

**SANT LONGOWAL INSTITUTE OF ENGINEERING. & TECHNOLOGY,  
LONGOWAL, DISTRICT SANGRUR  
(Deemed to be University)**

**DEPARTMENT OF ECE**

Ref. No: ECE/3042

Date: 7/11/21

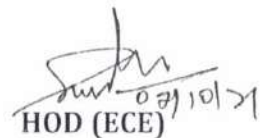
From : HOD (ECE)

To : Dean (Academic)

Subject : **Conduct of Academic Audit of ECE Department for the Academic year 2020-21 regarding.**

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With reference to your letter No. Dean (A)/2021/1201 dated 06.10.2021, regarding the Academic audit of SLIET for the Academic year 2020-21. Please find enclosed herewith the Academic Audit Report of ECE Department for the year 2019-20 & 2020-21.

  
HOD (ECE)

SANT LONGOWAL INSTITUTE OF ENGINEERING & TECHNOLOGY  
ACADEMIC AUDIT (2019-20 and 2020-21)  
PROFORMA OF ASSESSMENT

1. Name of the Department: ELECTRONICS & COMMUNICATION ENGG.

2. Reviewer (Name, Designation & Address): Dr. Surinder Singh, HOD (ECE)-  
Convener

Dr. J.S Dhillon, Dean (Academics)  
Dr. Anupma Marwaha, Professor (ECE)

Dr. Ajay Pal Singh, Professor (ECE)  
Dr. D.C. Saxena, Professor (FET)  
Dr. J.K. Bhangu, Professor (M & H)  
Dr. B.S. Saini, NIT Jalandhar

**External Expert:**

3. Date of Review:

**NOTE:**

- i. Please grade in the box provided for the following parameters in the range of 1-10 with 10 being the highest.
- ii. Leave 'blank' for 'No Comment'.
- iii. Kindly give your opinion on the strength and weakness of the Department and your suggestions for future growth.

**A. ACADEMICS**

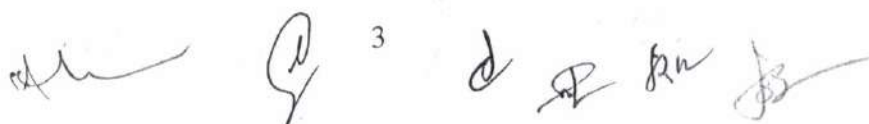
S.N.	ICD Program	Score			
		Self assessment		Expert assessment	
		2019-20	2020-21	2019-20	2020-21
1.	Curriculum (Structure, Course Syllabi, Flexibility), Theory/ practical (contents/ratio).	8	8	8	8
2.	Equivalence and Relevance of curriculum at national level	9	9	9	9
3.	Formal Academic Load on Students [Teaching, Laboratory/Practical, Projects (minor/major)]	8	7	8	7
4.	Evaluation Process (Continuing Evaluation, and End-Term Evaluation)	9	9	9	9
5.	Tour/Training/Industrial visits/Internship opportunities provided during the year	8	6	8	6
6.	Effectiveness of Assisted Learning, Tutorial System for ICD Students/ Seminars (Refer Course File)	7	7	7	7
7.	Faculty Mentoring/Faculty Advisor System for Students/Class of Students	10	10	10	10

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8.	Practical activities, non-academic and totally related to a specific trade for skill development and <i>developing expertise in a particular group of techniques.</i>	8	5	8	5
9.	Linkage of ICD programs to outcome based vocational education (Industry linkage)	8	8	8	8
10.	Availability of workshop type lab/laboratory for providing hand on training to the students for skill development	9	8	9	8
	<b>Total Score (out of 100)</b>	<b>84</b>	<b>77</b>	<b>84</b>	<b>77</b>
<b>A.2</b>	<b>UG Program</b>	<b>Score</b>			
		Self assessment		Expert assessment	
		(2019-20)	(2020-21)	(2019-20)	(2020-21)
1.	Curriculum (Structure, Course Syllabi, Flexibility)	9	9	9	9
2.	Status of study material developed by faculty for students	7	8	7	8
3.	Relevance of contents of courses taught to the students and scope of improvement (revision of syllabus, addition of new experiments)	8	9	8	9
4.	Formal Academic Load on Students [Teaching, Laboratory/Practical, Projects(minor/major)]	9	7	9	7
5.	Modern teaching methods in practice other than the conventional methods E-Assisted Learning (i) Availability of Library Resources (ii) Multi-Media Assisted Teaching	8	10	8	10
6.	Evaluation Process (Continuing Evaluation, and End-Term Evaluation) (i) Theory and tutorial (ii) Practical (case studies)	8	8	8	8
7.	Faculty-Student Interaction (Whether any slot is fixed for the students to interact with a teacher, after classes/labs)	9	9	9	9
8.	Tour/Training/Industrial visits/Internship opportunities	7	6	7	6
9.	Effectiveness of Assisted Learning in Tutorial classes/seminars for Students	9	9	9	9
	Faculty Mentoring/Faculty Advisor System for Students/Class of Students				
10	Placement %age/higher studies options (last three years)	8	4	8	4
	<b>Total Score (out of 100)</b>	<b>82</b>	<b>79</b>	<b>82</b>	<b>79</b>

