Indian Institute of Space Science and Technology

Thiruvananthapuram 695 547

Department of Avionics

Academic Audit Report

2020-2021

Academic audit committee

Internal members

Sl.No.	Faculty Name	Role
1	**Dr. N. Selvaganesan, Professor, Avionics**	Chairman
2	**Dr. Anoop C S, Associate Professor, Avionics**	Convenor
3	**Dr. BASUDEV MAJUMDER, Assistant Professor, Avionics**	Member
4	**Dr. E. Natarajan, Professor, Mathematics**	Member

External members

Sl. No.	Name	Designation	Email	Mobile	Name of the Institute	Role
1	**Dr. Sivakumaran N.**	Professor	nsk@nitt.edu	919443745705	NIT Trichy	Member
2	**Dr. Sneha Gajbhiye**	Assistant Professor	snehagajbhiye@iitpkd.ac.in	9443745705	IIT Palakkad	Member

I Department profile

1	No. of Permanent Faculty Members	22
2	No. of Adjunct Faculty Members	1
3	No. of Contract Faculty Members	1

4	No. of Guest Faculty Members	0
5	No. of Emeritus Professors / Visiting Faculty Members	0
6	No. of Technical Staff / Tutors (Permanent)	3
7	No. of Technical Staff / Tutors (Contract)	6
8	No. of JRFs/ SRF/ JPF (excluding PhD students)	6
9	No. of Project Fellows	6
10	No. of Research Associates	0
11	No. of Post Doctoral Fellows	1

II Details of academic programmes and student strength in numbers

A .Undergraduate/ Dual Degree / Postgraduate programmes

Sl. No.	Programme	Year	Sanctioned strength in the academic year	Student strength in the academic year (At the start of even semester)	Female student strength in the academic year	No. of passed out Students	Pass Percentage
1	B.Tech.: Avionics	I Year	0	0	0	0	0.00
2	B.Tech.: Avionics	II Year	0	0	0	0	0.00
3	B.Tech.: Avionics	III Year	0	0	0	0	0.00
4	B.Tech.: Avionics	IV Year	0	0	0	0	0.00
5	B.Tech.: Electronics and Communication Engineering(Avionics)	I Year	69	64	2	0	0.00
6	B.Tech.: Electronics and Communication Engineering(Avionics)	II Year	0	66	6	0	0.00
7	B.Tech.: Electronics and Communication Engineering(Avionics)	III Year	0	60	2	0	0.00

8	B.Tech.: Electronics and Communication Engineering(Avionics)	IV Year	0	60	9	59	101.69
9	M.Tech.: Control Systems (Standalone)	I Year	10	8	3	0	0.00
10	M.Tech.: Control Systems (Standalone)	II Year	0	7	1	7	100.00
11	M.Tech.: Digital Signal Processing (Standalone)	I Year	10	9	1	0	0.00
12	M.Tech.: Digital Signal Processing (Standalone)	II Year	0	7	1	4	175.00
13	M.Tech.: Power Electronics (Standalone)	I Year	10	10	3	0	0.00
14	M.Tech.: Power Electronics (Standalone)	II Year	0	5	1	6	83.33
15	M.Tech.: RF and Microwave Engineering (Standalone)	I Year	10	8	2	0	0.00
16	M.Tech.: RF and Microwave Engineering (Standalone)	II Year	0	5	1	3	166.67
17	M.Tech.: VLSI and Microsystems (Standalone)	I Year	10	8	3	0	0.00
18	M.Tech.: VLSI and Microsystems (Standalone)	II Year	0	7	2	7	100.00
Total			119	324	37	86	

B. Details of Student Demand Ratio

Programme	No. of students applied	No. of students admitted	Comments	Suggestions
B.Tech.: Avionics	0	0		
B.Tech.: Electronics and Communication Engineering(Avionics)	4555	69		
M.Tech.: Control Systems (Standalone)	500	9		
M.Tech.: Digital Signal Processing (Standalone)	419	10		
M.Tech.: Power Electronics (Standalone)	473	10		
M.Tech.: RF and Microwave Engineering (Standalone)	319	9		
M.Tech.: VLSI and Microsystems (Standalone)	463	10		

