes Conducted			Foreign visits cum presentation may be increased
	International	0		
	National	3		
	State	1		

29	Ongoing/ New MoU	Nil		
30	Research Collaborations	Nil		
31	Awards/ Achievements/Recognitions of students and Teachers		Dr .K. Vanaja	1. Bharateeya Sahitya Pratistapan Samman (March 2017) 2. First Justice V.R. Krishna Iyer Memorial Education Award
			Dr. R. Sasidharan	1. Bharat Vikas Award on 10th December 2016 2. Rashtriya Shikshak Bhushan Puraskar for the contribution in the field of education
32	Ongoing and Newly implemented research Projects		Lack Major Research Project during the assessment period UGC-(SAP)DSA State Plan Grant State Plan Grant	48.5 Lakhs 2 Lakhs 2 Lakhs
33	Consultancy Services	Nil	Need to have Consultancy Service	MoUs may be signed
34	Subject/ Department Related Extension activities	Nil		
35	Other Extension Activities, if any		Extension connect university with other institutes and communities. Extension as connection/connectivity with society and community.	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		LCD Projector, Desktop Computers, Ista Lock Screen, Logitek Wireless Presenter, 10KVA UPS, Rocket Tabulator Bed C-10, Battery Rack & Inter linking cables, Panasonic DMC- FZ, PowerPack Tripod Video, TSC Ttp Barcod Printer, Symbol Scanner, Canon LBP, HP Laserjet	*Convert computer lab into Language lab *Make Language lab as essential component is the elective/core subject/Paper
37	Justification of the use of		As teaching aids and for making	





	these equipments		it simpler for students to get equipped with latest innovations and trends in their educational field.	
38	Details of outcomes/ publications after the institution of these equipments	-	Assists in computational based Research	Ensure optimum utility of available resources
39	e-classrooms (Number and Usage)	3	3 class rooms	
40	Computer Labs (No: of labs and working systems)	1	12 Systems	How the usage of Computer Lab become part of curriculum
41	Access timings of the library		9 a.m. to 5 p.m.	
42	No: of printed books added during the assessment period		43226 + 2981	
43	e-resources and e-journals		Nil	Start an E journal
44	Facilities for disabled students		Ramp	
45	Maintenance of drinking water	2	One water cooler in the veranda and another purifier with hot and cold water facility in the first floor	
46	Maintenance of sanitation		Five well maintained toilets, one for men and four for women.	
47	Restroom for women students	1	One rest room with chairs and a bed	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		Course Tutor System, PTA, Quiz competitions, Essay writings and mentoring classes are conducted	Start more supporting activities
49	Student Aid fund/ Endowments etc.		Providing Acharya Raman Nair Endowment, Vijayan Master Endowment	
50	Placement details			Activate Placement Initiatives
	No: of Students applied	2		
	No: of students placed	2		
51	No: of students qualified in the following examinations			
	NET	8		
	SET/SLET	1		

	GATE	Nil		
	CAT	28		
	UPSC	1		
	State PSC	1		
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
52	Best practices followed by the Department		<ul style="list-style-type: none"> <li>* Practical exposure to real data</li> <li>* Students are encouraged to take part in various competitions like Quiz Programmes, Essay writing, etc. and given moral and technical support to effectively harvest their potentials.</li> <li>* Under the Special Assistance Programme from UGC-DSA (Phase - I) scheme is functioning in the Department with the following objectives:-</li> <li>* Erudite Scheme:- Through the ERUDITE-Scholar-in-Residence Programme under the Kerala State Higher Education Council ,Distinguished scholars from around the world has visited the Department and given lectures in their respective fields which has been highly beneficial for Teachers, Research scholars and students</li> <li>* Special day celebration</li> <li>* Film Club</li> </ul>	<p>1.Bring in more innovative practices</p> <p>2.Ensure innovative of best practices contribute to the teaching and research of the department and thereby the university</p>
53	Innovative Practices followed by the Department		Skill development programmes	
54	Green Initiatives		<ul style="list-style-type: none"> <li>* Minimized the use of Plastic.</li> <li>* Ceramic cups and plates are used in the office.</li> <li>* Paper cups and plates are used in functions.</li> <li>* Minimized printing and online communications are encouraged.</li> </ul>	
55	Actions taken on the recommendations made by the peer team during NAAC visit	The department has been well appreciated by the NAAC Peer Team on the manners it has been run and the impact it has made so far. As such there were no particular recommendations or instructions from their part.		
56	Strengths of the Department	A group of highly qualified and internationally recognized teachers who		



		<p>excel in their fields are the greatest strength of the Department. Along with them a number of highly dedicated and hardworking Research scholars form the backbone of the Department. The teachers in the Department are committed to give their maximum output to the Department. All the teachers are keen to familiarize with and get updated with latest developments in their respective fields/topics. All of them along with their Research students are frequently publish research papers in peer reviewed journals. Most of the teachers regularly attend Workshops and Seminars conducted nationally and present papers. The Research scholars are also encouraged to attend these Workshops and Seminars. The knowledge and experiences they gather has been channelized for the benefit of Department and its students. The Department has now grown as one of the strongest and well known departments in the country.</p>
57	Weaknesses of the Department	<p>The following are the main weaknesses or hindrances of the Department in its urge for expansion:-</p> <ol style="list-style-type: none"> <li>1.Space constraints:- Though the Department has been established about two decades ago, it is still functioning with the same space it has been provided at that time. Even though more courses has been added to the Department's credit no further area or space has been added to it.</li> <li>2. Faculty shortage:- The Department has a sanctioned strength of 2 Professors, 2 Associate Professors and 5 Assistant Professors in which a post of Professor and a post of Associate Professor are vacant. With more courses on the way, the Faculty shortage is a main hindrance in its way to expansion. Along with filling up of present vacancies more teaching post may be sanctioned.</li> <li>3. Technical Staff:- With two full fledged Computer Labs and one Engineering Lab, it is most unfortunate that the Department lacks the service of Technical staff. Repeated efforts has been made to bring this issue in front of the authorities, but so far none of them has been fruitful. Presently the technical problems faced by these labs has been faced with outside support, which is both time consuming and expensive.</li> </ol> <p><b>Suggestion:</b> Try to come out of weaknesses</p>
58	Overall Report and Suggestions for Improvement	<p>For the improvement of the overall functioning of the Department the following suggestions are made:-</p> <ol style="list-style-type: none"> <li>1. More faculty:- The Faculty shortage is a main hindrance in the way to expansion. To tackle this, along with filling up of present vacancies more teaching post may be sanctioned.</li> <li>2. Technical assistance:- Technical assistance has to rendered with emphasis on facing the current issues as well as forthcoming issues in the future with the expansion of the Department.</li> <li>3. Digital Document File System may be introduced for paperless administrative work.</li> <li>4.As a system all need to be aware of the upcoming changes in Higher Education and work as a strong Team to achieve the vision</li> </ol>

## 2.13 School of Industrial Fisheries

### External Expert

1. Dr. Saly N Thomas  
Principal Scientist,  
CAR- Central Institute of Fisheries Technology, Kochi
  
2. Dr. S. Suresh Kumar  
Professor,  
Kerala University of Fisheries and Ocean Studies, Kochi

## ACADEMIC AUDIT REPORT

I - DEPARTMENT PROFILE				
1	Name of Department:	SCHOOL OF INDUSTRIAL FISHERIES		
2	No. of Full Time Permanent Faculty:	4		
3	No. Of Adjunct Faculty:	2		
4	No. Of Contract Faculty:	1		
5	No. Of Guest Faculty:	5		
6	No. Of Academic Programmes:	UG:	Nil	PG: 3
7	No. Of Core courses and electives in each programme in each subject:			
8	No. Of Students Strength:	UG:	NA	PG: MSc IF: 39 MFSc SST: 42 Mphil: 06 (Total: 87)
9	No. Of PhD Students:	FT:	28	PT: 10
<i>The External Experts can grade each parameter with points 0,1,2,3,4 or 5 based on assessment</i>				
II - CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
10	Coverage of Syllabus <i>(more than 90% syllabus coverage ensured in every semester by the teaching faculty of the school and rest 10% syllabus covered as assignments, projects, training, field study etc)</i>	4	Most of the portions are covered in stipulated time Regular skill development including industry orientation is conducted	Library hours may be increased to encourage students to use marine science library and University main library. Students may be encouraged to use marine science, CIFT and CMFRI libraries
11	Information on Curriculum Revisions <i>(Regular curricular revisions are ensured in the school. The syllabus of MSc Industrial Fisheries and MPhil Fisheries</i>	5	Periodic revision of syllabus noticed M.Sc.IF in 2017, M.Phil in	M.F.Sc.Syllabus may be revised; Brain storming workshop may be conducted for the revision



	<i>science programmes of the school revised in 2017 and MFSc Seafood Safety and Trade course in 2012).</i>		2017; M.F.Sc. In 2012	of syllabus to update as per industry/ academic requirements. Syllabus revision may be made by a committee in which the actual stake holders to be included.
12	Add-on courses/skill development course conducted <i>(In addition to the regular core and elective courses of the school, the PG students are compulsorily taking one elective course of Marine Biology Department of the University in first or third semester period. Regular skill enhancement programmes like Talks from Alumni members/academicians, industry orientation workshops etc are offered in every year).</i>	5	Regular skill development including industry orientation is conducted. Hands on training in hatcheries, onboard training, fishing gear fabrication/ manufacture and industrial training	Encourage students to take summer internship in external institute of repute. Explore the possibility of students to do their PG thesis work in reputed research institutes by entering into MOUs with them
13	Students' Feedback on Curriculum <i>(Students feedback on curriculum are collected and analysed towards the end of every academic year. Suggestions if any on syllabus, teaching methods, training, practical etc are discussed in faculty council and appropriate decisions are adopted regularly for improvement)</i>	4	Feed back of students are regularly collected	Regular alumni meeting to be conducted in the department. Feed back from alumni to enrich syllabus may also be considered. Back strapping programs to be initiated in association with Alumni, Expertise of Alumni may be made use of in this regard
<b>III - TEACHING, LEARNING &amp; EVALUATION</b>				
14	Innovations in Teaching introduced <i>(Practical oriented knowledge dissemination through field visit, industrial trainings and hatchery and farming practices )</i>	4	Regular field visit, industrial visits are conducted Hands on training in hatchery and farming practices are done	Practical oriented knowledge dissemination through field visit, industrial trainings and hatchery and farming practices. Study tours visiting various institutes and industries in remote places can be done
15	Remedial courses conducted <i>(During the assessment period, no request/situation for the conduct of remedial courses occurred in the school)</i>	0	No record of required remedial measures	Remedial measures may be done even without student request

16	Use of supplementary teaching tools and application of ICT <i>(All class rooms in the school are equipped with ICT facilities: theoretical class room lectures are supported with audio-video and power point tools)</i>	4	Basic requirements fulfilled	Class room infrastructure may be improved
17	Conduct of Internal Examinations <i>(During the period the school completed continuous evaluation of students in their respective semesters as per the direction of University. Strictly followed the University time table and completed internal examinations well in advance and published the results before the end semester examinations)</i>	4	Satisfactory	Records of internal examinations may be maintained properly
18	Result Analysis	5	Satisfactory	Regular result analysis may be displayed in notice board
	<i>PG 1(MSc IF 2015-17 batch): 94.74% CGPA Above 9: 0, CGPA Above 8: 6 CGPA Above 7: 10 CGPA Above 6: 2</i>			
	<i>PG 2 (MSc SST 2015-17 batch): 84.21% CGPA Above 9: 0, CGPA Above 8: 7 CGPA Above 7: 9 CGPA Above 6: 0</i>			
19	Faculty development initiatives, if any <i>1. Dr. Shibu A V attended UGC Orientation course 28 ddays at UGC-HRDC, Calicut during 2017; 2. Dr. S. Sabu attended short term training on chromatographic techniques, CSIR-CFTRI during July 2017; 3. Dr. S. Sabu attended short term training on microbiological examination of seafood at ICAR-CIFT during August 2017; 4. Dr. Dhanya P R attended short term training at ICAR-CIFT during August 2017.</i>	4	Satisfactory	
20	Students' Feed back on Teaching, Learning & Evaluation <i>(Collected in every academic year. Corrective actions are regularly taking after discussion &amp; approval of faculty council meetings)</i>	5	Feed back records were verified	
<b>IV - RESEARCH, CONSULTANCY AND EXTENSION</b>				
21	No. of Research Guides in the Department <i>(Total: 8 No; Regular: 4 &amp; Retired:4)</i>	4	Verified	It appears that faculty strength is to be enhanced as per sanctioned posts



22	No. of Ph.Ds Produced <i>Total: 3 Nos during the assessment period ( Bijoy V M., under the guidance of Dr. M. Harikrishnan; Roshini K under the guidance of Prof. Madhusoodana Kurup and Deepak Jose under the guidance of Dr. M. Harikrishnan )</i>	4	Verified	The percentage of students submitting Ph.D thesis is low which needs to be immediately attended
23	Research Papers Published during the assessment period			
	International: 10	5	Verified	High impact value journal may be selected
	National: 4	4	verified	
24	Papers Presented during the assessment period			
	International: 15	4	verified	Faculty may be encouraged to write book chapters by availing the funds from UGC
	National: 26	4	Verified	
25	Books Published			
	Single Author: 1	4	Verified	
	Co Author: 2	4	Verified	
26	Chapters in Books: 10 Nos	5	Verified	
27	Books Edited : 3 Nos	4	Verified	
28	Seminars/Workshops/ Training Programme Conducted			
	International: 1 No	4	Verified	More workshops to be conducted to enhance capacity of the faculty
	National: 3 Nos	4	Verified	
29	Ongoing/ New MoUs: Nil	0		More MoUs may be enforced to encourage students to undertake dissertation work at major research institutes and industries
30	Research Collaborations <i>1. EU funded BELMONT Project research collaboration ARTISTICCC 2. Indonesian Nature Foundation (LINI), Indonesia; 3. Ornamental Fish International (OFI)</i>	5	verified	
31	Awards/Achievements/Recognitions of students and teachers <i>1. Mr.Deepak Jose has been awarded with DBT RA programme 2017 2. Dr. Harishankar has been awarded</i>	4	Verified	Faculty may be encouraged to apply for EAP

	<i>with CUSAT post doctoral fellowship 2017</i>			
32	<p>Ongoing O&amp; Newly implemented Research Projects - No, Outlay &amp; Funding Agency</p> <p>1. Dr. K. T. Thomson (BELMONT-ARTISTIC EU project- 1.48 crore)</p> <p>2. Dr. M. Harikrishnan- 2 Nos. ( KSCSTE-23.71 Lakhs) &amp; (MoEs:80.0 Lakhs)</p> <p>3. Dr. S. Sabu (State Plan, CUSAT- 3.00 Lakhs)</p> <p>4. Dr. Shibu A V (State Plan, CUSAT- 3.00 Lakhs)</p>	4	Verified	More externally funded research projects need to be brought to the school
33	<p>Consultancy Services</p> <p>1. Dr. Mini Sekharan N. : Consultant of Friend of the Sea, Italy.</p>	4	Percentage of faculty involved in consultancy is low	More consultancies need to be brought to the school
34	<p>Subject/Department Related Extension Activities, if any</p> <p>1. Policy meeting with MLA, Vypeen on climate change and fishermen livelihood,</p> <p>2. Dr. Mini Sekharan has been a faculty in the THEERANAIPUNYA PROGRAMME II - SKILL ENHANCEMENT AND CAPACITY DEVELOPMENT OF FISHER YOUTH " held at CMFRI Kochi during 5th Nov 2016 to Jan 2017 conducted in association with SAF, Kadungalloor.</p> <p>3. Dr. Mini Sekharan has been a faculty in the THEERANAIPUNYA PROGRAMME III - A CAPACITY BUILDING TRAINING PROGRAMME -SCALING UP FISHER YOUTH FOR DOMAIN IN COGNITIVE DEVELOPMENT" held at CMFRI , Kochi during 5th July to 6th September 2017 conducted by CMFRI, Kochi in association with SAF, Kadungalloor.</p> <p>4. Dr. Mini Sekharan has trained the 51st batch of SUB INSPECTOR TRAINEES of Dept of Fisheries on the topic "Global trading of ornamental Fishes- Share of India and Potential in Kerala</p>	5	Verified	Found satisfactory





	<p>5. Dr.S.Sabu has trained 51st Batch of Sub inspector trainees of Dept of Fisheries for "By products technology and emerging preservation techniques of fish in November 2016 at Fisheries training Centre, Aluva vide G.O. (Rt) No. K2/14782/2016 dated 5/09/2016</p> <p>6. Dr. S. Sabu has given an Expert talk on Adulterants in seafood at Seaclub seminar organised by NETFISH and St.Alberts college, November 2017</p> <p>7. Dr. Mini Sekharan N contributed to the Brain storming session at Policy workshop on technology enhanced learning, NAARM, Hyderabad</p> <p>8. Dr. Shibu A V has given an expert Lecture on Fishery related issues for the Navy officials at INS Dronacharya, Cochin, July 2017</p> <p>9. Dr. M. Harikrishnan, functioned as the member in Matsyasarudhi II, Dept of Fisheries, Govt of Kerala.</p> <p>10. Dr. M. Harikrishnan attended Brain storming session on Deep sea mission-Deep sea fishery and Krill at CMLRE, Kochi May 2017.</p> <p>11. Dr. M. Harikrishnan attended Consultancy meeting on Biodiversity beyond National Jurisdiction organized by CMLRE in June 2017</p> <p>12. Dr. M. Harikrishnan given expert lecture for Navy officers at INS Dronacharya during July 2017.</p> <p>13. Dr. M. Harikrishnan functioned as expert for the PhD viva-voce at Mahatma Gandhi university</p> <p>14. Dr. M. Harikrishnan functioned as Expert member in the interview board of CIFNET admissions July 2017</p>			
35	<p>Other Extension Activities, if any</p> <p>1. Matsyakeralam, Fisheries Exhibition conducted by Department of Fisheries, Govt. Of Kerala at Kollam in May 2017</p> <p>2. Matsyakeralam, Fisheries Exhibition conducted by Department of Fisheries, Govt. Of Kerala at Ernakulam 25-27 July 2017</p>	5	Verified	Found satisfactory