A.3 PG Program (Separate for each program)		Score			
S. N.		Self assessment		Expert assessment	
		2019-20	2020-21	2019-20	2020-21
1.	Curriculum (Structure, Course Syllabi, Flexibility)	9	9	9	9
2.	Formal Academic Load on Students [Teaching, Laboratory/Practical, Projects(minor/major)]	9	9	9	9
3.	Evaluation Process (Continuing Evaluation, and End-Term Evaluation)	10	10	10	10
4.	Relevance of contents of courses taught to the students and scope of improvement	9	9	9	9
5.	Modern teaching methods in practice other than the conventional method E-Assisted Learning i. Availability of Library Resources and Major Search Engines (like Scopus, Web of Science) ii. Multi-Media Assisted Teaching	9	9	9	9
6.	Technical Societies/ Colloquium for Students i. Departmental Society ii. Student Chapter(s) of Professional Societies	9	9	9	9
7.	Tour/Training/Industrial visits/Internship opportunities	8	6	8	6
8.	Collaboration with other departments (within institute)	9	9	9	9
9.	Faculty Mentoring/Faculty Advisor System for Students/Class of Students	9	9	9	9
10.	Monitoring and continuous evaluation of the project work assigned to the students (mechanism)	8	9	8	9
<b>Total Score (out of 100)</b>		<b>89</b>	<b>88</b>	<b>89</b>	<b>88</b>

A.4 Doctoral (Ph.D.) Programmes		Score			
		Self assessment		Expert assessment	
		2019-20	2020-21	2019-20	2020-21
1.	Intake of Ph.D. Students	8	7	8	7
2.	Admission Process	7	7	7	7
3.	Pre-Ph.D Courses and Evaluation Process	8	8	8	8



4.	Breadth and Depth of Knowledge of Students	8	7	8	7
5.	Seminar/ Presentations and Technical Communication	7	8	7	8
6.	Research Facilities available in the Department	5	8	5	8
7.	Average No. of Research Students/Faculty	9	8	9	8
8.	Average No. of Research Papers of Ph. D Students (Indexed Journals)	8	6	8	6
9.	Average Duration to Complete Ph.D (years)	8	8	8	8
10.	Participation of Research Scholars in Conferences/Workshops	8	6	8	6
<b>Total Score (out of 100)</b>		<b>76</b>	<b>73</b>	<b>76</b>	<b>73</b>

### B. RESEARCH

Sr. No.		Score			
		Self-assessment		Expert assessment	
		2019-20	2020-21	2019-20	2020-21
1.	Research Ambience in the Department	8	7	8	7
2.	Research Awareness among Doctoral Students	8	8	8	8
3.	Thrust areas of research in the department	6	8	6	8
4.	Quality of Research	9	9	9	9
5.	Collaborations with other departments (within the institute) and at National, and International levels.	8	9	8	9
6.	Impact and Quality of Publications	9	8	9	8
7.	Relevance of Research to Knowledge Generation and Social Relevance	9	8	9	8
8.	Student Exposure for Attending Quality Conferences/Symposia	9	8	9	8
9.	Inter departmental collaborations	7	8	7	8
10.	Industry/externally funded sponsored research (Numbers and amount)	9	10	9	10
<b>Total Score (out of 100)</b>		<b>82</b>	<b>83</b>	<b>82</b>	<b>83</b>

### General Comments on,

1. Plan of action of the department for the next five years (in view of NEP 2020)

#### **Action Plan (Academic Standard)**

The quality of teaching will be improved by:

- Introducing skill-development courses leading to professional advancement.
- Combining existing courses with specific hands-on learning.
- Ensuring student-learning outcomes for each academic program.
- Arranging expert lectures by experienced faculty or scientists from National/International laboratories or institutes on latest developments in the subject.