C. Doctoral Degree

PhD	During the academic year			Degree awarded
	Sanctioned seats	No. of students admitted	Current student strength	
PART TIME	0	0	0	0
FULL TIME	12	8	55	2

Total	12	8	55	2

III Details of core courses and electives in each programme

Sl. No.	Programme Name	Course code	Course name	Core/ Elective	Credits assigned	As per curriculum revision/ newly added elective course/ syllabus revised
1	B.Tech.: Aerospace Engineering	AV490	Deep Learning and Computational Data Sciences	Institute Elective	3	
2	B.Tech.: Aerospace Engineering	AV435	Instrumentation and Control Systems Lab	Core	2	
3	B.Tech.: Aerospace Engineering	AV315	Automatic Control	Core	3	
4	B.Tech.: Aerospace Engineering	AV461	Advanced Control Theory	Institute Elective	3	
5	B.Tech.: Aerospace Engineering	AV489	Machine Learning for Signal Processing	Institute Elective	3	
6	B.Tech.: Aerospace Engineering	AV111	Basic Electrical Engineering	Core	3	
7	B.Tech.: Aerospace Engineering	AV121	Basic Electronics Engineering	Core	3	
8	B.Tech.: Aerospace Engineering	AV141	Basic Electrical and Electronics Engineering Lab	Core	1	
9	B.Tech.: Avionics	AV411	Navigation Systems and Sensors	Core	3	
10	B.Tech.: Avionics	AV412	Satellite and Optical Communication	Core	3	
11	B.Tech.: Avionics	AV484	Wireless Mesh Networks	Elective	3	
12	B.Tech.: Avionics	AV485	Microelectronics and Microsystem Technologies	Elective	3	
13	B.Tech.: Avionics	AV486	Analog VLSI Circuits	Elective	3	

14	B.Tech.: Avionics	AV490	Deep Learning and Computational Data Sciences	Institute Elective	3	
15	B.Tech.: Avionics	AVD611	Advanced Digital Signal Processing	Elective	3	
16	B.Tech.: Avionics	AVP613	Control of AC Motor Drives	Elective	3	
17	B.Tech.: Avionics	AVR612	Microwave Circuits and Systems	Elective	3	
18	B.Tech.: Avionics	AV431	Navigation Systems and Sensors Lab	Core	1	
19	B.Tech.: Avionics	AV451	Summer Internship and Training	Core	3	
20	B.Tech.: Avionics	AV452	Comprehensive Viva-Voce	Core	3	
21	B.Tech.: Avionics	AV453	Project Work	Core	12	
22	B.Tech.: Electronics and Communication Engineering(Avionics)	AV311	Digital Signal Processing	Core	3	
23	B.Tech.: Electronics and Communication Engineering(Avionics)	AV312	Computer Architecture and Organization	Core	3	
24	B.Tech.: Electronics and Communication Engineering(Avionics)	AV313	RF and Microwave Communication	Core	3	
25	B.Tech.: Electronics and Communication Engineering(Avionics)	AV314	Communication System I	Core	3	
26	B.Tech.: Electronics and Communication Engineering(Avionics)	AV331	Digital Signal Processing Lab	Core	1	
27	B.Tech.: Electronics and Communication Engineering(Avionics)	AV332	Microprocessor and Microcontroller Lab	Core	2	
28	B.Tech.: Electronics and Communication Engineering(Avionics)	AV333	RF and Microwave Communication Lab	Core	1	
29	B.Tech.: Electronics and Communication Engineering(Avionics)	AV321	Computer Networks	Core	3	