	3. Participated in SHASTHRAYAN Exhibition, 2017 at CUSAT			
<b>V - INFRASTRUCTURE AND LEARNING RESOURCES</b>				
36	New Equipment and Infrastructure Added (Only Minor equipments (< 1 lakh cost) are added)	4	Purchase steps have only been initiated	Research laboratories need to be equipped with more state of art equipment
37	Justification for the use of these equipments <i>For teaching and research purpose</i>		NA	
38	Details of outcomes/publications after the institution of these equipments (Not applicable)		N A	
39	e-class rooms (Number & Usage) (6 class rooms, 1 seminar hall and 1 conference room of the school are provided with projection and wi-fi facilities)	4	Verified	Need more class rooms and infrastructure
40	Computer labs (No. of labs & working systems) (1 lab with 20 computers)	5	Verified	Found satisfactory
41	Access timings of the Library (Students of this school are utilizing the Marine science library during free hours or as per time table from 09.30 to 4.30 hrs)	4		Encourage to use library facilities of major R&D institutes like CIFT, CMFRI
42	No. of Printed Books/ No. of Printed Books Added during the assessment period (Suggested books and journals in the relevant areas of study for purchase through Marine Science Library and CUSAT library)	3	verified	Book purchase need to be intensified
43	e-Resources & e-Journals (Students of this school are given training to utilise the e-library facility of CUSAT. Students are encouraged to use e-resources and e-journals for their studies and dissertations)	3	Verified	satisfactory
44	Facilities for disabled students (The School is functioning in an old building since its inception. Class rooms are located in the first floor, no special facilities are available for the disabled persons as of now.)	3	Verified	The School has to take more steps in this direction



45	Maintenance of drinking water <i>(With the financial support of PTA, a water purifier cum chiller was installed in 205 exclusively for providing safe drinking water for the students of this school)</i>	4	Verified	satisfactory
46	Maintenance of Sanitation <i>(Class rooms, corridors, office rooms, toilets and other common areas of the school are properly maintained/cleaned on a daily basis. Proper sanitation is ensured in all areas including laboratories)</i>	4	Verified	satisfactory
47	Rest room for women students <i>(As of now, the school does not have separate rest room facility for girl students. Women students of this school are using the common rest room facility available in the marine science campus)</i>	0	Women students of this school are using the common rest room facility available in the marine science campus	However, the school may reserve a room for girls rest room exclusively for students of this school. As more than 120 students, of which girls constitute 70% or more, need to be given sufficient facilities
<b>VI - STUDENT SUPPORT AND PROGRESSION</b>				
48	Availability of a system for student support and mentoring <i>(Yes, Successful student support and mentoring system is in place. Every faculty member of the school is assigned with mentorship to all students per batch/course/semester)</i>	4	Verified	Satisfactory
49	Student Aid Fund/ Endowments etc. <i>(Awards for first rank holders of the school sponsored by UAE chapter, Industrial Fisheries Alumni Association were given away till 2016. The school decided to institute Prof. Dr. C.T. Samuel memorial endowment gold medal awards for the top rank holders of MSc Industrial Fisheries and MFSc Seafood Safety &amp; Trade wef 2018 onwards.)</i>	5	Verified	Good
50	Placement Details:			
	No. of students applied: 26	5	Verified	Good
	No. of students placed: 26		Verified	Good

51	No. of students qualified in the following Examinations			
	NET: 2 (Ms. Sariga P K, CSIR-NET & Ms. Remisha O, ICAR-NET)	4	Verified	Needs to focus more students winning NET Records may be updated with Alumni interactions
	SET/SLET		--	
	GATE		--	--
	CAT		--	-
	IAS/IPS etc.		--	--
	UPSC		--	--
	State PSC		--	--
	Others		--	--
<b>VII - INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department (Practical oriented multidisciplinary courses, Industrial training, field study and dissertations, placement opportunities etc.)	5	Practical oriented teaching-learning process	Good
53	Innovative practices followed by the Department (Compulsory seafood industry training, Practical oriented knowledge imparting, Alumni lecture series)	4	Implant training programme for both the PG courses is unique	Good
54	Green initiatives (Students are encouraged to maintain aquariums with aqua plants in each class room, Conversion of plastic bottles as flowering pots, organic vegetable cultivation etc)	5	Verified	Good
55	Actions taken on recommendations made by the Peer Team during the previous NAAC visit	3	Verified	Item 2 of NAAC team recommendation has not been addressed. The School needs to request University in this matter.
	<i>(Only two recommendations were made by the NAAC team for the school 1. Fees to be charged for consultancies: Steps are initiated to increase the number of consultancies. During the year 2017, Dr. Mini Sekharan N. got a consultancy agreement with Friends of Sea, Spain. 2. Need for a vehicle for the school: NAAC team after verifying the school curricular activities opined that a vehicle is required</i>			



	<i>for the school for completing the academic objectives like regular field visits, industrial visits, training programmes, research purpose etc.)</i>	
56	Strengths of the Department	
	<ol style="list-style-type: none"> <li>1. <i>The P.G and research programmes offered by the school are multi-disciplinary and have ready acceptance in the industry, academic, research and administrative job sectors. The alumni of the school are spearheading the academic/ research/ industry/ Govt. jobs in India and abroad.</i></li> <li>2. <i>The faculty members are well qualified and trained to offer the multidisciplinary academic and research programmes.</i></li> <li>3. <i>The students graduated from this school have better job prospects compared to other P.G or Ph.D. programmes offered by other universities in Kerala.</i></li> <li>4. <i>The school has established collaborations with leading Universities and R&amp;D institutions both India and abroad. The locational advantage of the school in the fisheries hub of the country ensures good cooperation with both fisheries industry/ academic/ administrative/ research institutions.</i></li> <li>5. <i>The school has state of art laboratory facilities, hatchery complex, research boats, ICT &amp; library facilities for most updated academic knowledge through quality practical education and research for the present and future generations in fisheries.</i></li> </ol>	
57	Weaknesses of the Department(One page)	
	<ol style="list-style-type: none"> <li>1. <i>Lack of sufficient building space to accommodate new facilities and equipments for adopting advanced training and research programmes.</i></li> <li>2. <i>Lack of fisheries faculty under CUSAT for harnessing the advanced/diverse research achievements of the school in the multidisciplinary areas of fisheries.</i></li> <li>3. <i>Budgetary constraints in both plan and non-plan fund allocation.</i></li> <li>4. <i>Lack of vehicle for the school for field visits/data collection for research and industrial training.</i></li> <li>5. <i>Insufficient hostel facility for students and research scholars of the school.</i></li> </ol>	
58	Overall Report and Suggestions for Improvement	<ul style="list-style-type: none"> <li>➤ Infrastructure to be developed on a war footing. Laboratories need to be well equipped with necessary equipment</li> <li>➤ Immediate steps to be taken to strengthen the faculty position. At present 30% of the sanctioned faculty strength is only in place</li> </ul>

## 2.14 Department of Instrumentation

### External Experts:

1. Dr. Sudarsana Kumar  
Professor, M.G University
2. Dr. N.V Unnikrishnan  
Emeritus Professor, School of Pure and Applied Physics  
M.G University

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of Department:	<b>DEPARTMENT OF INSTRUMENTATION</b>			
2	No. of Full Time Permanent Faculty:	5			
3	No. of Adjunct Faculty:	NIL			
4	No. of Contract Faculty:	2			
5	No. of Guest Faculty:	15			
6	No. of Academic Programmes	<b>UG: 1</b> B.Tech in Instrumentation Technology	<b>PG: 2</b> 1: M.Sc. in Instrumentation 2: M.Tech. in Instrumentation Technology	<b>Ph.D</b>	<b>PDF</b>
7	No of core courses and electives in each programme in each subject	B.Tech Core Courses: 50 elective: 1	M.Sc. Core courses: 18 Electives: 5	M.Tech. Core courses: 12 Electives: 5	
8	No. of Students Strength:	UG: 117		PG: 44	
9	No. of Ph.D Students	FT: 11	PT:16	PDF:1	

II- CURRICULAR ASPECTS		
10	Coverage of Syllabus	100% coverage.
11	Information on Curriculum Revisions	Commenced MTech in Instrumentation Technology
12	Add- on courses / skill development courses conducted	<ol style="list-style-type: none"> <li>1. Mr. Ratheesh P M, Asst. Prof DOI, conducted a 5 days workshop on <b>IOT SYSTEM DESIGN USING LAB VIEW</b> on 23<sup>rd</sup> – 27<sup>th</sup> Jan 2017</li> <li>2. Mr. Ratheesh P M, Asst. Prof DOI, conducted 5 days training on <b>LAB VIEW CORE 1&amp;2</b> on 28<sup>th</sup> Jan – 1<sup>st</sup> Feb 2017</li> <li>3. Mr. Midhun Haridas T P , Asst. Prof , Department of Electronics conducted a session on <b>Hardware modelling using VHDL</b> on 24<sup>th</sup> August 2017</li> </ol>



		<p>4 Mr. BabuPallipattu, Career consultant &amp; Personality trainer conducted a one day soft skill program on Sept 16<sup>th</sup>.</p> <p>5. Sri Harikumar D HRD Trainee gave a 2 day soft skill training in association with employment information guidance on 6<sup>th</sup>&amp; 7<sup>th</sup>oct 2017</p> <p>6 Career guidance classes conducted by ACE Academy on Oct 17<sup>th</sup> 2017</p> <p>7. Seminar on civil service orientation by Abhay Shankar, Prime minister's rural development fellow on Dec 14<sup>th</sup>, 2017</p>
13	Students' Feedback on Curriculum	Students are asked to submit a feedback form in each subject and remedial measures are taken based on that.
<b>III-TEACHING, LEARNING &amp; EVALUATION</b>		
14	Innovations in Teaching introduced	Students made some projects with proper assist of teachers. They are always engorged to familiarize with department lab facilities.
15	Remedial courses conducted	Internal marks of the students are regularly monitored and provided remedial classes based on that. Students were divided into groups (SPIG) and provided a faculty for each group to evaluate and support them.
16	Use of supplementary teaching tools and application of ICT	During tutorial hours students are asked to access the Internet, library hours are allotted as far as possible and PPT presentations are made. SPIG was held weekly once and provided some innovative questions/works/ assignments for students.
17	Conduct of Internal Examinations	Three internal examinations are conducted during the entire semester and in which first internal covers first half of the portions and second covers rest. Third internal covers the entire portion.
18	Result Analysis	Detail analysis done
	UG	Continuous evaluation is done during the semester with the conduct of three internal test followed by end semester external examination
	PG	Continuous evaluation is done during the semester with the conduct of three internal test followed by end semester external examinations for <b>M.Sc.</b> Continuous evaluation is done during the semester with the conduction of three internal test followed by end semester internal examinations for <b>M.Tech</b>
19	Faculty development initiatives, if any	Teachers are encouraged to actively attend courses/workshops/seminars within and outside the University by availing Special Casual Leave.
20	Students' Feedback on Teaching, Learning & Evaluation	A feedback form is provided to the students for teacher/ learning evaluation after each semester, evaluates it and remedial measures are taken.

<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>		
21	No. of Research Guides in the Department	4
22	No of PhDs Produced	2
23	Research Papers Published during the assessment period	27
	International	25(Published:22, under process :3)
	National	2
24	Papers Presented during the assessment period	24
	International	22
	National	2
	State	-
25	Books Published	NIL
	Single Author	-
	Co Author	-
26	Chapters in Books	NIL
27	Books Edited	-
28	Seminars/Workshops/ Training Programme Conducted	2
	International	-
	National	ASCII 2017
	State	Workshop on IOT based LABVIEW
29	Ongoing/ New MoUs	-
30	Research Collaborations	Research collaborations with IIT Madras & Bosch Bangalore
31	Awards/Achievements/ Recognitions of students and teachers	Award for Encouragement of Research in IUMRS-ICAM 2017 Symposium C-1(Savitha Nalini)
32	Ongoing & Newly implemented Research Projects - No, Outlay & Funding Agency	Infrastructure development in research intensive department Rs. 39,00,000 RUSA funding Rs,. 24,00,000
33	Consultancy Services	-
34	Subject/Department Related Extension Activities	Sasthrayan is organized to show case the vibrant and active research projects. Lab visits are allowed for the students from various departments and colleges. Providing guidance for external PG projects. Kalaam day ASCII
35	Other Extension Activities, if any	NSS, Youth cell Blood donation camp
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>		
36	New Equipment and Infrastructure Added	1. Digital multimeter 2. PC 3. Electrometer





		4. Public speaker system 5. FBG Interrogator
37	Justification for the use of these equipments	Used for various research works and practical's of curriculum.
38	Details of outcomes/publications after the institution of these equipments	The experiments are underway and expecting the results to be published soon.
39	e-class rooms (Number & Usage)	5, Fully utilized by staff and students.
40	Computer labs ( No. of labs & working systems)	Computer lab: 2 Working systems: 10
41	Access timings of the Library	9AM – 4PM. (With 1 hour lunch break)
42	No. of Printed Books/ No. of Printed Books Added during the assessment period	-
43	e- Resources & e-Journals	E resources and E journals are accessed from Central library.
44	Facilities for disabled students	Availed. A ramp is provided to enter the department. A sick room is there at the ground floor itself.
45	Maintenance of drinking water	Water coolers are provided. During exam times drinking water is provided in the class room.
46	Maintenance of Sanitation	Perfectly maintained
47	Rest room for women students	2 rooms are available
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>		
48	Availability of a system for student support and mentoring	Students are grouped and a faculty is associated with each group for the close monitoring of their academic and performance improvement (SPIG). Students are encouraged to do their projects by utilizing external recourses too. An active PTA exists for student support. Students are always supported by the alumni group.
49	Student Aid Fund/ Endowments etc.	<ul style="list-style-type: none"> <li>● KSCSTE</li> <li>● CSIR</li> <li>● SAF CUSAT</li> </ul>
50	Placement Details	
	No of students applied	32
	No of students placed	08
51	No. of students qualified in the following examinations	3
	NET	-
	SET/SLET	-
	GATE	2
	CAT	-
	IAS/IPS etc.	-
	UPSC	-

	State PSC	-
	Others (KSCSTE )	1
<b>VII-INNOVATIONS AND BEST PRACTICES</b>		
52	Best practices followed by the Department	<ol style="list-style-type: none"> <li>1. Staff meeting held before and after of each internal exam.</li> <li>2. Weekly once meeting of SPIG</li> <li>3. Maintenance of proper registers for all activities /heads in the department</li> <li>4. Kalam day is organized for school students in memory of Dr. APJ Abdul Kalam and same day introduces department labs and facilities to them.</li> <li>5. Students are encouraged to participate both curricular and extra- curricular programmes.</li> <li>6. Students were participated and secured prizes in various cultural and Sports meet organized by CUSAT.</li> </ol>
53	Innovative practices followed by the Department	<ol style="list-style-type: none"> <li>1.National seminar on ADVANCES IN SCIENTIFIC &amp; INDUSTRIAL INSTRUMENTATION (ASCI) is organized with the UGC assistance</li> <li>2.Students are planning to organize a programme called BACK TO CAMPUS</li> <li>3.Initiatives are taken by the students to conduct a technical fest</li> </ol>
54	Green Initiatives	<ol style="list-style-type: none"> <li>1. Planting of saplings in the department and in the campus on important occasions.</li> <li>2. Developed a hydroponics system.</li> <li>3. As a part of NSS several activities are conducted.</li> </ol>
55	Actions taken on recommendations made by the Peer Team during the previous NAAC visit	No specific comments
56	Strengths of the department	<ul style="list-style-type: none"> <li>• Adequate publications with good quality.</li> <li>• Updated and appropriate curriculum.</li> <li>• Strong alumni link.</li> <li>• Adequate laboratory and infrastructure facilities available.</li> </ul>
57	Weaknesses of the department	<ul style="list-style-type: none"> <li>• Permanent faculty staff inadequate.</li> <li>• Industry link needs to be improved</li> <li>• Technical personals with computer skill needed.</li> <li>• Extension activities need to be enhanced.</li> </ul>
58	Overall report & suggestion for improvement	<ul style="list-style-type: none"> <li>• Overall performance during the period is good.</li> <li>• Student's placement cell has to be activated.</li> <li>• Thrust may be given for collaborative and interdisciplinary research.</li> </ul>



## 2.15 School of Legal Studies

### External Experts:

Dr. Jayadevan V.R  
Professor  
NUALS (National University of Advanced Legal Studies)  
Kochi