- Organizing seminars, workshops and conferences for faculty and students.

#### **Action Plan (Student Mentoring)**

- Help the students to lower stress and build confidence through effective counselling.
- Tailor mentoring style and content to the student to overcome differences based on factors including culture, ethnicity, gender, social background.
- Impart career guidance through an interpersonal engagement by sharing experience and expertise.
- Constructive interaction with a mentor and participation in collective activities.

#### **Short term goals**

- To upgrade laboratories and teaching learning infrastructure.
- Technical Knowledge/skills upgradation of faculty and staff.

#### **Long term goals**

- To get PG program accredited by the NBA.
- To implement Visvesvaraya/externally funded schemes for Ph.D. programme.
- To accomplish consultancy services through industries/research organizations.
- To procure specialized/high end equipment for Microwave Lab equipment, Machine Vision and Motion Control Lab, Wireless Communication, VLSI design and Optical Communication, Internet of Things.

### **2. Significant achievements of the department (faculty/Staff/Students)**

- Two faculty members namely Dr Surinder Singh and Dr Dilip Kumar and one JRF Dr Sukhbir Singh have been recognized as top 2% scientist in the world as per Stanford University survey.
- **Also, the department has been awarded with NBA accreditation for three years.**

### **3. Placement record of the department (Last three years)**

<http://ece.sliet.ac.in/placement-and-higher-studies-data/>

In addition to this the final student Ms. Amritanjali has been selected in Walmart with an attractive package.

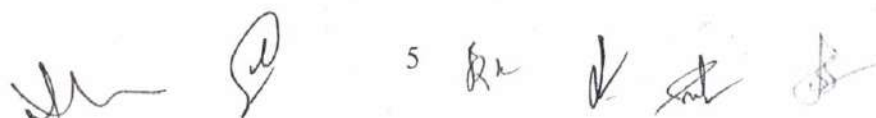
#### **2019-20 (UG):**

No. of placement (in-campus)	30
No. of placement (Higher Studies)	06
No. of placement (Total inclusive of Campus, higher studies & other))	24

#### **2020-21 (UG)**

No. of placement (in-campus)	17
No. of placement (Higher Studies)	--
No. of placement (Total inclusive of Campus, higher studies & other))	

- ### **4. Scope for training of faculty/staff for further strengthening the teaching-learning process for strengthening the curriculum with the addition of new courses having relevance at National and International levels.**



All the faculty and staff members are encouraged to regularly attend the training program. Recently many faculty members have enrolled themselves in AICTE approved comprehensive teachers training programs. Also, recently the Board of Studies have been conducted and subjects like Deep learning, AI and Machine Learning have been approved and incorporated at appropriate level.

**5. Effective/Continuous monitoring of faculty/staff in delivery the course contents (at departmental level) for enhancing the teaching-learning process.**

To implement it in the ECE department, suggestions are regularly invited from the faculty members regarding revisions in the syllabus, CO-PO mapping, attainment etc. Also, changes suggested by the students, if any, are also taken into consideration. Based on the suggestions received, matters are discussed in the DAAC meeting, and minutes are recorded and forwarded to HOD (ECE) for further consideration in the Board of Studies.

**6. Technical Societies/ Colloquium for Students**

- (i) Departmental Society  
Electronic Society
- (ii) Student Chapter(s) of Professional Societies  
IEI chapter

**7. Scope of improvement in the presenting teaching –learning process**

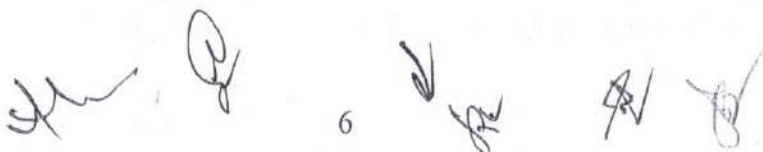
The rapid changes and increased complexity of today's world present new challenges and put new demands on our education system. There has been generally a growing awareness of the necessity to change and improve the preparation of students for productive functioning in the continually changing and highly demanding environment. In confronting this challenge, it is necessary to consider the complexity of the education system itself and the multitude of problems that must be addressed.