30	B.Tech.: Electronics and Communication Engineering(Avionics)	AV322	Power Electronics	Core	3	
31	B.Tech.: Electronics and Communication Engineering(Avionics)	AV323	VLSI Technology	Core	3	
32	B.Tech.: Electronics and Communication Engineering(Avionics)	AV324	Communication Systems II	Core	3	
33	B.Tech.: Electronics and Communication Engineering(Avionics)	AV461	Advanced Control Theory	Elective	3	
34	B.Tech.: Electronics and Communication Engineering(Avionics)	AV489	Machine Learning for Signal Processing	Elective	3	
35	B.Tech.: Electronics and Communication Engineering(Avionics)	AVM863	RF Integrated Circuits	Elective	3	
36	B.Tech.: Electronics and Communication Engineering(Avionics)	AV341	Computer Networks Lab	Core	1	
37	B.Tech.: Electronics and Communication Engineering(Avionics)	AV342	Power Electronics Lab	Core	1	
38	B.Tech.: Electronics and Communication Engineering(Avionics)	AV343	Communication System Lab	Core	1	
39	B.Tech.: Electronics and Communication Engineering(Avionics)	AV211	Analog Electronic Circuits	Core	3	
40	B.Tech.: Electronics and Communication Engineering(Avionics)	AV212	Semi Conductor Devices	Core	3	
41	B.Tech.: Electronics and Communication Engineering(Avionics)	AV213	Network Analysis	Core	3	
42	B.Tech.: Electronics and Communication Engineering(Avionics)	AV214	Electromagnetic and Wave Propagation	Core	4	
43	B.Tech.: Electronics and Communication Engineering(Avionics)	AV231	Analog Electronic Circuit Lab	Core	1	
44	B.Tech.: Electronics and Communication Engineering(Avionics)	AV232	E-CAD Lab	Core	1	

45	B.Tech.: Electronics and Communication Engineering(Avionics)	AV221	Digital Electronics and VLSI Design	Core	3	
46	B.Tech.: Electronics and Communication Engineering(Avionics)	AV222	Instrumentation and Measurement	Core	3	
47	B.Tech.: Electronics and Communication Engineering(Avionics)	AV223	Signals and Systems	Core	4	
48	B.Tech.: Electronics and Communication Engineering(Avionics)	AV224	Control System	Core	3	
49	B.Tech.: Electronics and Communication Engineering(Avionics)	AV241	Digital Electronics and VLSI Design Lab	Core	1	
50	B.Tech.: Electronics and Communication Engineering(Avionics)	AV242	Instrumentation and Measurement Lab	Core	1	
51	B.Tech.: Electronics and Communication Engineering(Avionics)	AV243	Control System Lab	Core	1	
52	B.Tech.: Electronics and Communication Engineering(Avionics)	AV111	Basic Electrical Engineering	Core	3	
53	B.Tech.: Electronics and Communication Engineering(Avionics)	AV121	Basic Electronics Engineering	Core	3	
54	B.Tech.: Electronics and Communication Engineering(Avionics)	AV141	Basic Electrical and Electronics Engineering Lab	Core	1	
55	Dual Degree: Astronomy & Astrophysics	AV490	Deep Learning for Computational Data Science	Institute Elective	3	
56	Dual Degree: Engineering Physics	AV316	Digital Signal Processing	Core	3	
57	Dual Degree: Engineering Physics	AV317	Instrumentation and Measurement	Core	3	
58	Dual Degree: Engineering Physics	AV336	Digital Signal Processing Lab	Core	1	
59	Dual Degree: Engineering Physics	AV337	Instrumentation and Measurement Lab	Core	1	