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	<b>SCHOOL OF LEGAL STUDIES</b>		
2	No: of Full time Permanent Faculty	13(1 Asst. Professor + 12 Assistant Professor )		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	Nil		
5	No: of Guest Faculty	25		
6	No: of Academic Programmes	UG: 1) 5 year BBA LL.B (Hons) 2) 5 year B.Com LL.B (Hons) 3) 3 year LL.B (Regular-Evening) PG: 1. 2 year LL.M 2. One year LL.M		
7	No: of core courses and electives in each programme	UG - 80 Core, 31 Electives PG - 11 Core, 16 Electives		
8	Student Strength	UG: 420 PG : 102		
9	No: of Ph D Students	FT	7	PT 19
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	4	Needs Improvement	New areas of relevant laws
11	Information on curriculum revisions	4	Revised on September 2016	Needs revision in 2019
12	Add on Courses/ Skill Development Courses conducted	3		Activity based programme needed
13	Students feedback on Curriculum	2		need a formal method
III-TEACHING, LEARNING AND EVALUATION				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
14	Innovations in Teaching introduced	3	MOOC Courses offered	
15	Remedial Courses Conducted	4	Tutorials	Remedial lecturers should be scheduled

16	Use of Supplementary teaching tools and Application of ICT	4	Moodle	
17	Conduct of Internal Examinations	5	3 internal /Semester	
18	Result Analysis			
	UG		NA	
	PG	5	Yes	
19	Faculty Development Initiatives, if any	4		Refresher courses should be conducted
20	Students feedback on teaching, learning and evaluation	2		need a formal method
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	4	4	
22	No: of Ph D produced(2016-17)	0	0	Minimum 2 is advisable
23	Research Papers published during the assessment period			
	International	0	Nil	
	National	3	8	
24	Papers Presented during the Assessment Period			
	International		6	
	National		15	
	State		3	
25	Books Published			
	Single Author		3	
	Co Author		1	
26	Chapters in Books		3	to be promoted
27	Books Edited		2	to be promoted
28	Seminars/Workshops/Training Programmes Conducted			
	International		Nil	
	National		15	
	State		3	
29	Ongoing/ New MoU		Nil	
30	Research Collaborations		2 with District Legal Services Authority and United Nations Academic Impact	Should be encouraged
31	Awards/ Achievements/Recognitions of students and Teachers	5	UGC NET, Moot Court Competitions, MUN, HR Awards	
32	Ongoing and Newly implemented		Nil	



	research Projects – No, Outlay & Funding Agency			
33	Consultancy Services		Cochin University Legal Aid Clinic	
34	Subject/ Department Related Extension activities	5	MOOC Legal Aid Activities, PLV Services, Lok Adalath, Seminar for Bio-technology students from other colleges	
35	Other Extension Activities, if any		Aanukalikam - Interaction session with public, lawyers, students and media	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		Laptops	
37	Justification of the use of these equipments		Support Teaching and Research	
38	Details of outcomes/ publications after the institution of these equipments		Better class management	
39	e-classrooms (Number and Usage)	5	7	
40	Computer Labs (No: of labs and working systems)	0	Nil	
41	Access timings of the library	5	9am - 8 pm	
42	No: of printed books added during the assessment period		571	
43	e-resources and e-journals		SCC online, West Law Manupatra	
44	Facilities for disabled students	-	-	Lift and ramp facility to be introduced
45	Maintenance of drinking water	5	Yes	
46	Maintenance of sanitation	5	Yes	
47	Restroom for women students	5	Yes	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	5	Yes	

49	Student Aid fund/ Endowments etc.	4	Yes	
50	Placement details			
	No: of Students applied		10	
	No: of students placed		2	
51	No: of students qualified in the following examinations			
	NET		4	
	SET/SLET			
	GATE			
	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department	Syllabus revise every 3 years, CBCS system followed Around 7 activity clubs for extra curriculum activities Public Law Lecture conducted every year Strong Alumni Association Batch wise Open House Interdisciplinary electives		
53	Innovative Practices followed by the Department	ICT enabled teaching		
54	Green Initiatives	Reduced use of Paper & Plastics Planted fruit bearing trees and vegetables		
55	Actions taken on the recommendations made by the peer team during NAAC visit	1. Steps taken for publishing Cochin University Law Review (CULR)		
56	Strengths of the Department	1. Young and vibrant Faculties 2. Good Library 3. Student Internship at Law Firms and bodies like NHRC, Competition Commission, KELSA, SEBI 4. Cordial relations with teachers and non-teaching staff, students and alumni, teachers and alumni		
57	Weaknesses of the Department	1. Senior Faculty positions vacant. 2. Shortage of building space for classes		
58	Overall Report and Suggestions for Improvement	1. More Faculty Recruited 2. More classrooms are required 3. Proper parking facilities should be made available		



## 2.16 School of Management Studies

### External Experts:

1. Dr. Sushanta Kumar Mahapatra  
Professor, Department of Management Studies  
Amrita Vishwavidyapeedam
  
6. Dr. V. Ambili Kumar  
Professor  
School of Management & Entrepreneurship  
KUFOS, Panangad

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of the Department	<b>SCHOOL OF MANAGEMENT STUDIES</b>			
2	No: of Full time Permanent Faculty	14			
3	No: of Adjunct Faculty	4			
4	No: of Contract Faculty	3			
5	No: of Guest Faculty	Nil			
6	No: of Academic Programmes	UG: Nil			
		PG: 2			
7	No: of core courses and electives in each programme	MBA FT - Core papers 20 Nos. & Electives - 7 Nos. MBA (PT) Core Papers - 20 Nos. & Electives - 7 Nos.			
8	Student Strength	UG: NA			
		Yearly Intake PG: 120+3 for MBA (FT) & 30 for MBA (PT)			
9	No: of Ph D Students	FT	32	PT	41
II-CURRICULAR ASPECTS					
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement	
10	Coverage of syllabus	5	Well structured/Up to date	Maintain regular updation	
11	Information on curriculum revisions	5	Well Revised based on market requirements	Organised Workshops	
12	Add on Courses/ Skill Development Courses conducted	4	Well conducted	Introduce B2B related rural marketing	
13	Students feedback on Curriculum	5	Highly satisfactory	Online tracking for Feedback	
III-TEACHING, LEARNING AND EVALUATION					
	Criteria				
14	Innovations in Teaching	The School conducts Management Development Programmes and			

	introduced	<p>undertakes Management Consultancy. The management development programmes in general are aimed at inducting personnel into more recent developments in their own specialized or allied areas, so that they would be able to develop a wider perspective.</p> <p><b>Methods of Instructions</b></p> <p>The School employs different methods of instructions viz, lectures, case studies, seminars, role-plays, syndicates, field work etc. At the end of the third semester the students (F.T) are required to attach themselves to an organization for a period of eight weeks and prepare a project report on a problem related to the working of the organisation.</p> <p>The unique programmes offered by the School aim at developing the personality of students and sharpening their oral and written communication skills.</p> <p>The school practices new and innovative teaching methods including PowerPoint presentations for the MBA Courses. Simulations, Management Games, Interactive videos, Guest Lecturers from Industry and Academia. Moreover the students are also permitted to attend webinars presented by international and veteran experts on emerging and state of the art topics in their curriculum.</p> <p>The teachers employ all the latest available teaching methods in order to make the curriculum interesting and their teaching effective. For all the programmes except Ph.D., lecture method is the main pedagogy to teach foundations and fundamentals. However, sufficiently advanced topics are given as assignments to encourage students to do literature survey and come up with book and article reviews. Further, students have to make presentations, class room seminars, case studies and case discussions on relatively new and advanced topics so that they are given exposure to new topics, understand situational applications of theoretical concepts as well as get an opportunity to develop their communication and presentation skills.</p>
15	Remedial Courses Conducted	Need-based remedial classes given to individual student by teacher concerned. Counselling also given.
16	Use of Supplementary teaching tools and Application of ICT	Use of ICT is encouraged. Multi-disciplinary endeavours are encouraged for faculty and students through collaboration with other Departments, project works, etc.
17	Conduct of Internal Examinations	Conducting Internal Examinations in each semesters / Viva Voce
18	Result Analysis	
	UG	N.A
	PG	
19	Faculty Development Initiatives, if any	Teachers attended many FDPs, Orientation Courses and the Refresher Courses periodically.
20	Students feedback on teaching, learning and evaluation	Students have seven to eight courses for a semester. Feedback forms are given to get students feedback about each Faculty Member and the course taught.





			Faculty Members are appraised with regard to the feedback given by the students. Students have opportunity to verify their scores for internal evaluation as well as semester end university examination. The results are finalised after students verify their scores gained by them and grievances, if any, are redressed.	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
21	No: of Research Guides in the Department		14	
22	No: of Ph D produced(2016-17)		14	
23	Research Papers published during the assessment period			
	International		47	
	National		17	
24	Papers Presented during the Assessment Period			
	International		9	
	National		17	
	State		-	
25	Books Published			
	Single Author		3	
	Co Author		1	
26	Chapters in Books		9	
27	Books Edited		2	
28	Seminars/Workshops/Training Programmes Conducted			
	International			
	National		1	
	State			
29	Ongoing/ New MoU			
30	Research Collaborations		Research Collaboration with *ICMAM *National Centre for Antarctic and Ocean Research *Virginia Institute of Marine Sciences *CNR - IBIM: Institute of Biomedicine and Molecular Immunology *Kerala State Pollution control Board *Technical University of Denmark	

			*Czech Polar Research Institute	
31	Awards/ Achievements/Recognitions of students and Teachers			
32	Ongoing and Newly implemented research Projects			
33	Consultancy Services			
34	Subject/ Department Related Extension activities			
35	Other Extension Activities, if any			
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added			
37	Justification of the use of these equipments			
38	Details of outcomes/ publications after the institution of these equipments			
39	e-classrooms (Number and Usage)			
40	Computer Labs (No: of labs and working systems)			
41	Access timings of the library			
42	No: of printed books added during the assessment period			
43	e-resources and e-journals			
44	Facilities for disabled students			
45	Maintenance of drinking water			
46	Maintenance of sanitation			
47	Restroom for women students			
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		The weak students are personally helped with by the Faculty Members. The socially weaker sections are given attention in academic as well as financial matters by the Alumni through training, mentoring and contributions.	
49	Student Aid fund/ Endowments etc.		(1) SMS 80 Foundation gives Scholarships	



			Yearly (2) Mahindra Finance Scholarship (3) University gives aid from the students aid fund (4) PTA merit Scholarship to toppers	
50	Placement details			
	No: of Students applied		110	
	No: of students placed		98	
51	No: of students qualified in the following examinations			
	NET		5 (approx.)	
	SET/SLET		NA	
	GATE		NA	
	CAT		All (MBAs)	
	UPSC		IRS - 1 (Jayakanth C.V.)	
	State PSC		Normally our MBA students do not try SPSC for lower end posts.	
	Others		NA	
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>			
52	Best practices followed by the Department		<ul style="list-style-type: none"> <li>*Go Green Programme - To promote environmental consciousness among students and public</li> <li>* Students mentoring by Alumni - 80 Foundation</li> <li>*Democratic governance through DCM, Research Committee, PTA, Alumni Association, Class Representatives, Class Faculty Co-ordinators, etc.</li> </ul>	
53	Innovative Practices followed by the Department		<ul style="list-style-type: none"> <li>*Involving Retired Teachers in SMS activities, Faculty club, Lateral Mentoring by Students mentoring themselves</li> <li>*Talent time (Management Fest)</li> <li>*Managerial Skill Development (A Non-Credit paper during I and III Semester where group of teachers train the students in Managerial Skills and also outside experts are brought).</li> <li>*Periodically, Senior Alumni in Top *Management Position are brought for Guest Lectures.</li> <li>*A 10 days Intensive Induction Training Programme for the fresher's.</li> <li>*Class room assignments linked to practical issues of the organizations.</li> <li>*Case study methods are adequately used in class room teachings.</li> </ul>	
54	Green Initiatives		*Avoidance non bio-degradable articles during all functions in	

		<p>SMS.</p> <p>* A Full Credit paper on Environment Management is taught in the IV semester.</p> <p>* Recently the students of this paper made a short film on Waste Management which was highly appreciated by our Hon'ble Vice Chancellor.</p> <p>* This was one of the main attractions in Sasthayaan 2018.</p>
55	Actions taken on the recommendations made by the peer team during NAAC visit	No adverse comments from NAAC team. They are impressed by the quality publications of the Faculty Members.
56	Strengths of the Department	<p>* Academic Autonomy for Teachers</p> <p>* The first B-School in Kerala.</p> <p>* Close Interaction with Professional Bodies like KMA, ISTD, KSPC, NIPM etc.</p> <p>* The first B-School to start EDP(1972)</p> <p>* A large contingent of Doctoral Scholars</p> <p>* All the Faculty members have Ph.D.</p> <p>* Largest PG Department in CUSAT</p> <p>* 100% Placement.</p> <p>* Strong Alumni Network.</p> <p>* WiFi Enables Building</p> <p>* Providing a Holistic Development of the Students</p> <p>* Providing inter-disciplinary electives for both internal and external students</p> <p>* Strong PTA</p> <p>* Offers one of the highest ROI for students</p>
57	Weaknesses of the Department	(1) Lack of Space (2) Lift for disabled categories (3) Facelift for entrance
58	Overall Report and Suggestions for Improvement	<p>1. Impressive Department Profile</p> <p>2. The School is doing well in the Curricular aspects.</p> <p>3. The teaching methods Learning Ecosystem and evaluation efforts are at par with best institutions of this category.</p> <p>4. The School is doing extremely well in research, training and consulting areas.</p> <p>5. The Department has a strong innovations and best practices that can be emulated by others</p> <p>Suggestions for Improvement:</p> <p>1. The system for supporting weak students and remedial coaching to be improved.</p> <p>2. Facilities for research scholars to be enhanced.</p>



## 2.17 Department of Marine Biology, Microbiology & Biochemistry

### External Experts:

1. Dr. S. Suresh Kumar  
Professor & Director  
School of Ocean Science and Technology
2. Dr. V.N Sanjeevan  
Former Director, CMLRE &  
Professor Chair, CARMAC, KUFOS

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	MARINE BIOLOGY, MICROBIOLOGY & BIOCHEMISTRY		
2	No: of Full time Permanent Faculty	7		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	1		
5	No: of Guest Faculty	1		
6	No: of Academic Programmes	UG: Nil PG: 2		
7	No: of core courses and electives in each programme	1) M.Sc Marine Biology - Core - 18 Elective-14 2) M.Phil Life Sciences - Core - 4 Elective-4		
8	Student Strength	UG: NA PG: 53		
9	No: of Ph D Students	FT	64	PT 20
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus		<b>Sufficient</b> Entire syllabus is covered during the 5 month period.	Encourage students to explore Library facilities
11	Information on curriculum revisions		<b>Updation of syllabus in 3 or 4 years is sufficient</b> *M.Sc Marine Biology - Revised in 2017 *M. Phil Life Sciences - Revised in 2016	
12	Add on Courses/ Skill		Final Semester the	1. Summer internship in

	Development Courses conducted		students spent six months exclusively for Project work.	other institutions may be encouraged 2. Workshops should be extended to PG students
13	Students feedback on Curriculum		Alumni feedback was collected for curriculum revision. For this a curriculum revision workshop was conducted and the inputs from Alumni were incorporated and revised the syllabus in 2017 which will be effective from 2018 admission onwards.	
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced		<b>Sufficient</b> * Power point presentations are mainly done. * Assignments are given to all the students on various topics and marks awarded * Seminars are taken by students on various topics and marks are awarded * Case studies are provided and reports are assessed * Students are taken to the field for ecological and aquaculture studies.	Weightage for Seminar presentation may be increased
15	Remedial Courses Conducted		Teachers provide sufficient time to clear doubts of the students after teaching hours Special attention given to weak students After Lecture , the teachers interact with the students and rectify their doubts/queries	
16	Use of Supplementary teaching		Desktop Computer with	Online tutorials may be



	tools and Application of ICT		projector facility is made available in all the class rooms	made available in Library / Class
17	Conduct of Internal Examinations		<p><b>Sufficient</b></p> <p>A minimum of two Continuous Evaluation tests are conducted for each paper as per the academic calendar.</p>	<p>Weightage for Exams should be reduced to 25 Marks. Scoring for Internal Assessment may be made more rational</p> <p>Exam = 25, Assignment/Seminar = 5, Attending Seminar / Symposia / Conference = 5, Summer internship = 5, Attendance = 5, Overall performance = 5</p>
18	Result Analysis			
	UG	NA		
	PG		<p><b>Sufficient</b></p> <p>Answer papers are valued and given back to the students for verification. Grievances, if any is taken care of and rectified.</p> <p>Continuous Assessment - 50 marks Written test - 20 + 20 = 40 Seminar - 5 Assignment - 5 End Semester examination - 50 marks</p> <ol style="list-style-type: none"> <li>For End Semester Examination also, after valuation the mark sheets are given to the students if requested and grievances if any are rectified.</li> <li>Moderation (5 marks) is given wherever necessary.</li> <li>Re-test is conducted for those who fail in any paper (as per University guidelines)</li> </ol>	
19	Faculty Development Initiatives, if any		1. Start up grant given by the University is utilized by the newly recruited	1. Faculty may be deputed to Overseas Institutes / Labs on