60	Dual Degree: Engineering Physics	AV489	Machine Learning for Signal Processing	Institute Elective	3	
61	Dual Degree: Engineering Physics	AV215	Signal and Systems	Core	4	
62	Dual Degree: Engineering Physics	AV225	Analog and Digital Circuits	Core	3	
63	Dual Degree: Engineering Physics	AV111	Basic Electrical Engineering	Core	3	
64	Dual Degree: Engineering Physics	AV121	Basic Electronics Engineering	Core	3	
65	Dual Degree: Engineering Physics	AV141	Basic Electrical and Electronics Engineering Lab	Core	1	
66	M.Tech.: Aerodynamics and Flight Mechanics	AVC623	Robust Control Systems	Elective	3	
67	M.Tech.: RF and Microwave Engineering	AVR852	Project Work Phase - I	Core	15	
68	M.Tech.: RF and Microwave Engineering	AVR854	Seminar - III	Core	2	
69	M.Tech.: RF and Microwave Engineering	AVR853	Project Work Phase - II	Core	18	
70	M.Tech.: RF and Microwave Engineering	AVR611	Advanced Electromagnetic Engineering	Core	3	
71	M.Tech.: RF and Microwave Engineering	AVR612	Microwave Circuits and Systems	Core	3	
72	M.Tech.: RF and Microwave Engineering	AVR613	Microwave Semiconductor Devices	Core	3	
73	M.Tech.: RF and Microwave Engineering	AVD611	Advanced Signal Analysis and Processing	Elective	3	
74	M.Tech.: RF and Microwave Engineering	AVR631	Microwave Circuit Lab	Core	1	
75	M.Tech.: RF and Microwave Engineering	AVR614	Seminar I	Core	1	
76	M.Tech.: RF and Microwave Engineering	AVR621	Antenna Theory and Design	Core	3	

77	M.Tech.: RF and Microwave Engineering	AVR622	Computational Methods for Electromagnetics	Core	3	
78	M.Tech.: RF and Microwave Engineering	AVM863	RF Integrated Circuits	Elective	3	
79	M.Tech.: RF and Microwave Engineering	AVR871	Electromagnetic and Microwave Application of Metamaterials	Elective	3	
80	M.Tech.: RF and Microwave Engineering	AVRD01	RF Engineering Design	Core	2	
81	M.Tech.: RF and Microwave Engineering	AVR641	Antenna Design Lab	Core	1	
82	M.Tech.: RF and Microwave Engineering	AVR851	Seminar - II	Core	2	
83	M.Tech.: Digital Signal Processing	AVD644	Summer Design Project	Core	2	
84	M.Tech.: Digital Signal Processing	AVD852	Project Work Phase I	Core	15	
85	M.Tech.: Digital Signal Processing	AVD853	Project Work Phase II	Core	18	
86	M.Tech.: Digital Signal Processing	AVD611	Advanced Signal Analysis and Processing	Core	3	
87	M.Tech.: Digital Signal Processing	AVD612	Mathematical Methods for Signal Processing	Core	3	
88	M.Tech.: Digital Signal Processing	AVD613	Communication Systems I	Core	3	
89	M.Tech.: Digital Signal Processing	AVD614	Pattern Recognition and Machine Learning for Data Processing	Elective	3	
90	M.Tech.: Digital Signal Processing	AVD632	Image and Video Processing Lab	Core	1	
91	M.Tech.: Digital Signal Processing	AVD633	Communication Systems Lab	Core	1	
92	M.Tech.: Digital Signal Processing	AVD621	Statistical Signal Processing	Core	3	
93	M.Tech.: Digital Signal Processing	AVD622	DSP System Design	Core	3	