			<p>faculty in a very effective way to initiate research.</p> <p>2. Desktop computers with internet facility is given to all faculty members in order to facilitate their Teaching/ research programmes.</p> <p>3. M. Sc students are allotted to the newly recruited Faculty members for supervision to initiate research programmes leading to the formulation of bigger projects.</p>	<p>rotation basis</p> <p>2. Faculty exchange may be promoted.</p>
20	Students feedback on teaching, learning and evaluation		Students' feedback is collected; however it is not consolidated and evaluated.	Student's feedback is collected every semester end and based on those corrections/ modifications are made by the faculty to improve Teaching, Learning and Evaluation. Feedback should be consolidated by the Head and grading for each point has to be discussed with the faculty for improvement.
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		8	
22	No: of Ph D produced(2016-17)		22	
23	Research Papers published during the assessment period		59	
	International		42	
	National		15	
24	Papers Presented during the Assessment Period		49	
	International		12	
	National		29	
	State		7	





25	Books Published		1	
	Single Author			
	Co Author			
26	Chapters in Books		6	
27	Books Edited			
28	Seminars/Workshops/Training Programmes Conducted		2	
	International			
	National		2	
	State			
29	Ongoing/ New MoU		1	
30	Research Collaborations		8	
31	Awards/ Achievements/ Recognitions of students and Teachers		5	
32	Ongoing and Newly implemented research Projects		16	
33	Consultancy Services		2	
34	Subject/ Department Related Extension activities		1	
35	Other Extension Activities, if any		1	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		1.Microplate Reader 2.PCR machine	
37	Justification of the use of these equipments		For all spectrophotometric assays including enzyme assays, immunological assays,	
38	Details of outcomes/ publications after the institution of these equipments		1.Microplate Reader- 5 Nos 2.PCR machine- 6 Nos	
39	e-classrooms (Number and Usage)		3 Nos . Fully Utilized	
40	Computer Labs (No: of labs and working systems)		1 & 10 Systems	
41	Access timings of the library		9.30 am to 4.30 pm	
42	No: of printed books added during the assessment period		There is No Dept. Library. Common library facility available for School of Marine Sciences	
43	e-resources and e-journals		Science direct Access available	

44	Facilities for disabled students		Steps are taken for the implementation of the facilities for disabled students	
45	Maintenance of drinking water		Aquaguard water with Cooler facility available	
46	Maintenance of sanitation		Well maintained Sanitation facility with Incinerator	
47	Restroom for women students		Rest Room facility is available with 4 beds 1 central table and 5 chairs	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		Students are allotted with an Advisor in the first semester itself for support and mentoring. 2) Moreover each Semester there is a Coordinator who will look after the theory classes, practical's and the examinations in that semester and give necessary guidance to the students	
49	Student Aid fund/ Endowments etc.		Available from the University	
50	Placement details		NIL	Placement cell may be strengthened and make it functional
	No: of Students applied		Not availed the facility	
	No: of students placed			
51	No: of students qualified in the following examinations			
	NET		1. Anurag, CSIR-NET (November 2017) 2. Nidya Kottai 3) Nivya	
	SET/SLET			
	GATE			
	CAT			
	UPSC			



	State PSC		2	
	Others		1	
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>			
52	Best practices followed by the Department	<ul style="list-style-type: none"> <li>• Syllabus- Portions to be handled are allotted to the Teachers at the beginning of the Semester itself</li> <li>• Often three to four tests are conducted as a part of Continuous assessment</li> <li>• Each student is allotted a student advisor</li> <li>• Coordinator is nominated in each semester who will monitor the conduct of the theory and practical classes</li> <li>• Invited lectures are conducted regularly by experts in marine biology</li> <li>• At least one Seminar is being conducted every year in an emerging area in Marine Biology</li> <li>• A five day workshop on statistical software and computational tools are also being conducted for Research Scholars in Marine Biology every year.</li> </ul>		
53	Innovative Practices followed by the Department	<ul style="list-style-type: none"> <li>• A Society of Marine Biologists (SOMB) is functioning under the Department. Lectures by eminent marine biologists are arranged regularly. Students participate in awareness programmes among fishermen community.</li> <li>• Students are taken on field visit to Lakshadweep Islands as a part of the Curricula. They are trained in snorkelling , scuba diving, underwater surveys and biodiversity assessment</li> <li>• Marine Biology Alumni Association (MBAA) is active in the Department. Students are benefitted by interaction with the seniors</li> </ul>		
54	Green Initiatives	<ul style="list-style-type: none"> <li>• Poster printing is done only on paper</li> <li>• A garden is being maintained by the initiation from the Department.</li> <li>• Separate waste bins are being kept for waste disposal with respect to Paper, Plastic and Food items</li> <li>• Fruit trees and shade trees are being planted in the campus</li> </ul>		
55	Actions taken on the recommendations made by the peer team during NAAC visit	NAAC appreciated the Department for its achievements		
56	Strengths of the Department	<ul style="list-style-type: none"> <li>• Externally funded projects</li> <li>• Dedicated and skilled faculty</li> <li>• Well established labs with modern equipments</li> <li>• Proximity to back water/Sea for field studies</li> <li>• Presence of other Departments in the School of Marine Sciences for interdisciplinary studies</li> <li>• Presence of Central Government Institutions like CMFRI, CIFNET, CIFT, NIO and CMLRE in Cochin for knowledge exchange and collaborative studies.</li> <li>• Marine Biology Alumni Association (MBAA)</li> </ul>		

		<ul style="list-style-type: none"><li>• Society of Marine Biologists (SOMB)</li></ul>
57	Weaknesses of the Department	<ul style="list-style-type: none"><li>• Space constraints</li><li>• Lack of Animal House for testing bioactive molecules</li><li>• Lack of Liquid nitrogen plant</li><li>• Lack of Generator Facility during power failure</li><li>• Lack of Girl's Hostel in the campus for Research Scholars</li><li>• Lack of Guest house in the campus</li><li>• Lack of a Cafeteria in the campus</li></ul>
58	Overall Report and Suggestions for Improvement	



## 2.18 Kunjali Marakkar School of Marine Engineering

### External Experts:

1. Dr. Shine U P  
Associate Professor in ME, College of Engineering Adoor,  
Manakkala P O, Kerala
2. Dr. Rajesh V G  
Associate Professor in ME, College of Engineering, Cherthala

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	KUNJALI MARAKKAR SCHOOL OF MARINE ENGINEERING		
2	No: of Full time Permanent Faculty	1		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	9		
5	No: of Guest Faculty	16		
6	No: of Academic Programmes	UG: 1		
		PG: 1		
7	No: of core courses and electives in each programme	<b>UG:</b> B.Tech Marine Engineering Core:69, Elective:1 <b>PG:</b> M.Tech Marine Engineering Core:15, Elective:4		
8	Student Strength	UG: 298		
		PG: 16		
9	No: of Ph D Students	FT	64	PT 20
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus			
11	Information on curriculum revisions		Last revision for B.Tech Marine Engineering done in 2013	
12	Add on Courses/ Skill Development Courses conducted		*Engine room Simulation Management Level *Engine room Simulation operational Level	

			*Fire fighting training	
13	Students feedback on Curriculum			
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced			
15	Remedial Courses Conducted		Extra classes conducted for weaker students	
16	Use of Supplementary teaching tools and Application of ICT		*Ship-in-campus *Machine overhauling *Full mission engine room simulator *SCADA	
17	Conduct of Internal Examinations			
18	Result Analysis			
	UG	<b>Semester</b>	<b>Pass percentage</b>	
		I & II	61%	
		III	56%	
		IV	Awaiting Results	
		V	53%	
		VI	Awaiting Results	
		VII	100%	
		VIII	Awaiting Results	
	PG	I	100%	
		II	Awaiting Results	
		III	100%	
		IV	Awaiting Result	
19	Faculty Development Initiatives, if any	<b>Course Name</b>	<b>Number of faculties undergone training</b>	
		TOTA	9	
		Online MOOCs	1	
20	Students feedback on teaching, learning and evaluation		Obtained from students during every semester	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department			
22	No: of Ph D produced(2016-17)			



23	Research Papers published during the assessment period			
	International			
	National			
24	Papers Presented during the Assessment Period			
	International			
	National			
	State			
25	Books Published			
	Single Author			
	Co Author			
26	Chapters in Books			
27	Books Edited			
28	Seminars/Workshops/Training Programmes Conducted			
	International		1	
	National		1	
	State		1	
29	Ongoing/ New MoU			
30	Research Collaborations			
31	Awards/ Achievements/Recognitions of students and Teachers		Outstanding contribution to maritime education and training by Ministry of shipping, Govt. Of India	
32	Ongoing and Newly implemented research Projects			
33	Consultancy Services			
34	Subject/ Department Related Extension activities		*Ship-in-Campus training for Indian Maritime University VIIIth Semester students. *Simulation training given to students from Cochin Shipyard	
35	Other Extension Activities, if any		<b>Name of Activity</b>	<b>Trainees</b>
			*Ship-in-campus visit *Marine Technology comprising of theory classes and practical's in ship-in campus, Marine Engineering overhauling shop and full mission engine room simulator *Five days short-term	School Students VHSE Teachers  Naval Dockyard craft

			training course in marine diesel engine plant and full mission engine room simulator	crew
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Equipment /Infrastructure</b>	<b>Status</b>
36	New Equipments and Infrastructure added		<b>Equipment /Infrastructure</b> *Welding Booth *Electronics Laboratory *Indoor models for depicting four pillars of IMO *Indoor working model of ship davit *Indoor ship model for inclining experiment *Acoustic fire fighting equipments *Electrocoalescer *Oil-water separation using micro bubbles *Sound pollution mitigation *Swimming Pool	Functioning Functioning Functioning Functioning Functioning Functioning Functioning Functioning Functioning Proposed
37	Justification of the use of these equipments			
			<b>Equipment /Infrastructure</b>	<b>Justification</b>
			*Welding Booth	To train welding for the first, fifth and seventh semester students as part of curriculum which is compulsory for shipping career.
			*Electronics Laboratory	To train basic electronics for the first year UG students as part of curriculum
			*Indoor models for depicting four pillars of IMO	To train four pillars of IMO
			*Indoor working model of ship davit	Part of curriculum





			*Indoor ship model for inclining experiment	Part of curriculum
			*Acoustic fire fighting equipments	fire fighting training
			*Electrocoalescer	Part of curriculum
			*Oil-water separation using micro bubbles	Part of curriculum
			*Sound pollution mitigation	Part of curriculum
			*Swimming Pool	To train swimming for the students as per the instruction from DG shipping
38	Details of outcomes/publications after the institution of these equipments			
			<b>Equipment /Infrastructure</b>	<b>Outcomes/ Publications</b>
			*Welding Booth	Students are well trained in welding without sharing the facilities from outside the campus
			*Electronics Laboratory	Students are well trained in basic electronics without sharing the facilities from outside the campus
			*Indoor models for depicting four pillars of IMO	Pedagogy with the aid of models
			*Indoor working model of ship davit	Pedagogy with the aid of models
			*Indoor ship model for inclining experiment	Pedagogy with the aid of models
			*Acoustic fire fighting equipments	Pedagogy with the aid of models
			*Electrocoalescer	Pedagogy with the aid of models
			*Oil-water separation using micro bubbles	Pedagogy with the aid of models
			*Sound pollution mitigation	Pedagogy with the aid of models
			*Swimming Pool	Students will be well trained in swimming without sharing the

				facilities from outside the campus
39	e-classrooms (Number and Usage)		Class rooms for undergraduate students-8 Class rooms for Post graduate students- 1 Drawing Hall- 1 Seminar Hall -1	
40	Computer Labs (No: of labs and working systems)		50	
41	Access timings of the library		9:00 AM to 4:00 PM	
42	No: of printed books added during the assessment period		658	
43	e-resources and e-journals		9	
44	Facilities for disabled students		N/A (Disabled students are not eligible for admission in Marine Engineering courses.)	
45	Maintenance of drinking water		Water coolers are maintained in each floors of the college and hostel buildings	
46	Maintenance of sanitation		*Sewage treatment plant for hostel- 1 *bio-gas plant- 1 *Toilets maintained in the college building- 16 *Toilets maintained in the hostel building- 46 *Bathrooms maintained in the hostel building- 80	
47	Restroom for women students		1	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		Available	
49	Student Aid fund/ Endowments etc.			
50	Placement details			
	No: of Students applied		69	
	No: of students placed		13	
51	No: of students qualified in the following examinations			
	NET			



	SET/SLET		
	GATE		
	CAT		
	UPSC		
	State PSC		
	Others		
<b>VII-INNOVATIONS AND BEST PRACTICES</b>			
	<b>Criteria</b>		
52	Best practices followed by the Department	<ul style="list-style-type: none"> <li>*English Learning by courses by Cochin University department of English and foreign languages</li> <li>*Use of Language Lab</li> <li>*Use of models in class room training</li> </ul>	
53	Innovative Practices followed by the Department	<ul style="list-style-type: none"> <li>*Seminar presentations on relevant maritime topics</li> <li>*Indoor models for depicting four pillars of IMO</li> <li>*Indoor working model of ship davit</li> <li>*Indoor ship model for inclining experiment</li> <li>*Innovative projects (Acoustic fire fighting equipments, electrocoalescer, oil-water separation using micro bubbles)</li> <li>*Research exposure with sound pollution mitigation, emission control</li> </ul>	
54	Green Initiatives	<ul style="list-style-type: none"> <li>*Landscaping</li> <li>*Recycled water from STP used for gardening</li> <li>*Sewage treatment plant</li> <li>*Bio-gas plant ( slurry used as fertilizers for gardening)</li> </ul>	
55	Actions taken on the recommendations made by the peer team during NAAC visit	NAAC peer team has complimented KMSME as one of the best departments	
56	Strengths of the Department	<ul style="list-style-type: none"> <li>*Faculties are well qualified and experienced personals with industry exposure</li> <li>*Regular placements of students with reputed companies</li> <li>*Relationship with reputed shipping industries and authorities.</li> </ul>	
57	Weaknesses of the Department	<ul style="list-style-type: none"> <li>*Insufficient faculty members</li> <li>*Lack of swimming pool</li> <li>*Lack of an auditorium</li> <li>*Lack of Machine Shop</li> <li>*Lack of Thermal Lab</li> <li>*Lack of Electrical machine Lab</li> </ul> <p><b>suggestions for improvement:</b></p> <ul style="list-style-type: none"> <li>*Need to improve the strength of permanent faculty in the department.</li> <li>*Infrastructural facilities especially Labs mentioned under weakness to be setup on campus</li> <li>*All faculties should be given training in pedagogy offered in premier institutions</li> </ul>	
58	Overall Report and Suggestions for Improvement	Existing facilities are excellent and best utilized	

## 2.19 Department of Marine Geology and Geophysics

### External Experts:

1. Dr. A.C Narayana  
Professor.UCESS, University of Hyderabad
2. Dr. Jayaprakash C  
Former Director, GSI

I-DEPARTMENT PROFILE				
1	Name of the Department	DEPARTMENT OF MARINE GEOLOGY AND GEOPHYSICS		
2	No: of Full time Permanent Faculty	6 Nos (One faculty retired in April 2017)		
3	No: of Adjunct Faculty	1		
4	No: of Contract Faculty	Nil		
5	No: of Guest Faculty	3		
6	No: of Academic Programmes	3		
7	No: of core courses and electives in each programme	M.Sc. Marine Geology-Core: 25, Elective:15 M.Sc. Marine Geophysics- Core: 24, Elective:10		
8	Student Strength	PG: 42 (2016-17) 47 (2017-18)		
9	No: of Ph D Students	FT	7	PT 8
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	4	3	
11	Information on curriculum revisions	4	4	
12	Add on Courses/ Skill Development Courses conducted	3	-	
13	Students feedback on Curriculum	4	4	
III-TEACHING, LEARNING AND EVALUATION				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
14	Innovations in Teaching introduced			
15	Remedial Courses Conducted		So far no remedial courses were required	
16	Use of Supplementary teaching tools and Application of ICT		* All the class rooms are supported with LCD Projectors and Wi-Fi.	ICT tools may be used only as supplementary



			* Interactive white board is also used as a teaching tool	
17	Conduct of Internal Examinations		100% internal	
18	Result Analysis			
	UG			
	PG		M.Sc. Marine Geology-100% M.Sc. Marine Geophysics-90%	
19	Faculty Development Initiatives, if any		No	
20	Students feedback on teaching, learning and evaluation		Feedbacks from students are collected at the end of a semester and are being discussed in the DCM. Remedial measures are taken before the commencement of next semester	Feedbacks seem to be extracted

**IV-RESEARCH, CONSULTANCY AND EXTENSION**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
21	No: of Research Guides in the Department		5	
22	No: of Ph D produced(2016-17)		1	Very less in number
23	Research Papers published during the assessment period			
	International		1	To be improved
	National		3	
24	Papers Presented during the Assessment Period			
	International			
	National			
	State			
25	Books Published			
	Single Author			
	Co Author			
26	Chapters in Books			
27	Books Edited			
28	Seminars/Workshops/Training Programmes Conducted			
	International			
	National		1	
	State			

29	Ongoing/ New MoU		Nil	
30	Research Collaborations		1	
31	Awards/ Achievements/Recognitions of students and Teachers		Nil	
32	Ongoing and Newly implemented research Projects		6 Lakhs, UGC-BSR startup 32 Lakhs DST-SERB	
33	Consultancy Services		1	
34	Subject/ Department Related Extension activities		Lecturers on various aspects of Earth Science were delivered in schools, colleges and research institutes. One of the faculty is in the District Environmental Assessment Committee Ernakulam District	
35	Other Extension Activities, if any			
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>		
36	New Equipments and Infrastructure added			
37	Justification of the use of these equipments			
38	Details of outcomes/ publications after the institution of these equipments			
39	e-classrooms (Number and Usage)			
40	Computer Labs (No: of labs and working systems)		1,22	
41	Access timings of the library		No separate Library for the Department	
42	No: of printed books added during the assessment period		NA	
43	e-resources and e-journals		NA	
44	Facilities for disabled students		No students so far under this category	
45	Maintenance of drinking water		One water purifier is maintained in the Department. Regular cleaning of the filters is ensured.	
46	Maintenance of sanitation		Department is well kept, neat and tidy and proper cleanliness is	



			strictly maintained.	
47	Restroom for women students		Common with school of Marine Science	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
48	Availability of a system for student support and mentoring		Every class has a course – coordinator who is in charge of the academic guidance of the students of that class	
49	Student Aid fund/ Endowments etc.			
50	Placement details			Steps to be initiated for campus placement
	No: of Students applied		22	
	No: of students placed		0	
51	No: of students qualified in the following examinations			
	NET			
	SET/SLET			
	GATE		3	
	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	Criteria			
52	Best practices followed by the Department		Examination results are announced immediately within a week after the exams	
53	Innovative Practices followed by the Department		Field trips and conduct and participation of seminars and symposia	
54	Green Initiatives		Plastics or disposable items are banned in meeting and functions of the Department, keeping the department clean and eco friendly	
55	Actions taken on the recommendations made by the peer team during NAAC visit			
56	Strengths of the Department		<ul style="list-style-type: none"> <li>*Good Academic Curricula to enable the students in various competitive exams in the fields of Earth and Planetary Science.</li> <li>*Available faculties in the department are well experienced and from various fields of specialization</li> <li>*High mobility of faculty</li> <li>*Well equipped Labs for Mineralogy, Petrology, Sedimentology, Marine geology and Geophysics</li> <li>*exposure for students to various National Labs and Institutes</li> </ul>	

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		through, Summer internships and Dissertation projects *Participation of students in Research cruises *Good Student- Teacher relationship
57	Weaknesses of the Department	*Inadequate facility strength. *Space constraints to equip more sophisticated equipments. *Non availability of research vessel to give onboard training to the students *Non availability of field vehicle to carry students for field work
58	Overall Report and Suggestions for Improvement	Lot of scope for the Department to improve





## 2.20 Department of Mathematics

### External Experts:

1. Dr. M.P. Rajan  
Professor and Dean  
Indian Institute of Science Education and Research (IISER)  
Thiruvananthapuram
2. Dr.K S S Moosath  
Dept. of Mathematics  
IIST, Trivandrum.

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE					
1	Name of the Department	DEPARTMENT OF MATHEMATICS			
2	No: of Full time Permanent Faculty	5			
3	No: of Adjunct Faculty	1			
4	No: of Contract Faculty	2			
5	No: of Guest Faculty	Nil			
6	No: of Academic Programmes	UG:- PG: 2			
7	No: of core courses and electives in each programme	UG: - PG: M.Sc: Core- 14, Elective- 4 M.Phil: Core- 4, Elective- 1			
8	Student Strength	UG: Nil PG:83			
9	No: of Ph D Students	FT:20 PT:16			
II-CURRICULAR ASPECTS					
	Criteria		Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	Expert 1	4	Fine	More computational courses can be offered
		Expert 2	4	Need to revise	To be balanced
11	Information on curriculum revisions	Expert 1	4	Fine	
		Expert 2	5	Every 3 years it is revised	Fine
12	Add on Courses/ Skill Development Courses conducted	Expert 1	5		More computational course may be provided

		Expert 2	4	Computational Math lab course is offering	Expose students to applications through invited lecturers
13	Students feedback on Curriculum	Expert 1	4		1.Better to make it online so that analysis can be done easily 2.Provision may given to the students for expressing their opinion and remarks
		Expert 2	3		The suggestions from student representative can be taken into account for self evaluation and improvement. The feedback obtained through this mechanism at these stages is more effective than taking at the end although it is mandatory to collect the feedback from the students at the end of the course which will be helpful of improvement in the future.
<b>III-TEACHING, LEARNING AND EVALUATION</b>					
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>	
14	Innovations in Teaching introduced	4			
15	Remedial Courses Conducted	4	It is noted that remedial classes are provided to weak student which is very good and appreciating the faculty members for doing that extended help.		
16	Use of Supplementary teaching tools and Application of ICT	4			
17	Conduct of Internal Examinations	5	Two tests & Assignment/		



			seminars/ Quizzes	
18	Result Analysis			
	UG			
	PG	4	M.Sc.- 67% M.Phil -100%	
19	Faculty Development Initiatives, if any	5	Research collaboration workshops, seminars were conducted	
20	Students feedback on teaching, learning and evaluation	4		The suggestions from student representative can be taken into account for self evaluation and improvement. The feedback obtained through this mechanism at these stages is more effective than taking at the end although it is mandatory to collect the feedback from the students at the end of the course which will be helpful of improvement in the future.

**IV-RESEARCH, CONSULTANCY AND EXTENSION**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
21	No: of Research Guides in the Department	10		More regular faculty to be appointed
22	No: of Ph D produced(2016-17)	4	Good	
23	Research Papers published during the assessment period	4	Good	
	International			
	National			
24	Papers Presented during the Assessment Period	4	Good	
	International			
	National			
	State			
25	Books Published	4	Good	
	Single Author			
	Co Author			
26	Chapters in Books	4	Good	
27	Books Edited			
28	Seminars/Workshops/Training Programmes Conducted	4		
	International		1	
	National			

	State		1	
29	Ongoing/ New MoU			
30	Research Collaborations	4	Foreign	
31	Awards/ Achievements/Recognitions of students and Teachers	4	Awarded Kerala State Young Scientist Award by KSCSTE, SERB,OPDF	
32	Ongoing and Newly implemented research Projects	4		
33	Consultancy Services	4		
34	Subject/ Department Related Extension activities			
35	Other Extension Activities, if any	4	Olympiad, NBHM, RA Test MA/ M.Sc. Test	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	4	Smart Board and Sound System	
37	Justification of the use of these equipments	4	Smart Board is interactive and encourage active students participation	
38	Details of outcomes/ publications after the institution of these equipments	4		
39	e-classrooms (Number and Usage)	4		
40	Computer Labs (No: of labs and working systems)		1	
41	Access timings of the library	4	9.00am to 4.00pm	
42	No: of printed books added during the assessment period	4	424	
43	e-resources and e-journals	4	IP based internet access	
44	Facilities for disabled students	4	Separate entry is available in this Department for Physically disabled students	
45	Maintenance of drinking water	4	Two Water purifier is available in this Department One in the ground floor and one in the Top Floor	



46	Maintenance of sanitation	4	Hygienic	
47	Restroom for women students	4	One room in the Ground Floor	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		Observations and suggestions are given in the overall report	
49	Student Aid fund/ Endowments etc.	4	ABDI Memorial Scholarship & PTA	
50	Placement details	4		
	No: of Students applied		16	
	No: of students placed		2	
51	No: of students qualified in the following examinations		Observations and suggestions are given in the overall report	
	NET			
	SET/SLET			
	GATE			
	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>			
52	Best practices followed by the Department	<p><b>Name of Good Practices:</b> Display problems related to subject matter on the White Board placed in the first floor of the Department on daily basis.</p> <p><b>Objectives of the Practice:</b> A display board is provided in the Department in which problems of interest are exhibited and students are encourage to solve their problems and discuss their method of solving those problems to improve the problem solving ability of the students</p> <p><b>Describe the practice and its uniqueness:</b> Display problems daily and display solution in the next week</p>		
53	Innovative Practices followed by the Department			
54	Green Initiatives			
55	Actions taken on the recommendations made by the peer team during NAAC visit			
56	Strengths of the Department	<p>Expert 1: Existing faculty members are doing well. The faculty members of different expertise are available</p> <p>Expert 2: Young motivated faculty members with good research aptitude</p>		

57	Weaknesses of the Department	Number of regular faculty member are less and more expertise has to be added to the department
58	Overall Report and Suggestions for Improvement	Overall suggestion are given below
<p><b>Overall suggestion of the experts</b></p> <p>The department, during the assessment period , has 5 regular , 1 adjunct and 2 contract faculty members and offers MSc, MPhil and PhD courses.</p> <p>Based on the information provided by the department, the overall performance is reasonably good with recommended grade point as 4. However, it can be further improved by hiring more regular faculty members and increasing the number of research scholarship. The point wise recommendations are as follows.</p> <p><b>1. Curriculum Aspect</b></p> <p>The curriculum of the MSc programme is fine and noted that it is revised every 3 years. In the next revision, the following points may be considered for improvement. Mathematicians are of great demand in the modern world. Mathematics becomes more powerful when computing techniques are added to it. It is noted that the department offers certain applied courses to the students which is applaudable . The following elective courses may also be offered to the students if expertise is available.</p> <p>(i). Number theory and Cryptography  (ii). Programming and Data structures</p> <p>These courses would certainly help some of the students who are looking for job opportunity through placement cell as all the students may not be interested to go for higher studies.</p> <p>The syllabus of the MPhil/PhD research methodology course may cover a small unit on literature survey/Latex/How to write a research paper and ethics.</p> <p><b>2. Teaching, Learning and Evaluation</b></p> <p>The pass percentage can be improved. It is noted that remedial classes are provided to weak student which is very good and appreciating the faculty members for doing that extended help. The department may analyse the reason for 67% pass percentage during the assessment period and take necessary steps to help the students. It is advisable to have a faculty advisor for each batch of students and the class committee consists of Head, course teachers and the student representative(s) to analyse the academic performance of the class after each examination. The suggestions from student representative(s) can be taken into account for self evaluation and improvement. The feedback obtained through this mechanism at these stages is more effective than taking at the end although it is mandatory to collect the feedback from the students at the end of the course which will be helpful of improvement in the future. The department may also introduce merit based scholarship to the students. Faculty strength to be increased immediately with regular faculty appointments. A faculty member may be assigned as a class in charge for each class, which help the students in getting proper guidance in various academic matters.</p> <p>A class committee may be formed consisting of the class in charge, faculty members who handle the courses for that class and student representatives. This class committee may meet two times in a semester. First meeting just after the first internal exam to know how students are coping with each courses, also the load etc.. They can express all their concerns regarding the courses started in that semester. Second meeting maybe at the end of the semester in which they can give a feedback about the courses in that semester. M. Sc pass percentage to be improved. Proper monitoring of backlogs and timely mentoring may help the students to improve the performance.</p> <p><b>3. Research and Consultancy</b></p> <p>This aspect is satisfactory as many faculty members have external research funding. But being a University department, it must have more regular faculty members then only research and consultancy can be enhanced. It is advisable to hire more regular faculty members and accordingly the</p>		



number of PhD research scholarships can be increased. Those Ph D students who completed three years may be made to give a research seminar in the department annually. Collaboration with industry and other research institutes around may be encouraged.

**4. Learning Resources**

The department is proactive in maintaining the resources by providing facilities such as smart classroom and library with e-journals and e-resources for knowledge enhancement and research.

**5. Extension activities and Best practices**

Student oriented workshops may be organised. Displaying problems on daily basis is a good practice and that would improve the problem solving skills and research curiosity in students.

**6. Basic Amenities and Green Initiatives**

It is noted that there is a student support system in the department for financial aid for needy students. This initiative is certainly would help students from different socio-economic backgrounds. It is also noted that many students are passing the CSIR-UGC examination that also indicates the number of students interested for higher studies/research from the department. Other basic infrastructure such as drinking water facility, toilet and facility for disabled students are satisfactory.







			2. Revamped the Ph. D Coursework curriculum and new core courses introduced based on the respective research area.	
12	Add on Courses/ Skill Development Courses conducted	3	1. Mr. Shiju Prasad , sixth semester M.Sc. student conducted a workshop on <b>"Become a python expert"</b> in ISP, CUSAT on 26/10/2017) 2. A lecture on "Ragging: An awareness class" was given by Adv. Teena Cheriyan on 27/07/17	Can be improved
13	Students feedback on Curriculum	4	A class monitoring committee (CMC) for each class is formed which includes student members, respective class teachers and Director to discuss student's feedback on each subject in the semester. Students are also asked to submit a feedback form in each subject and remedial measures are taken based on that.	Adequate
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching introduced	3	Moodle courses have been initiated	Can be improved
15	Remedial Courses Conducted	4	As per the request from weak students, the requirement for remedial teaching in specific subjects has been forwarded to equal opportunity (EQC) cell for sanction.	Appropriate
16	Use of Supplementary teaching tools and Application of ICT	4	During tutorial hours students are asked to access the Internet,	Adequate

			library hours are allotted as far as possible and PPT presentations are made.	
17	Conduct of Internal Examinations	4	Two internal examinations are conducted during the entire semester and a third internal is given based on the performance of the students / requirement for improvement.	Satisfactory
18	Result Analysis	4	Detailed analysis of internal examination is done after each CMC and remedial measures are taken.	Satisfactory
	UG	4	Continuous evaluation is done during the semester with the conduct of two internal test followed by end semester internal and external examination.	Satisfactory
	PG	4	Continuous evaluation is done during the semester with the conduct of two internal test followed by end semester internal and external examinations for <b>M.Sc.</b> Continuous evaluation is done during the semester with the conduction of two internal test followed by end semester internal examinations for <b>M.Tech.</b>	Satisfactory
19	Faculty Development Initiatives, if any	2	Teachers are promoted to actively attend courses/ workshops/seminars within and outside the University by availing	Should be improved



			Special Casual Leave.	
20	Students feedback on teaching, learning and evaluation	4	A feedback form is provided to the students for teacher/ learning evaluation after each semester and remedial measures are taken.	Satisfactory
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
21	No: of Research Guides in the Department	4	8	Satisfactory
22	No: of Ph D produced(2016-17)	4	4	Satisfactory
23	Research Papers published during the assessment period		17	
	International	5	17	Good
	National			
24	Papers Presented during the Assessment Period	4	28	Satisfactory
	International		8	
	National		20	
	State			
25	Books Published	0	0	Need to focus
	Single Author			
	Co Author			
26	Chapters in Books	0	0	Need to focus
27	Books Edited	0	0	Need to focus
28	Seminars/Workshops/Training Programmes Conducted	5	5	Good
	International		4	
	National		1	
	State			
29	Ongoing/ New MoU	4	2	Satisfactory
30	Research Collaborations	5		Good
31	Awards/ Achievements/Recognitions of students and Teachers	5	1. C V Raman Award 2. Prof. Legget Award 3. Satish John Memorial Award 4. Photonic Society of India Award for highest CGPA 5. Best Mini Project Award 6.Nalanda	Good

			Endowment Award 7. Best Researcher Award 8. Best Poster Award 9. Best oral presentation Award in National Seminar	
32	Ongoing and Newly implemented research Projects	5	3	Good
33	Consultancy Services		Nil	Need to focus
34	Subject/ Department Related Extension activities	2	1	Can be improved
35	Other Extension Activities, if any	4	3	Satisfactory
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
36	New Equipments and Infrastructure added		Andor SR-500i Spectrometer TEKTRONIX DPO70604C Oscilloscope	Satisfactory
37	Justification of the use of these equipments		Andor SR-500i Spectrometer: spectroscopy applications such as low-light UV/NIR Photo luminance or Raman spectroscopy, as well as day-to-day routine laboratory operation and integration into industry-grade systems. TEKTRONIX DPO70604C Oscilloscope: used for detection of ultrafast processes	Good
38	Details of outcomes/ publications after the institution of these equipments	N.A	The experiments are underway and expecting the results to be published soon.	N.A
39	e-classrooms (Number and Usage)	5	3, Fully utilized by staff and students.	Excellent
40	Computer Labs (No: of labs and working systems)	3	Computer lab: 1 Working systems: 9	Need to improve
41	Access timings of the library	4	9AM – 4PM. (With 1 hour lunch break)	OK
42	No: of printed books added	4	20	OK



	during the assessment period			
43	e-resources and e-journals	4	E resources and E journals are accessed from Central library.	Adequate
44	Facilities for disabled students	3	Available	
45	Maintenance of drinking water			
46	Maintenance of sanitation	5	Yes	Excellent
47	Restroom for women students	5	Available	Excellent
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
48	Availability of a system for student support and mentoring	4	SPIE, PSI and OSA student's chapters are highly active in the department providing support for conducting workshops/ seminars and also aiding students to take part in international conferences. Three Post doctoral fellows (PDF) have been appointed for further students support and mentoring. An active PTA exists for student support.	Good
49	Student Aid fund/ Endowments etc.	4	1. C V Raman Award 2. Prof. Legget Award 3. Satish John Memorial Award 4. Photonic Society of India Award 5. Best Mini Project Award. 6. Nalanda Endowment Award 7. Best Researcher Award	Appropriate
50	Placement details	3		Needs to improve
	No: of Students applied		7	
	No: of students placed		5	
51	No: of students qualified in the following examinations	3		
	NET		2	to be improved
	SET/SLET			
	GATE			

	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
52	Best practices followed by the Department	4	<p>a. Class monitoring committee meeting held after internal exam.</p> <p>b. Weekly Thursday seminar by ISP research scholars and invited guests.</p> <p>c. Maintenance of proper registers for all activities /heads in the department</p> <p>d. Remedial courses for weaker students</p> <p>e. summer project taken outside India</p>	Satisfactory
53	Innovative Practices followed by the Department	3	<p>a. ETCH NEW 2017, Optics fest – An optics to school program initiated by ISP to create interest/awareness in school students in the field of Optics/Photonics (16th -17th Jan 2017).</p> <p>b. SIGN IN – Science to IGNite INspirations -A programme initiated by KSCSTE for school and college students to ignite the interest in pursuing carrier in basic Science. (14th to 18th Feb2017)</p>	Can be improved
54	Green Initiatives	4	<p>a. Research focus on 2D material based solar cells and LEDs, which is the right step to achieve our energy requirements.</p> <p>B.Planting of saplings in the department and in the campus on important occasions.</p> <p>c. Restricting the use of plastic , plastic plates and cups in conferences , distribution of Eco friendly bags and pens in conferences etc.</p>	Very good



55	Actions taken on the recommendations made by the peer team during NAAC visit	NAAC has recommended ISP as one among the three best Departments in CUSAT. However, recommendations of NAAC team on abstaining attendance marks for internal assessment and syllabus revision has been initiated.
56	Strengths of the Department	<ol style="list-style-type: none"> <li>1. Good faculty strength</li> <li>2. Good updating of curriculum</li> <li>3. Good Research facilities</li> <li>4. Vibrant research activity</li> <li>5. Prominent student teacher evaluation</li> <li>6. Appropriate extension activities in support of school students</li> </ol>
57	Weaknesses of the Department	<ol style="list-style-type: none"> <li>1. No International students enrolled</li> <li>2. Space constraints</li> <li>3. Lack of qualified/experienced technical staff</li> <li>4. Adequate library staff and extension of library timing up to six</li> </ol>
58	Overall Report and Suggestions for Improvement	Overall performance is good. However some critical areas as mentioned in the internal sections may be addressed.