94	M.Tech.: Digital Signal Processing	AVD623	Communication Systems - II	Core	3	
95	M.Tech.: Digital Signal Processing	AVD624	Computer Vision	Core	3	
96	M.Tech.: Digital Signal Processing	AVD871	Applied Markov Decision Processes and Reinforcement Learning	Elective	3	
97	M.Tech.: Digital Signal Processing	AVD872	Internet of Things	Elective	3	
98	M.Tech.: Digital Signal Processing	AVD641	DSP System Design Lab	Core	1	
99	M.Tech.: Digital Signal Processing	AVD642	Deep Learning for Visual Computing Lab	Core	1	
100	M.Tech.: Digital Signal Processing	AVD643	Innovative Design Project	Core	1	
101	M.Tech.: VLSI and Microsystems	AVM851	Summer Design Project	Core	2	
102	M.Tech.: VLSI and Microsystems	AVM853	Project Phase I	Core	15	
103	M.Tech.: VLSI and Microsystems	AVM854	Project Phase II	Core	18	
104	M.Tech.: VLSI and Microsystems	AVM611	Physics of Micro and Nanoelectronic Devices - I	Core	3	
105	M.Tech.: VLSI and Microsystems	AVM612	Introduction to MEMS	Core	3	
106	M.Tech.: VLSI and Microsystems	AVM613	Analog VLSI Circuits	Core	3	
107	M.Tech.: VLSI and Microsystems	AVM614	Digital VLSI Circuits	Core	3	
108	M.Tech.: VLSI and Microsystems	AVC614	Applied Linear Algebra	Elective	3	
109	M.Tech.: VLSI and Microsystems	AVM631	VLSI Design Lab	Core	1	
110	M.Tech.: VLSI and Microsystems	AVM621	Mixed Signal VLSI Design	Core	3	
111	M.Tech.: VLSI and Microsystems	AVM622	Micro/Nano Fabrication Technology	Core	3	
112	M.Tech.: VLSI and Microsystems	AVM863	RF Integrated Circuits	Elective	3	

113	M.Tech.: VLSI and Microsystems	AVM868	Compound Semiconductor Devices and Technology	Elective	3	
114	M.Tech.: VLSI and Microsystems	AVM870	Photonic Integrated Circuits	Elective	3	
115	M.Tech.: VLSI and Microsystems	AVM002	VLSI Physical Design	Elective	3	
116	M.Tech.: VLSI and Microsystems	AVM641	MEMS Lab	Core	1	
117	M.Tech.: VLSI and Microsystems	AVM642	Microelectronics Lab	Core	1	
118	M.Tech.: VLSI and Microsystems	AVM643	Engineering Project Design and Seminar	Core	2	
119	M.Tech.: Control Systems	AVC854	Internship Seminar	Core	3	
120	M.Tech.: Control Systems	AVC855	Project - Phase I	Core	12	
121	M.Tech.: Control Systems	AVC856	Project - Phase II	Core	20	
122	M.Tech.: Control Systems	AVC611	Linear Systems Theory	Core	3	
123	M.Tech.: Control Systems	AVC612	Nonlinear Dynamical Systems	Core	2	
124	M.Tech.: Control Systems	AVC613	Control Systems Design	Core	3	
125	M.Tech.: Control Systems	AVC614	Applied Linear Algebra	Core	3	

IV Review on Curriculum

Criteria	Reponse	Revision made during this academic year	Comments on curriculum, if any	Suggestions for improvement
Qualitative comment on the content of the curriculum	VERYGOOD			

V Review on Teaching, Learning and Evaluation

Sl. No.	Criteria	Response based on criteria	Comments	Suggestions

1	Any innovative teaching methods/aids adopted?	Yes Course webpages and supporting material were set up by the faculty members using IIST's Moodle server. Online software demonstrations were used to reinforce the theoretical concepts taught in class.		
2	Is any e-learning modules developed?	Yes All courses were supported by Moodle platform. Recorded lectures were also given.		
3	**Student evaluation procedure**			
Criteria		**Response**	**Comments**	**Suggestions**
Course evaluation				
Project evaluation				
4	**Evaluation components**			
Criteria		**Response**	**Comments**	**Suggestions**
Theory		Continuous assesment and end semester exam		
Lab		Continuous assesment and end semester exam		
Project/ Internship/ Seminar		Mid term evaluaion and final evaluation		
5	**Continuous Assessment Components**			
Theory		Quiz I Quiz II Others - Includes assignments, class tests, term projects, technical report submission, etc.		
Lab		Class exercise evaluation End Semester Examination Class exercise evaluation & End Semester Examination Lab exercise evaluation, Attendance, viva, report evaluation, mini projects		