## 2.22 Department of Physical Oceanography

### External Experts:

1. Dr. K.V Sanil Kumar  
NPOL  
Kochi-21
  
2. Dr. T. Pankajakshan  
CSIR-NIO, Regional centre  
Kochi

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DEPARTMENT OF PHYSICAL OCEANOGRAPHY		
2	No: of Full time Permanent Faculty	4		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	2		
5	No: of Guest Faculty	1		
6	No: of Academic Programmes	UG: - PG : 2		
7	No: of core courses and electives in each programme	PG:Core : 24 Elective: 34		
8	Student Strength	UG: - PG: 41		
9	No: of Ph D Students	FT	1	PT 8
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	5	100%	
11	Information on curriculum revisions	5	Every 3 year (Updated in 2018)	
12	Add on Courses/ Skill Development Courses conducted	4	Conducted by University	
13	Students feedback on Curriculum	3	Every semester end	
III-TEACHING, LEARNING AND EVALUATION				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
14	Innovations in Teaching introduced	3	Web-based teaching, Modeling and Simulation, Field studies, NPTEL	





15	Remedial Courses Conducted	3	Yes	
16	Use of Supplementary teaching tools and Application of ICT	4	Use of internet, online books and journals, educational videos	
17	Conduct of Internal Examinations	4	100% internal	
18	Result Analysis			
	UG		N.A	
	PG	5	100%	
19	Faculty Development Initiatives, if any	4	Yes	
20	Students feedback on teaching, learning and evaluation	4	Feedback from student at the end of each semester	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	3	2 + 2 (applied)	
22	No: of Ph D produced(2016-17)	2	1	
23	Research Papers published during the assessment period			
	International	3	3	Scope for Improvement
	National			
24	Papers Presented during the Assessment Period			
	International	3	7	
	National	3	12	
	State			
25	Books Published			
	Single Author		Nil	
	Co Author		Nil	
26	Chapters in Books	3	2	
27	Books Edited		Nil	
28	Seminars/Workshops/Training Programmes Conducted		Nil	Organise workshops and seminars
	International		Nil	
	National	4	1	
	State			
29	Ongoing/ New MoU	4	3	
30	Research Collaborations	4	4	
31	Awards/ Achievements/Recognitions of students and Teachers	5	Two Best paper awards	
32	Ongoing and Newly implemented research Projects	4	3	

33	Consultancy Services		Nil	
34	Subject/ Department Related Extension activities	3	Student-Scientist interaction (RS), Lecture Talk at SNOM (PKS)	
35	Other Extension Activities, if any	4	Media consultancy, Lecture talk at SNOM, Navy, Public awareness program for the coastal community	Develop more outreach programs with National and International Institutes
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	4	Ocean Data Buoy, Computer system (10Nos) (Setting up of new Mtech Lab)	
37	Justification of the use of these equipments	4	Teaching and Research	
38	Details of outcomes/publications after the institution of these equipments	4	Being established	
39	e-classrooms (Number and Usage)	4	3 - Regular teaching	
40	Computer Labs (No: of labs and working systems)	4	2 Labs and 24 systems	
41	Access timings of the library	3	09:30am to 04:30pm (including Saturdays)	
42	No: of printed books added during the assessment period	4	21000/100	
43	e-resources and e-journals	4	15000, e-books - 700	
44	Facilities for disabled students	4	Ramp, toilet, lift	
45	Maintenance of drinking water	4	Provided at each floor	
46	Maintenance of sanitation	4	Well maintained	
47	Restroom for women students	5	One Room provided	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	4	Student adviser/Course Coordinator	



49	Student Aid fund/ Endowments etc.	4	Yes. Cash prize to First and Second rank holders for Msc and M.Tech batches	Explore Alumni Resources also
50	Placement details			
	No: of Students applied		NA	
	No: of students placed		NA	
51	No: of students qualified in the following examinations			
	NET	4	3	Organise Special Coaching for these examinations
	SET/SLET		NIL	
	GATE	4	3	
	CAT	4	41	
	UPSC		NIL	
	State PSC		NIL	
	Others		NIL	
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
52	Best practices followed by the Department	4	Timely admission and results, quality teaching and training, field experiences, computing facility	
53	Innovative Practices followed by the Department	4	Rapport with expertise, project dissertation at best institutes, invited talks by subject experts	
54	Green Initiatives	3	Say no to plastic, say no to litter, water conservation, Clean environment, Tree planting	
55	Actions taken on the recommendations made by the peer team during NAAC visit	One faculty recruited, course sharing among departments, facility for physically disabled, revised syllabus		
56	Strengths of the Department	Qualified faculty, subject uniqueness, CBCS system for academics, Collaboration with institutions, Research and placement prospects in India and abroad		
57	Weaknesses of the Department	Lack of permanent faculty, non availability of research vessel, lack of infrastructure (building and space)		
58	Overall Report and Suggestions for Improvement	Filling up the acute shortage of faculty positions, Provide additional space for instrumentation lab, computer lab, modelling lab, remote-sensing lab, class rooms & scholar's room. Filling up the post of permanent Technical Assistant post for maintenance and operations of sophisticated Oceanographic instruments available in the Ocean Lab, purchase of research vessel for experience at sea, additional fund for field work., Try to improve the number of Full time Phd students		

## 2.23 Department of Physics

### External Experts:

1. Dr. V. Unnikrishnan Nair  
Professor (Retd), Department of Opto Electronics  
University of Kerala
  
2. Dr. George Varghese  
Professor (Retd), Department of Physics  
University of Calicut

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DEPARTMENT OF PHYSICS		
2	No: of Full time Permanent Faculty	10		
3	No: of Adjunct Faculty	5		
4	No: of Contract Faculty			
5	No: of Guest Faculty			
6	No: of Academic Programmes	M.Sc.,M.Phil,Ph.D		
7	No: of core courses and electives in each programme	<b>UG: -</b> <b>PG:M.Sc- Core: 9,Elective: 1</b> <b>M.Phil- Core: 3,Elective: 1</b>		
8	Student Strength	UG:		
		PG: M.Sc II year -31 M.Sc I year -32		
9	No: of Ph D Students	64		
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus			
11	Information on curriculum revisions		The department has a policy of revising the syllabus in every three year. Last revision was in 2015. The process of revising the syllabus by March 2018 is underway	
12	Add on Courses/ Skill Development Courses conducted		The department planning to start skill developed courses on areas related to	



			instrumentation and thin film technology. Financial assistance is awaiting	
13	Students feedback on Curriculum		The department collects feedbacks every year	
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
14	Innovations in Teaching introduced		Tutorial Hours to improve problem solving skills of students Demonstrate simulations in physics related to subject/syllabus They also planning to introduce web based courses like NPTL and Theoretical minimum to students	
15	Remedial Courses Conducted		Planning to utilize the service of research scholars for remedial programs	
16	Use of Supplementary teaching tools and Application of ICT		Demonstrate simulations in physics related to subject/syllabus	
17	Conduct of Internal Examinations		In each semester, 50% of the total marks is evaluated internally	
18	Result Analysis			
	UG			
	PG		<b>M.Sc.</b> Pass percentage(2015-2017) – 88% Pass percentage(2014-2016) – 93% <b>M.Phil</b> Pass percentage(2016-2017) – 100% Pass percentage(2015-2016) – 100%	
19	Faculty Development Initiatives, if any		NA	

20	Students feedback on teaching, learning and evaluation		Take feedback from students every year	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department		6	
22	No: of Ph D produced(2016-17)		12	
23	Research Papers published during the assessment period		56	
	International			
	National			
24	Papers Presented during the Assessment Period		11	
	International			
	National			
	State			
25	Books Published		NA	
	Single Author			
	Co Author			
26	Chapters in Books		NA	
27	Books Edited		NA	
28	Seminars/Workshops/Training Programmes Conducted		5	
	International			
	National			
	State			
29	Ongoing/ New MoU		NA	
30	Research Collaborations		24	
31	Awards/ Achievements/Recognitions of students and Teachers		The Mid Career Award, BSR Faculty Fellowship, Best Oral Presentation Award, Kerala Science Congress Best paper Award.	
32	Ongoing and Newly implemented research Projects		9	
33	Consultancy Services		Free consultancies are provided by the faculties of the department to other educational institutions	
34	Subject/ Department Related Extension activities		3	
35	Other Extension Activities, if any		Celebrate national science day by	



			organizing open house by opening laboratories for general public. The department is planning extension activities on interdisciplinary areas. This include programs like public lectures on issues like disaster management etc.	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		Alpha SE spectroscopic Ellipsometer	
37	Justification of the use of these equipments		The equipment are either used in research laboratories or in General or advanced laboratories for M.Sc. Students. Each laboratory is keeping log books	
38	Details of outcomes/publications after the institution of these equipments			
39	e-classrooms (Number and Usage)			
40	Computer Labs (No: of labs and working systems)		3	
41	Access timings of the library		9.00am to 4.00pm	
42	No: of printed books added during the assessment period		The department library has added 163 book in the last year	
43	e-resources and e-journals			
44	Facilities for disabled students		The department is planning to construct a ramp and lift facility. Currently waiting for funds. They also plan to modify one restroom for utilization of disabled students	
45	Maintenance of drinking water		2	
46	Maintenance of sanitation		5 toilets/bathrooms in the department. They are	

			cleaned and maintained every day	
47	Restroom for women students		One rest room for women students with toilet facilities	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		Students are assigned with faculty as a mentor with whom interact	
49	Student Aid fund/ Endowments etc.			
50	Placement details		The department is associating with the University placement cell. Preparations are underway by the placement cell to actively bring companies to the department	
	No: of Students applied			
	No: of students placed			
51	No: of students qualified in the following examinations			
	NET		8	
	SET/SLET			
	GATE		3	
	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	<b>Criteria</b>			
52	Best practices followed by the Department	*We conduct open house for public *Workshops for HSE AMD HS teachers *Research awareness program for PG students *Physics scope and awareness programs for school children		
53	Innovative Practices followed by the Department	We have active research in innovative areas like solar cells, holography, energy storing materials, magnetic materials for storage device etc.		
54	Green Initiatives	*October 2 of every year they take Sramadhan activity by cleaning the building premises, garden and the overhead tank, which supplies drinking water to the whole department *The entire academic community can be made aware of the epidemics and diseases consequent to unclean surroundings		
55	Actions taken on the	As per the suggestion of previous NAAC team, the department is		





	recommendations made by the peer team during NAAC visit	planning to start an integrated B.Sc.-M.Sc. program
56	Strengths of the Department	<p><b>*Faculties</b> At present, we have 10 regular faculties and Emirates/adjunct faculties. Our faculties have a very board range in terms of their areas of expertise which includes theoretical and experimental nuclear and high energy physics, statistical physics, complex systems, non- linear physics, quantum mechanics, computational physics, astrophysics, cosmology and gravity. They are all equally committed to research and connecting research and teaching. Our faculties have several national and international collaborations which enables them to be in the frontiers of research in pure and innovative sciences. Our faculties are even collaborating with world leading institutes like Fermi Lab and also participating in prestigious research projects such as “ The Indian neutrino observatory project”.</p> <p><b>*M.Sc and M.Phil</b> We have M.Sc. And M.Phil courses with student intake 32 and 8 respectively. Several of our students qualify national examination such as NET, JRF, GATE, JEST etc. A large fraction of students (more than 60%) opt research after their courses. Eventually About 70% of our students are placed in academic teaching, academic and industrial research and rest are placed in other areas</p> <p><b>*Research and Ph.D programs</b> We have more than 50 research scholars working in various aspects of theoretical and experimental physics. The research output is about fifty papers per year in peer reviewed journals. Our researchers often collaborate and visits with national and international universities</p> <p><b>*Library</b> We have an excellent library with more than 20000 books and several national and international e- journals</p>
57	Weaknesses of the Department	<p><b>*Need for an integrated B.Sc-M.Sc program</b> Such a program could allow us to train aspirant students from much younger age</p> <p><b>*Need for an active placement system</b> The department need to have a more active placement system for students which will help them to get placed in industry. IT and other innovative sectors</p> <p><b>*Lack of high end computational resources</b> Through we have several faculties with expertise in computational physics, at the moment we do not have excellent high end computational resources</p>
58	Overall Report and Suggestions for Improvement	<p>*The department could start a B.Sc-M.Sc program to train aspiring young students</p> <p>*Dedicate the whole semester for doing the Master's thesis</p>

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		<ul style="list-style-type: none"><li>*An active placement system for Masters and M.Phil students</li><li>*Increase the access time to library. Currently the students can access the department library for only 8 hours</li><li>*Introduce more innovative techniques (such as Google classroom) in teaching</li><li>*New computational resources in the department. It is desirable to have more computational resource, such as a high performing cluster for the department</li><li>*Introduce Smart Classrooms</li></ul>
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## 2.24 Department of Polymer Science and Rubber Technology

### External Experts:

1. Dr. Manoj N.R  
Scientist, NPOL  
Kochi
2. Dr. K.K Mohammed Yusuff  
Professor(Retd) ,Department of Applied Chemistry  
CUSAT

## ACADEMIC AUDIT REPORT

I- DEPARTMENT PROFILE				
1	Name of Department:	DEPARTMENT OF POLYMER SCIENCE AND RUBBER TECHNOLOGY		
2	No. of Full Time Permanent Faculty:	7 + 1* (* one professor of the Department is on deputation as Controller of Examinations)		
3	No. of Adjunct Faculty:	NIL		
4	No. of Contract Faculty:	2		
5	No. of Guest Faculty:	13		
6	No. of Academic Programmes:	UG: 1(B.Tech.(Polymer science and Engineering))	PG: M.Tech(polymer Technology)	
7	No of core courses and electives in each programme in each subject	UG: (40 +Project+Electives 2+other 15)	PG: (10+Project+Electives 2+Other3)	
8	No. of Students Strength:	UG : 82 ( includes all the students of 4 batches)	PG: 22	
9	No. of PhD Students:		FT: 24	PT:14
<i>The External Experts can grade each parameter with points 0, 1,2,3,4 or 5 based on assessment</i>				
II- CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
10	Coverage of Syllabus	4	Good Coverage. However, number of hours required for some subjects was not sufficient.	strict adherence to the time table may be made.
11	Information on Curriculum Revisions	3	Only minor revision of syllabus was conducted	Revision of the syllabus is due and may be done as

			in 2016	early as possible.
12	Add- on courses / skill development courses conducted	3	IRI certificate course for the B.Tech students is conducted.	Soft skills development programme may be conducted.
13	Students' Feedback on Curriculum	3	Discussions were held in class committee meetings.	feed back on the curriculum may be obtained. A format may be given to the students.
<b>III-TEACHING, LEARNING &amp; EVALUATION</b>				
14	Innovations in Teaching introduced	4	Course diary for each faculty was introduced.	
15	Remedial courses conducted	4	Conducted for weak students.	
16	Use of supplementary teaching tools and application of ICT	3	Online teaching conducted for one course	Online teaching for some more topics may be introduced.
17	Conduct of Internal Examinations	5		
18	Result Analysis			
	UG	3	Tables were prepared	Statistical analysis of results may be conducted.
	PG	3		
19	Faculty development initiatives, if any	5		
20	Students' Feed back on Teaching, Learning & Evaluation	4		
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
21	No. of Research Guides in the Department	5	7	
22	No of PhDs Produced	4	11	
23	Research Papers Published during the assessment period			
	International	4	21	More publication in journals with high impact factor.
	National	3	2	
24	Papers Presented during the assessment period			
	International	4	33	
	National	4	27	
	State		Nil	
25	Books Published			
	Single Author	4	2	
	Co Author			



26	Chapters in Books	4	3	
27	Books Edited		Nil	
28	Seminars/Workshops/ Training Programme Conducted	4		
	International			
	National		7 (Lecture Series)	
	State			
29	Ongoing/ New MoUs	4	1 (PRISIL, Srilanka)	
30	Research Collaborations	4	3 (NORITAKE JAPAN NIIST, VSSC)	More Possibilities for collaborations may be explored.
31	Awards/Achievements/ Recognitions of students and teachers	2	Nil	Students and faculty should be motivated.
32	Ongoing & Newly implemented Research Projects - No, Outlay & Funding Agency	4	Rs. 156 lakhs( DST-2, DBT-1, KSCSTE-1, NPOL-1, ISRO-1) + 125 lakhs(under UGC SAP+ 83 lakhs (DST FIST)	
33	Consultancy Services	3	1 (Carborundum Universal Limited )	Faculty may be motivated to do more consultancy work.
34	Subject/Department Related Extension Activities	4	ASAP Skill development	
35	Other Extension Activities, if any	4	12 invited talks by the faculty of the Department	
<b>V- INFRASTRUCTURE AND LEARNING RESOURCES</b>				
36	New Equipment and Infrastructure Added	4	BIO LAB, NANO LAB;	
37	Justification for the use of these equipments	3	Testing and Characterization of polymers.	
38	Details of outcomes/publications after the institution of these equipments	3	Equipment was recently procured. The results are yet to come.	
39	e-class rooms ( Number & Usage)	5	5 and all are properly used.	
40	Computer labs ( No. of labs & working systems)	2	only one computer	A separate fully equipped computer lab may be established for students.
41	Access timings of the Library	4	9 a.m - 4 p.m	
42	No of Printed Books / No of Printed Books Added during the assessment period	4	4062; 17 books were added.	More funds may be allocated for annual purchase of books.
43	e- Resources & e-Journals	4	Provisions for these are	

			through the Central Library.	
44	Facilities for disabled students	3	Ramp provided at the entry to department.	
45	Maintenance of drinking water	5		AMC may be initiated
46	Maintenance of Sanitation	5	Clean rest rooms are provided.	
47	Rest room for women students	4	Provided.	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
48	Availability of a system for student support and mentoring	4	Class committee. 1 faculty as mentor for 4 students	
49	Student Aid Fund/ Endowments etc.	2		Student's aid fund should be started with support of ALUMNI.
50	Placement Details			
	No of students applied	4	15	
	No of students placed	4	7	
51	No. of students qualified in the following examinations			
	NET	3	1	
	SET/SLET		NA	
	GATE	4	9	
	CAT		Nil	
	IAS/IPS etc.		Nil	
	UPSC		Nil	
	State PSC		Nil	
	Others		Nil	
<b>VII- INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department	4	Attendance register for each subject, Class committee, ISO Certification, Open seminar by the students, Class adjustment registers and event registers are maintained.	
53	Innovative practices followed by the Department	4	Course diary, CCTV camera in examination hall.	
54	Green Initiatives	3	Organic farming by students.	Separate waste bins for bio and non-bio degradable.
55	Actions taken on recommendations made by the		AC fitted in Sophisticated characterization laboratory.	



	Peer Team during the previous NAAC visit	
56	Strengths of the Department	<ol style="list-style-type: none"> <li>1) Highly qualified faculties</li> <li>2) Coherent and good working culture among the faculty.</li> <li>3) Good infrastructure faculty.</li> <li>4) AICTE accredited UG and PG courses</li> <li>5) Good placement for students</li> <li>6) ISO certified department</li> <li>7) CCTV camera</li> </ol>
57	Weaknesses of the Department	<ol style="list-style-type: none"> <li>1. In- adequate UG and PG wet lab</li> <li>2. Insufficient technical supporting staff</li> <li>3. Updates of syllabus is due</li> <li>4. Less number of conferences/ workshops for students</li> </ol>
58	Overall Report and Suggestions for Improvement	<ol style="list-style-type: none"> <li>1. Department has well qualified faculty</li> <li>2. Infrastructure facilities are good</li> <li>3. Placement opportunity for students are good</li> <li>4. More number of conferences/ workshops soft skill development programme may be conducted</li> <li>5. Department requires more sophisticated characterization equipments</li> </ol>

## 2.25 Department of Ship Technology

### External Experts :

1. Dr. P.K Satheesh Babu(Retd.)  
Professor & Head  
Department of Naval Architecture & Shipbuilding, SNGCE
2. Dr. Dileep Krishnan  
Professor(Retd.)  
Department of Ship Technology,CUSAT

### ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of Department	DEPARTMENT OF SHIP TECHNOLOGY		
2	No. of Full Time Permanent Faculty:	08 (02 retired during this period)		
3	No. of Adjunct Faculty	01		
4	No. of Contract Faculty	03		
5	No. of Guest Faculty	Nov 2016 – Apr 2017		Jul 2017 – Nov 2017
		07		07
6	No. of Academic Programmes:	UG: 01	PG: 01	
7	No. of core courses and electives in each programme in each subject	Core Courses – 55 Electives – 04	Core Courses – 05 Electives – 05	
8	No. of Students Strength	UG: 168	PG: 36	
9	No. of PhD Students	31	FT: 06	PT: 25
<i>The External Experts can grade each parameter with points 0, 1, 2, 3, 4 or 5 based on assessment</i>				
II- CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Experts	Suggestions for Improvement
10	Coverage of Syllabus	5	All current topics are covered	
11	Information on Curriculum Revisions	5	Revised in 2015	
12	Add – on courses/skill development courses conducted	3		Short-term courses relevant may be organized
13	Student's Feedback on Curriculum	0		Feedbacks from graduating students may be obtained in future





<b>III – TEACHING, LEARNING &amp; EVALUATION</b>				
14	Innovations in Teaching introduced	4		
15	Remedial courses conducted	1	The system need to be introduced for supporting weak students	
16	Use of supplementary teaching tools and application of ICT	2		
17	Conduct of Internal Examinations	5		
18	Result Analysis			
	UG	3	<b>B.Tech(NA &amp; SB)</b> For academic year 2013 – 17 Pass Percentage- 77.5%	May be implemented more efficiently
	PG	3	<b>M.Tech(CASAD)</b> For academic year 2015 – 17 Pass Percentage- 94.7%	May be implemented more efficiently
19	Faculty development initiatives, if any	4		
20	Students' Feedback on Teaching, Learning & Evaluation	5		
<b>IV – RESEARCH, CONSULTANCY AND EXTENSION</b>				
21	No. of Research Guides in the Department	04	Five Research guides	
22	No. of PhDs Produced	05	Five Ph.Ds produced	
23	Research Papers Published during the assessment period			
	International	05	Six papers published	
	National	0	Nil	
24	Papers Presented during the assessment period			
	International	05	Eight papers presented	
	National	05	Eight papers presented	
	State			
25	Books Published			
	Single Author	0		
	Co Author	0		
26	Chapters in Books	0		
27	Books Edited	0		
28	Seminars/ Workshops/ Training			

	Programme Conducted			
	International			
	National	03	One conducted	
	State	03	One conducted	
29	Ongoing/ New MoUs	05	MoU with CSL and ClassNK	
30	Research Collaborations	03	Two collaborations with NPOL	
31	Awards/ Achievements/ Recognitions of students and teachers	04	Good participation by students	
32	Ongoing & Newly implemented Research Projects –No, Outlay & Funding Agency	04	Two projects with NPOL are in progress	
33	Consultancy Services	05	Very active participation in consultancy services	
34	Subject/ Department Related Extension Activities	04	Department Global Alumni Association 'DOSTAS'	
35	Other Extension Activities, if any	04	Members in various Technical Committees constituted by the Govt. of Kerala One Start-up (STICON) was established by students in the department.	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
36	New Equipment and Infrastructure Added.	05	Computational hydrodynamics & model making facility added.	
37	Justification for the use of these equipments	05	Usage in R&D, consultancy services as well as student learning	
38	Details of outcomes/ publications after the institution of these equipments	05	2 International Journals and 5 National conference papers published. Also new R&D project is based on them	
39	e-class rooms (Number & Usage)	5	07 (for lecture and project presentation)	
40	Computer labs (No. of labs & working systems)	5	2 labs with 52 systems	
41	Access timings of the Library	3	Access during lunch time & evening may be considered.	10 – 5 pm working hours may be considered
42	No of printed Books / No of Printed Books Added during the	5	Total 9922 110 books added	



	assessment period			
43	e-Resources & e-Journals	5	Central facility available	
44	Facilities for disabled students	3	Ramp available to first floor only	
45	Maintenance of drinking water	05	Sufficient in quantity	
46	Maintenance of Sanitation	05		
47	Rest room for women students	05		
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
48	Availability of a system for student support and mentoring	03	Faculty advisors assigned for each batch	
49	Student Aid Fund / Endowments etc.	02	Through department alumni	
50	Placement Details			
	No. of students applied		40 applied	
	No. of students placed	3	20 placed	
51	No. of students qualified in the following examinations			
	NET	0		
	SET/SLET	0		
	GATE	0		
	CAT	0		
	IAS/IPS ETC.	0		
	UPSC	0		
	State PSC	0		
	Others	0		
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
52	Best practices followed by the Department	04	1. Involvement of students in consultancy projects 2. Compulsory industrial training at the end of every year 3. Visits to shipyards, DRDO labs etc	
53	Innovative practices followed by the Department	03		
54	Green Initiatives	05	Clean and Green campus, Research in use of renewable energy in ship propulsion	
55	Actions taken on recommendations made by the Peer Team during the previous NAAC visit	Not verified		
56	Strengths of the Department (One page)	<ol style="list-style-type: none"> <li>All permanent faculty members have Ph.D.</li> <li>The department has very effective Alumni Associations both in India and abroad with regular interactions.</li> <li>Excellent R&amp;D and consultancy activities</li> <li>Excellent library and computing facilities</li> <li>Academic collaborations with Indian Navy since 1987.</li> <li>Good placement record for graduates.</li> <li>Compulsory free internships to all students arranged by</li> </ol>		

		<p>the department (both In India and abroad).</p> <p>8. Individual ship design project to each student is highly beneficial</p> <p>9. There is a student's society (SNAS) functioning in the department with active involvement in technical activities (SHIPSTECHNIC Journal) as well as other extra-curricular activities.</p>
57	Weaknesses of the Department (One page)	<p>1. Acute shortage of permanent faculty (at least AICTE minimum requirements to be met). This adversely affects research activities.</p> <p>2. At present no facility exists for experimental hydrodynamic tests. This is essential for improving the quality of research by the department.</p>
58	Overall Report and Suggestions for Improvement	<p>6. The teaching and learning process being implemented in the department is very good.</p> <p>7. However, the department needs to be strengthened with more permanent faculty as well as research infrastructure.</p> <p>8. Considering the acute recession in the marine industry, the placement record is good.</p> <p>9. The faculty and students are involved in consultancy and extension work. This leads to a value addition for students and also brings in substantial revenue to the Department and University.</p>



## 2.26 Department of Statistics

### External Experts:

1. Dr. S. Ravi  
Professor  
Department of Statistics  
University of Mysore
2. Dr. M. Manoharan  
Professor  
Department of Statistics  
University of Calicut

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DEPARTMENT OF STATISTICS		
2	No: of Full time Permanent Faculty	7		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	2		
5	No: of Guest Faculty	Nil		
6	No: of Academic Programmes	UG: Nil PG: 1. M.Sc. Statistics 2. M.Tech in Engineering Statistics		
7	No: of core courses and electives in each programme	PG: M.Sc. Statistics - Core: 15; ,Elective: 5 M.Tech in Engineering Statistics- Core: 8; ,Elective: 11		
8	Student Strength	UG: Nil PG: 51		
9	No: of Ph D Students	FT	11	PT 12
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	5	Substantial and fairly satisfactory	Include more electives, frontier areas and cutting edge technology.
11	Information on curriculum revisions	4	Board of Studies meets regularly every two years. The last meeting was convened on 19th July, 2016, when minor revisions and change in course structure were done.	Specify the syllabus by book chapter

12	Add on Courses/ Skill Development Courses conducted	5	<ul style="list-style-type: none"> <li>* Organised ISBIS sponsored virtual workshop on "Bayesian Modelling: Computations and Applications" co-ordinated by Dr. Asha Gopalakrishnan and conducted by Dr. Nalini Ravishankar, University of Connecticut, USA.</li> <li>* Workshop on Applied Statistical Techniques conducted on 1-21 January 2017 by Dr. N. Balakrishna, Dr. P. G. Sankaran, Dr. Asha Gopalakrishnan, Dr. S. M. Sunoj and organised by Dr. G. Rajesh</li> <li>* Workshop on Time Series Analysis using R-Package conducted on 29-30 June 2017 by Dr. N. Balakrishna and organised by Dr. G. Rajesh.</li> <li>* Workshop on Time-to-events and Time series data analysis using R conducted on 15-18 December 2017 Co-ordinated by Dr. N. Balakrishna and Prof.(Dr.) Debasis Kundu, Prof.(Dr.) Nalini Ravishankar, Prof.(Dr.) P. G. Sankaran , Prof.(Dr.) Asha Gopalakrishnan and Prof.(Dr.)N. Balakrishna were the Resource persons.</li> </ul>	
13	Students feedback on Curriculum	5	Every semester student's feedback is collected through questionnaire. A feedback survey was conducted for the former students, through Old Students Forum. The feedback was that more practical and data oriented courses should be included.	
<b>III-TEACHING, LEARNING AND EVALUATION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
14	Innovations in Teaching	4	Exposure to practical	May develop MOOC.



	introduced		problems through project work. Use of ICT enabled smart class rooms, internet and resources in teaching.	
15	Remedial Courses Conducted	4	As and when necessary remedial training is given.	Can be more frequent.
16	Use of Supplementary teaching tools and Application of ICT	4	ICT is used in class rooms	Encourage more ICT use.
17	Conduct of Internal Examinations	5	Internal examinations are conducted on regular basis.	
18	Result Analysis			
	UG		NA	
	PG	4	End semester Examinations April, 2017 <b>M.Sc. Statistics IV semester</b> Total students appeared:20 Total students passed: 19 <b>Percentage of pass- 95%</b> <b>M.Sc. Statistics II semester</b> Total students appeared: 29 Total students passed: 25 <b>Percentage of pass- 86.2%</b> <b>M.Tech in Engineering Statistics II semester</b> Total students appeared: 6 Total students passed: 6 <b>Percentage of pass- 100%</b>	Compare the performance of students across tests
19	Faculty Development Initiatives, if any	5	All faculty attended Workshops and conferences. Dr James K. C has attended skill development training on "Hands on practice on Isograph Software Tools" at Goa College of Engineering, Farmagudi, Ponda on 9th to 12th October 2017.	Get feedback online
20	Students feedback on teaching, learning and evaluation	5	The course evaluation by the students based on 12 parameters related to teaching and learning was	

			done.	
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	5	6	
22	No: of Ph D produced(2016-17)	4	3	
23	Research Papers published during the assessment period	5	23	
	International			
	National			
24	Papers Presented during the Assessment Period	5	25	
	International		11	
	National		13	
	State		1	
25	Books Published	Nil		
	Single Author			
	Co Author			
26	Chapters in Books	NA	Nil	
27	Books Edited	NA	Nil	
28	Seminars/Workshops/Training Programmes Conducted	5	Refer Item No. 12 above.	
	International		2	
	National		1	
	State		1	
29	Ongoing/ New MoU	NA	Nil	MoU's may be explored
30	Research Collaborations	5		
31	Awards/ Achievements/Recognitions of students and Teachers	5		
32	Ongoing and Newly implemented research Projects	5		
33	Consultancy Services	NA	Nil	May explore
34	Subject/ Department Related Extension activities	5	* Organized "One day seminar on Applied Statistics" in association with Department of Statistics, St.Mary's college Thrissur on September 26,2017	





			* Organized "One day seminar on Applied Statistical Techniques" in association with Centre for Research in Mathematical Sciences, St. Joseph's college, Irinjalakuda on November 30, 2017	
35	Other Extension Activities, if any	4	I. Conducted class on improving soft skills of the students during September 2016. II. Conducted open house showcasing applications of statistics in solving daily life problems	

**V-INFRASTRUCTURE AND LEARNING RESOURCES**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
36	New Equipments and Infrastructure added	5	Interactive Smart Board, Desktop Computers, Laptops, Online UPS system	
37	Justification of the use of these equipments	5	As teaching aids and for making it simpler for students to get equipped with latest innovations and trends in their educational field.	
38	Details of outcomes/publications after the institution of these equipments	4	Assists in computational based Research	
39	e-classrooms (Number and Usage)	3	One. Used in teaching and seminars.	
40	Computer Labs (No: of labs and working systems)	5	Three labs with 64 working systems.	More needed.
41	Access timings of the library	5	9 AM to 4 PM on all working days and IP based access via Internet of department library.	
42	No: of printed books added	5	242 books.	

	during the assessment period			
43	e-resources and e-journals	4	Many e-Journals and e-Resources are purchased by the Central Library	May be more e-Books using discounts for faculty, from publishers online.
44	Facilities for disabled students	3	Ramp at the North entrance of the building	Better facilities needed.
45	Maintenance of drinking water	5	One water cooler in the veranda and another purifier with hot and cold water facility in the office	
46	Maintenance of sanitation	5	Four well maintained toilets, two each for men and women.	
47	Restroom for women students	NA	Proposed and will provide very soon.	Create one.
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	5	University Behaviour Studio and mentoring classes are conducted.	
49	Student Aid fund/ Endowments etc.	3	IISA (International Indian Statistical Association has given a corpus amount of Rs.1,40,000/-. The interest is given as prize money to the first and second rank holders of M.Sc. Statistics.) *ASPIRE *SCHOLARSHIP UNIVERSITY MERIT SCHOLARSHIP	Create more.
50	Placement details	5		
	No: of Students applied			
	No: of students placed	6		
51	No: of students qualified in the following examinations			
	NET	2	Durga Vasudevan. UGC-CSIR, June 2017 AIR 85th in JRF in Mathematical Science.Durga	Need more