6	Is there any remedial coaching to support weak performers?	Yes	Remedial tutorial sessions, special classes, and problem/ recitation sessions were conducted for some theory courses. For some lab courses - makeup sessions as well as instructor led discussions were arranged for students having difficulty completing the labs on time.	
7	Is academic feedback from students taken regularly?	Yes	In a semester, feedback regarding courses is taken in class committee meetings where the students are encouraged to let the faculty members know the issues they are facing in each course. Academic feedback is also taken at the end of every semester, for each course. Students give anonymous feedback online on the courses they have attended at the end of each semester.	
8	What are the steps taken based on student's feedback?	Based on feedback received during class committee meetings, individual faculty members tune various aspects of their course such as teaching speed, supporting material, problem sheets to suit the current batch of students. The academic feedback obtained at the end of the semester is also used to improve the teaching and supporting material, overall course content and course evaluations for succeeding semesters.		
9	Is Class committee meetings conducted?	Yes Class committee meetings are conducted every semester, for all courses at UG and PG level. The meetings are attended by course instructors and a representative set of students, and class committee minutes are recorded, and adequate corrective actions are taken.		

VI Department faculty credentials

Sl. No.	Criteria	Response	Comments	Suggestions
1	Percentage of faculty with PhD	100		
2	No. of journal articles published	42		
3	No. of books published	0		
4	No. of book chapters published	0		
5	No. of invited talks/ conferences/ workshops attended	0		
6	No. of research projects funded by IIST	5		
7	No. of research projects funded through ASRG/IIST-ISRO/DoS	3		
8	No. of externally funded research projects like CSIR, DST, DRDO etc.	3		
9	No. of patents published/ awarded	0		
10	No. of patents filed	4		
11	No. of faculty/student awards received	4		
12	No. of conferences/Workshops/ seminars/Colloquium Organized	0		
13	No. of conference paper published	10		
14	No. of visits made by the faculty/ student for research collaborations/invited talks/ conferences abroad	0		
15	No. of Industry collaborative projects	0		
16	No. of ISRO mission related projects/ activities	2		
17	No. of consultancy services entertained	0		

VIII Details of student co-curricular activities

Criteria	Response	Comments	Suggestions
Whether students are involved in extra curricular & co-curricular activities?	Yes		

Whether students are doing internship abroad?	No		
Whether students are doing internship at national academic institutes / universities?	No		
Whether students are doing internship at ISRO/ Industries/ R&D institutes?	Yes Externally sponsored	Sreedevi B -Global Foundries Sumathy N -Janyu Technologies Rahul Chandra - Janyu Technologies	
Whether the department conducts outreach programs?	Yes An online Faculty Development Programme on Control and Automation was organised by the Department of Avionics during 15th to 18th December 2020 for the benefit of faculty members, scientists/engineers from industries as well as research scholars.		
Whether department has alumni activities?	Yes An introductory session on Quantum Computing was taken by Aritra Sarkar (B.Tech. 2013 Batch ECE (Avionics)) as a necessary step before moderating the panel discussion on the same topic		

IX Details of placement/ higher studies of students

Criteria	UG	PG	PhD	Comments	Suggestions
No. of students placed	47	18	0		
No. of students opted for higher studies	0	19	0		
No. of students cleared GATE/ SLET/ NET/ CSIR/ UGC/ Others etc.	5	0	0		

X Infrastructure in the Department

Sl. No.	Criteria	Response	Comments	Suggestions
1	No. of classrooms	7		
2	No. of seminar/ conference rooms	1		
3	No. of instruction labs	14		
4	No. of research labs	16		
5	No. of full-fledged e-learning classrooms	1		
6	No. of computing labs	0		
7	Is there any lab with potential for centre of excellence?	NEMS Nano & Optoelectronics Systems (NEMO) Computer Vision and Virtual Reality Center of Excellence(CVVR-CoE)		
8	Is there any labs sponsored by external agency?	no		
9	Inter-disciplinary research facility	Biosensor and Gas sensor lab, SSPACE		
10	Is there any common amenities like restroom, recreation club, etc.?	2 restrooms on each floor, 1 Badminton court and 1 Table tennis.		
11	Is there any facilities for differently abled?	Lift facility and Separate restroom for differently abled.		
12	Is there any Department library?	No. Institute has an excellent library with vast coverage of books and resources on Electrical, Electronics and Computer Science.		

XII Additional Information

1.	Does the curriculum of each programme offered by the department provide the Programme Educational Objectives (PEOs)/Programme Specific Outcomes (PSOs) and Programme Outcomes (POs)?	No
2.	Do the courses offered in each programme by the department provide the Course Objectives and Course Outcomes (COs) written in clear terms?	No
3.	Give the status of adopting Choice Based Credit System (CBCS) in the programmes offered by the department	Implemented
4.	Give the status of adopting Objective Based Education (OBE) in the programmes offered by the department.	Action Initiated
5.	Satisfaction level of support of academic, administrative, and other support units of the institution	Very good

6.	The status of taking feedback from stakeholders and expert groups for revision and design of curriculum of a programme.	Student Faculty Employers Academic Peers
7.	The list of extension programmes conducted by the department	Nil
8.	List Faculty Development Programme conducted (any programme aiming at updating the knowledge of faculty of the department).	An online Faculty Development Programme on Control and Automation was organised by the Department of Avionics during 15th to 18th December 2020 for the benefit of faculty members, scientists/engineers from industries as well as research scholars.
9.	Does students take projects involving Field work/Survey. If yes, give the list.	-
10.	The List of MoU and MoAs, that are currently operational during the year.	MOUs with University of Colorado, Boulder, NTU, Singapore, Caltech, USA and University of Surrey, UK, LAAS-CNRS, France, EWI TU DELFT, Netherlands
11.	Detail the mechanism adopted to help academically disadvantaged students to cope with academic requirements	Additional class sessions and/or tutorial classes were taken for many of the difficult theory subjects. Compensation lab sessions were also held, in case students were not able to complete the lab within the stipulated time frame.

12.	Detail the mechanism adopted to help students who perform very much below the class averages	Quiz-3 was conducted for first year students, in case they did not perform well in quiz 1 and 2. Supplementary exams were conducted in the summer timeframe for students who could not obtain pass grades.
13.	The total grant/revenue generated/received from different agencies by the department conducting research projects/consultancy services during the year.	36.8 Lakhs
14.	The suggestions to improve the efficiency and effectiveness of the IIST system.	Kindly refer Section XIV and XV

XIII. Strength of the Department (maximum 150 words).

The department offers a curriculum that is tailored to the needs of the aerospace industry, focusing on electronics, communication systems, control systems, and navigation technologies relevant to spacecraft and avionics. The department boasts highly qualified faculty members who are experts in their respective fields of avionics, electronics, signal processing, and related areas. Their research contributions and industry experience enrich the learning experience for students. Faculty and students engage in cutting-edge research in areas such as satellite communication systems, embedded systems, radar technologies, navigation and guidance systems, and remote sensing applications. This research contributes to advancements in aerospace technology. The department collaborates closely with leading aerospace organizations and research institutions like ISRO and DRDO. These collaborations provide students with opportunities for internships, projects, and exposure to real-world aerospace applications. Students from the Department of Avionics have consistently excelled in national and international competitions, conferences, and research symposiums. They have also secured placements in reputed aerospace companies and research organizations. The department maintains high academic standards and encourages students to pursue academic excellence through rigorous coursework, research projects, and continuous learning opportunities.

XIV. Weakness of the Department (maximum 150 words).

Ensuring adequate resources for all students and researchers to access can be challenging. Given the rapid advancements in aerospace electronics and avionics technology, there might be a need to continually update and revise the curriculum to ensure it remains aligned with industry trends and emerging technologies. The department's faculty size and diversity in terms of expertise and research focus areas may impact the breadth of courses offered and the availability of specialized knowledge in certain niche areas of avionics. The teaching load per faculty is also in the higher side. While IIST has collaborations with international institutions, expanding opportunities for global exposure through exchange programs and joint research initiatives could enhance the department's international standing and enrich students' perspectives. The engagement with private startups and companies in space and systems related areas is necessary for good visibility and overall growth of the department.