			Vasudevan. UGC-CSIR, June 2017 AIR 85th in JRF in Mathematical Science.	
	SET/SLET			
	GATE			
	CAT			
	UPSC			
	State PSC			
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
52	Best practices followed by the Department	4	<p>1. Practical exposure to real data</p> <p>2. Encouraged project competition: Students are encouraged to take part in various competitions like ISPS Project competition, Ministry of Statistics and Programme Implementation (MOSPI) Spot Essay writing, etc. and given moral and technical support to effectively harvest their potentials.</p> <p>3. Under the Special Assistance Programme from UGC DEPARTMENTAL RESEARCH SUPPORT (DRS-II) scheme is functioning in the Department with the following objectives:-</p> <p>a. To promulgate research in Universities to be relevant to societal needs and have society and industry interaction.</p> <p>b. To make research a catalyst for good teaching and introduction of new courses relating to identified thrust areas.</p> <p>c. To have linkages with research organizations and to use their expertise innovatively to support research in the universities.</p>	

			<p>d. To enhance infrastructural facilities.</p> <p>e. To utilize the output of research for the development of the nation and society.</p> <p>f. To train and create quality human resources in identified thrust areas.</p> <p>g. To search for newer / generic area(s), of research, its promotion and nurturing.</p> <p>4. Erudite Scheme:- Through the ERUDITE-Scholar-in-Residence Programme under the Kerala State Higher Education Council ,Distinguished scholars from around the world has visited the Department and given lectures in their respective fields which has been highly beneficial for Teachers, Research scholars and students</p>	
53	Innovative Practices followed by the Department	4	Skill development programmes	
54	Green Initiatives	3	<p>*Minimized the use of Plastic.</p> <p>*Ceramic cups and plates are used in the office.</p> <p>*Paper cups and plates are used in functions.</p> <p>*Minimized printing and online communications are encouraged.</p>	Go paperless.
55	Actions taken on the recommendations made by the peer team during NAAC visit		The department has been well appreciated by the NAAC Peer Team on the manners it has been run and the impact it has made so far . As such there were no particular recommendations or instructions from their part.	
56	Strengths of the Department	<p>A Group of highly qualified and internationally recognized teachers who excel in their fields are the greatest strength of the Department. Along with them a number of highly dedicated and hardworking Research scholars form the backbone of the Department. The teachers in the Department are committed to give their maximum output to the Department. All the teachers are keen to familiarize with and get updated with latest developments in their respective fields/topics. All of them along with their Research students are frequently publish research papers in peer reviewed journals. Most of</p>		



		<p>the teachers regularly attend Workshops and Seminars conducted both nationally and internationally and present papers. The Research scholars are also encouraged to attend these Workshops and Seminars. The knowledge and experiences they gather has been channelized for the benefit of Department and its students .The Department has now grown as one of the strongest and well known departments in the country and abroad.</p>
57	Weaknesses of the Department	<p>The following are the main weaknesses or hindrances of the Department in its urge for expansion:-</p> <p>1.Space constraints:- Though the Department has been established about two decades ago, it is still functioning with the same space it has been provided at that time. Even though more courses has been added to the Department's credit no further area or space has been added to it.</p> <p>2. Faculty shortage:- The Department has a sanctioned strength of 2 Professors, 2 Associate Professors and 5 Assistant Professors in which a post of Professor and a post of Associate Professor are vacant. With more courses on the way, the Faculty shortage is a main hindrance in its way to expansion. Along with filling up of present vacancies more teaching post may be sanctioned.</p> <p>3. Technical Staff:- With two full fledged Computer Labs and one Engineering Lab, it is most unfortunate that the Department lacks the service of Technical staff. Repeated efforts has been made to bring this issue in front of the authorities, but so far none of them has been fruitful. Presently the technical problems faced by these labs has been faced with outside support, which is both time consuming and expensive.</p>
58	Overall Report and Suggestions for Improvement	<p>For the improvement of the overall functioning of the Department the following suggestions are made:-</p> <p>1.More faculty:- With more courses are on the way, the Faculty shortage is a main hindrance in the way to expansion. To tackle this, along with filling up of present vacancies more teaching post may be sanctioned.</p> <p>2. Technical assistance:- Technical assistance has to rendered with emphasis on facing the current issues as well as forthcoming issues in the future with the expansion of the Department.</p> <p>3. Moodle (Modular Object-Oriented Dynamic Learning Environment.) courses.</p> <p>4. Digital Document File System may be introduced for paperless administrative work.</p> <p>5. Record all this audit and auditors.</p>

## 2.27 National Centre for Aquatic Animal Health (NCAAH)

### External Experts:

Dr. K Dharmalingam  
 Director Research  
 Aravind Medical Research Foundation  
 No.1 Anna Nagar, Madurai

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	NATIONAL CENTRE FOR AQUATIC ANIMAL HEALTH		
2	No: of Full time Permanent Faculty	4		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	1		
5	No: of Guest Faculty	6		
6	No: of Academic Programmes	UG: Nil PG: M.Tech. Marine Biotechnology sponsored by Department of Biotechnology, Government of India		
7	No: of core courses and electives in each programme	Core: 18; Elective: 3		
8	Student Strength	UG: Nil PG: 8		
9	No: of Ph D Students	FT	22	PT 2
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus	5	Very good	Periodic review
11	Information on curriculum revisions	5	Very good	Existing periodicity OK
12	Add on Courses/ Skill Development Courses conducted	5	Very good	Keep all 10 courses
13	Students feedback on Curriculum	4	Good	Response - OK
III-TEACHING, LEARNING AND EVALUATION				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
14	Innovations in Teaching introduced	5	Very good	Keep watching for new methods
15	Remedial Courses Conducted	4	Good	Can identify more
16	Use of Supplementary teaching tools and Application of ICT	5	Very good	Look for new tools when ever available
17	Conduct of Internal Examinations	5	Very good	Follow existing methods



18	Result Analysis			
	UG	-		
	PG	5		
19	Faculty Development Initiatives, if any	5		Explore new avenues
20	Students feedback on teaching, learning and evaluation	4		Assess level of improvement
<b>IV-RESEARCH, CONSULTANCY AND EXTENSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
21	No: of Research Guides in the Department	5	Very good	OK considering current activity
22	No: of Ph D produced(2016-17)	4	Good	Output can be improved
23	Research Papers published during the assessment period			
	International	5	Very good	
	National	4	Good	
24	Papers Presented during the Assessment Period			
	International	5	Very good	
	National	4	Good	
	State			
25	Books Published			
	Single Author	0	Poor	Needs Improvement
	Co Author	0	Poor	Needs Improvement
26	Chapters in Books	0	Poor	Needs Improvement
27	Books Edited	0	Poor	Needs Improvement
28	Seminars/Workshops/Training Programmes Conducted			
	International	5	Very good	Try to conduct one every year
	National	5	Very good	At least 2 training programmes/ year
29	Ongoing/ New MoU	5	Very good	Encourage exchange of staff for shorter periods
30	Research Collaborations	5	Very good	Take step to strengthen the collaboration
31	Awards/ Achievements/Recognitions of students and Teachers	5	Very good	Keep up the good work
32	Ongoing and Newly implemented research Projects	5	Very good	Keep up the good work
33	Consultancy Services	5	Very good	Excellent output
34	Subject/ Department Related Extension activities	5	Very good	Keep up the good work
35	Other Extension Activities, if any	5	Very good	Excellent output

<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added	3	Satisfactory	Plan to more like High Throughput systems
37	Justification of the use of these equipments	4	Good	Highly justified but identify additional use
38	Details of outcomes/ publications after the institution of these equipments	5	Very good	Satisfactory
39	e-classrooms (Number and Usage)	5	Very good	Only 2 classrooms & both are OK
40	Computer Labs (No: of labs and working systems)	4	Good	More local central servers can be added
41	Access timings of the library	5	Good	Conduct periodical assessment and change timings if necessary
42	No: of printed books added during the assessment period	5	Very good	More space should be made available by university
43	e-resources and e-journals	3	Satisfactory	Can be increased
44	Facilities for disabled students	4	Good	As the labs are in ground floor, the existing facilities are OK.
45	Maintenance of drinking water	5	Very good	Continue
46	Maintenance of sanitation	5	Very good	Continue
47	Restroom for women students	3	Satisfactory	Can be increased
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring	5	Very good	Continue the present approach
49	Student Aid fund/ Endowments etc.	5	Very good	Continue; Try to build some endowment funds
50	Placement details			
	No: of Students applied	4		Encourage industry placements
	No: of students placed	4		Talk to industries
51	No: of students qualified in the following examinations			
	NET	2	Poor	Should be improved by training
	SET/SLET			
	GATE	4	Good	OK
	CAT			
	UPSC			





	State PSC	2	Poor	Should be improved by special training programmes
	Others			
<b>VII-INNOVATIONS AND BEST PRACTICES</b>				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
52	Best practices followed by the Department	5	Very good	Can increase the number of training programmes
53	Innovative Practices followed by the Department	5	Very good	Try to conduct training programmes in other parts of the country
54	Green Initiatives	4	Good	
55	Actions taken on the recommendations made by the peer team during NAAC visit	5	Very good	Additional space is very crucial for further development
56	Strengths of the Department	5	Very good	The international status should be strengthened by the university
57	Weaknesses of the Department	Inadequacy of space seems to be the major hurdle for the further development; few more (at least 3) Faculty positions can be created by the university		
58	Overall Report and Suggestions for Improvement	Centre performance is highly satisfactory. The Centre has shown its capability to carry out lot of consultancy and projects are thereby earn good revenue; Space inadequacy is the major critical factor for any major development and this should be looked into seriously; Collaboration with other institutions should be encouraged and these may be called as "Partner Institutions". Such an arrangement can help the Centre to share the resources available. Since it has MoUs, such an arrangement should be encouraged.		

## 2.28 Deen Dayal Upadhyay Kaushal Kendra (DDUKK)

### External Experts:

1. Dr. Sam Thomas  
Professor  
School of Management Studies, CUSAT
2. Dr. A.B Bhasi  
Associate Professors  
School of Engineering

## ACADEMIC AUDIT REPORT

I-DEPARTMENT PROFILE				
1	Name of the Department	DEEN DAYAL UPADHYAY KAUSHAL KENDRA		
2	No: of Full time Permanent Faculty	Nil		
3	No: of Adjunct Faculty	Nil		
4	No: of Contract Faculty	6		
5	No: of Guest Faculty	7		
6	No: of Academic Programmes	UG: Nil PG: 2		
7	No: of core courses and electives in each programme	1. <b>M VOC Technology and Management Consulting</b> - Core papers 20 Nos. & Electives - 7 Nos. 2. <b>MVOC in Mobile Phone Application Development</b> Core Papers - 20 Nos. & Electives - 7 Nos.		
8	Student Strength	UG: NA PG: Batch 2015-'17-(14 Students, lagged batch) Batch 2016-'18 - (19 students) Batch 2017-'19- (50 students)		
9	No: of Ph D Students	FT		PT
II-CURRICULAR ASPECTS				
	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
10	Coverage of syllabus		Comprehensive coverage	
11	Information on curriculum revisions		Curriculum workshop conducted from 14 to 16 December 2017 by inviting experts from industry and in the final stage of preparing the revised Syllabi.	
12	Add on Courses/ Skill Development		Pre placement training by M/S	



	Courses conducted		Face conducted from 14-16 September 2017, for TMC Batch and for MPAD from 15-16, September 2017. Orientation course conducted for first year.	
13	Students feedback on Curriculum		Overall feedback was taken from the students and found good	

**III-TEACHING, LEARNING AND EVALUATION**

	Criteria		
14	Innovations in Teaching introduced		Being a skill based course maximum industry input was incorporated in the teaching learning process through live projects, case discussions and industry based assignments
15	Remedial Courses Conducted		Remedial classes given to individual students based on the need by the teacher concerned.
16	Use of Supplementary teaching tools and Application of ICT		ICT enabled teaching is practiced by faculty members. Apart from that Video Cases are taken and enrolling for online MOOC courses are also encouraged
17	Conduct of Internal Examinations		Conducting Internal Examinations in each Semester with a minimum of three internal assessment components; Examinations, Presentations, Projects, Assignments, Survey, App development etc.
18	Result Analysis		
	Courses		1.MVOC- TMC- 100% Pass 2.MVOC-MPAD- 100% Pass One student dropped out during final year
19	Faculty Development Initiatives, if any		Teachers attended many FDPs and training workshops during the assessment period and the Department organised one FDP and one workshop in which teachers were participants.
20	Students feedback on teaching, learning and evaluation		Overall feedback was taken from the students and found to be satisfactory and suggestions given by the students was incorporated and discussed at the Curriculum Development Workshop

**IV-RESEARCH, CONSULTANCY AND EXTENSION**

	Criteria	Grade	Observations of the Expert	Suggestions for Improvement
21	No: of Research Guides in the Department		NIL, Centre not recognized for research	
22	No: of Ph D produced(2016-17)		NIL	
23	Research Papers published during the assessment period			
	International		7	
	National		0	
24	Papers Presented during the Assessment Period			

	International		9	
	National		4	
	State		0	
25	Books Published			
	Single Author		Nil	
	Co Author		Nil	
26	Chapters in Books		3	
27	Books Edited		1	
28	Seminars/Workshops/Training Programmes Conducted			
	International		1	
	National		2	
	State		0	
29	Ongoing/ New MoU		5	
30	Research Collaborations		Associated with Wroclaw University in Poland for submitting a proposal to European Union on the topic "Capacity Building in Higher Education".	
31	Awards/ Achievements/Recognitions of students and Teachers		2	
32	Ongoing and Newly implemented research Projects		Nil	
33	Consultancy Services		Nil	
34	Subject/ Department Related Extension activities		Nil	
35	Other Extension Activities, if any		Established the student Chapter of ISTD in CUSAT for enhancing the exposure and industrial connect of the professional students in the university	
<b>V-INFRASTRUCTURE AND LEARNING RESOURCES</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
36	New Equipments and Infrastructure added		19 equipments added	
37	Justification of the use of these equipments		For the purpose of teaching learning process of the students as this is a skill based course. Especially for Mobile Phone application Development and	



			testing	
38	Details of outcomes/ publications after the institution of these equipments		Nil	
39	e-classrooms (Number and Usage)		Nil	
40	Computer Labs (No: of labs and working systems)		One Computer Lab with 27 systems (including one iMac and 4 mac Mini machines)	
41	Access timings of the library		No Centre library in existence during the period	
42	No: of printed books added during the assessment period		Library was not functional during the said period and relied on the Central Library and e- resources.	
43	e-resources and e-journals		E books were collected by faculty members and provided to the students.	
44	Facilities for disabled students		Nil	
45	Maintenance of drinking water		Water cooler is provided in the ground floor.	
46	Maintenance of sanitation		Maintained well and cleaned on a daily basis.	
47	Restroom for women students		Rest rooms are provided	
<b>VI-STUDENT SUPPORT AND PROGRESSION</b>				
	<b>Criteria</b>	<b>Grade</b>	<b>Observations of the Expert</b>	<b>Suggestions for Improvement</b>
48	Availability of a system for student support and mentoring		St Students are supported on a need basis and individual attention provided by the faculty members.	
49	Student Aid fund/ Endowments etc.		3 students aid fund of Rs 4000 Yearly.	
50	Placement details		First batch just completed, nine students got placed immediately after first year	
	No: of Students applied		NA	
	No: of students placed		NA	
51	No: of students qualified in the following examinations			
	NET		NA	

	SET/SLET		NA
	GATE		NA
	CAT		NA
	UPSC		NA
	State PSC		1
	Others		NA
<b>VII-INNOVATIONS AND BEST PRACTICES</b>			
	<b>Criteria</b>		
52	Best practices followed by the Department	High concern for providing Vocational Input in curriculum, instruction and projects. Selected teachers with industry experience only. Inclusion of maximum people from industry as guest faculty and visiting faculty	
53	Innovative Practices followed by the Department	Regular interaction with Industry Partners in the form MOU's and exchange of resource persons from the corporate field.	
54	Green Initiatives	Environment friendly practices are being followed in the Department. Observed Environmental day by planting tree saplings	
55	Actions taken on the recommendations made by the peer team during NAAC visit	NA	
56	Strengths of the Department	It's a vocational department, able to make use of people from industry to provide on the job training to students. Teachers and students work as a team and able to make synergetic efforts to promote DDUKK and vocational courses throughout the states. Teachers are capable organising various events at international level with high standards. Three teachers are having doctorate and good number of publications and one teacher is about to receive her Phd. Good potential for getting elevated as a research Centre. Centre has a good potential to transform as a Centre for carrying out sponsored consultancy works.	
57	Weaknesses of the Department	Vocational courses are not popular in the state and we need to bring more awareness among the targeted group. Centre is located in a temporary facility and struggling with shortage of space. Class rooms are small cubicles. Centre could not own a library due to space shortage and staff shortage. The Degree M.Voc is not included among eligible degrees for recruitment by most of the recruiting companies and efforts need to be strengthened for getting included in the list.	
58	Overall Report and Suggestions for Improvement	Look to audit report for the observations and suggestions of the audit team	

*Curricular Aspects*

*Teaching Learning & Evaluation*

*Research, Consultancy & Extension*

*Infrastructure & Learning Resources*

*Student Support & Progression*

*Innovations & Best Practices*