XV. Challenges (maximum 150 words).

In general avionics technology evolves quickly, with advancements in areas such as communication systems, navigation, and control systems. Keeping the curriculum updated to reflect these changes and ensuring students are equipped with the latest skills and knowledge can be challenging. Recruiting and retaining highly qualified faculty members with expertise in diverse areas adapting to those cutting edge research of avionics can be challenging. Faculty turnover and the need to attract experts in emerging fields of avionics technology are ongoing concerns. While the department collaborates with industry partners, ensuring that these collaborations result in meaningful opportunities for internships, projects, and placements for students can be a challenge. Bridging the gap between academic learning and industry expectations is crucial. Ensuring that the curriculum remains relevant and aligned with industry needs and technological advancements is essential. Regular review and updates are necessary to prepare students for careers in a rapidly changing field. Providing adequate support for student projects, research initiatives, and extracurricular activities in avionics can enhance learning outcomes and overall student satisfaction. The teaching load of the faculties sometimes become very high, which also can be seen as a challenge. In 2020-2021 the department hits with its first covid wave, so to shift the academic activities from offline mode to online mode was a big challenge.

XVI. Opportunities (maximum 150 words).

The Avionics Department at IIST stands at a pivotal junction, closely linked with ISRO and poised for significant advancements in satellite technology and payload development. With access to pioneering ISRO activities like satellite launches and interplanetary missions, the department is primed for impactful contributions to India's space exploration endeavours. Its dual focus on fundamental and applied research positions it to attract substantial research grants from national and international agencies, including the Department of Space, fostering innovation and technological advancement. Moreover, forging partnerships with global universities and research institutions promises valuable knowledge exchange and collaborative research projects, enhancing the department's global footprint in aerospace technology. The shift to online platforms for technical discussions amid the pandemic opens new avenues for international research collaborations and virtual engagements, transcending geographical boundaries. By leveraging these strengths, the Avionics Department can accelerate technology transfer initiatives with ISRO, driving practical applications and commercialization of research outcomes. This strategic alignment not only reinforces its role in India's space sector but also propels it towards global leadership in satellite technology and avionics research.

Final Recommendations:

Avionics Department has performed well during this academic year. The faculty members have meticulously managed a B. Tech programme in Electronics and Communication Engineering and five postgraduate programs, especially in view of online mode of teaching and the other challenges related to the pandemic situation. Students from the Department of Avionics have consistently excelled in national and international competitions, conferences, and research symposiums. The department maintains high academic standards and encourages students to pursue academic excellence through rigorous coursework, research projects, and continuous learning opportunities.

On the day of meeting, the team verified all the documents and records available in the department and evaluated the academic process. A detailed report of the audit is given above. The report is signed by the following:

Date of meeting: 11th July, 2024

14/7/2024

Dr. E. Natarajan,
Professor, Department of Mathematics,
IIST

14/07/24
Dr. Anoop C S

Dr. Sneha Gajbhiye
Assistant Professor
Department of Electrical Engineering
IIT Palakkad

11/7/24
Dr. Sivakumaran N.
Professor,
NIT Trichy

Signature of Committee members

Basudev Mjunder.

Approved by,

डॉ एन.सेल्वगणेशन / Dr. N. Selvaganesan
आचार्य एवं अध्यक्ष / Professor & Head
एविओनिकी विभाग / Department of Avionics
भारतीय अंतरिक्ष विज्ञान एवं प्रौद्योगिकी संस्थान
Indian Institute of Space Science and Technology
अंतरिक्ष विभाग, भारत सरकार
Dept. of Space, Govt. of India
तिरुवनंतपुरम / Thiruvananthapuram - 695547

Dean Academics, IIST

प्रोफ. कुरुविळा जोसफ़/Prof. Kuruvilla Joseph
डीन (शैक्षिकी), आईआईएसटी
Dean (Academics), IIST