- Adapting teaching to different student characteristics by using diverse methods of teaching. Adaptation to the ability levels, patterns of different abilities, learning styles, personality characteristics, and cultural backgrounds.
- Integrating the curriculum by developing inter-disciplinary curriculum units that enable students to acquire knowledge from different disciplines through a unifying theme while having the opportunity to contribute in different and special ways to the objectives of the integrated units.

**8. The skill and expertise of the faculty/Technical staff in the department (specific)**

To better align with the today's research scenario, three specific research groups formed in the department to focus the department research output.

- VLSI & Embedded Systems,
- Broadband Communication,
- Intelligent Systems & Networking



9. **Strengthening laboratory infrastructure (adding of new equipment's and use of present facility for optimum use)**

To augment the existing lab infrastructure new hardware and software equipment's are procured time to time. Recently TaraNG software for UG and PG students have been purchased. Also, for UG project lab specifically various hardware equipment has also been procured.

Also, recently the fire extinguishers have been refilled to meet the safety needs of the lab. In the recent financial year, for each lab fresh consumable has also been procured.

10. Any other point (n/a)

**C. Departmental Infrastructure**

S. No.	Infrastructure	Score			
		Self-assessment		Expert assessment	
		(2019-20)	(2020-21)	(2019-20)	(2020-21)
1	Adequacy of Class Rooms and Multi-Media Facility	8	9	8	9
2	Availability of Laboratories	8	9	8	9
3	Availability of Conference/Seminar Room, etc.	9	9	9	9
4	Availability of Seating Space for Faculty and Research Students	10	10	10	10
5	Availability of Internet Services in Research Labs and Class Rooms	10	10	10	10
6	Departmental Library and E-Resources	10	10	10	10
7	Computing Facilities and Software	9	9	9	9
8	Adequacy of Offices and Furnishing for Faculty	9	9	9	9
9	Faculty- Student Ratio	9	9	9	9
10	Support Staff (Technical/Administrative) Adequacy	10	10	10	10
<b>Total Score (out of 100)</b>		<b>92</b>	<b>94</b>	<b>92</b>	<b>94</b>

**SWOT analysis by the department**

**Strengths:**

1. Experienced, Dedicated and highly qualified faculty members in specialized areas with good number of publications in reputed journals (SCI indexed).
2. MoU with Industry, research institute for dissemination of knowledge and use of their research facilities.
3. Research fellowships to support the research.
4. Externally funded projects.
5. Well established laboratories and research facilities with efficient technical support.
6. Good interactions with outer world.
7. Well Established and specialized/high end equipment for Microwave Lab.



8. Availability of smart class rooms in the Department.

**Weaknesses:**

1. Limited bondage between Departments & Industry for accessing Industrial needs.
2. Lack of running informal courses.
3. Student- Faculty ratio needs to be improved.

**Opportunities:**

1. Procure equipments for ICD, UG and PG laboratories as per new scheme.
2. Procure specialized/high end equipment for Wireless Communication, VLSI design and Optical Communication and Sensing.
3. Establishment of Centre for skill development.
4. Establishment of Centre of Excellence is in progress.
5. Collaborate with industry people for the designing and development of curriculum and laboratory experimentation.

**Threats:**

1. Intake in PG Program is less.

**Suggestions for improvement:** Need procurement of furniture for faculty offices and extension of internet services to classrooms and labs.

**D. Outcomes**

S. no.		Score			
		Self-assessment		Expert assessment	
		2019-2020	2020-2021	2019-2020	2020-2021
1	i. Placements for ICD ii. Placement of B. Tech iii. Placement of Masters Student iv. Placement of Ph. D Students	7	6	7	6
2	Average No. of PhDs Awarded per Year	7	9	7	9
3	Publications per Faculty in Indexed Journals/Year (Average of last three years)	9	8	9	8
4	Average Citations per Faculty/Year (Last-Three Years) (Web of Science/Scopus)	9	8	9	8
5	Recognitions; Awards (National/International) to Faculty/Students	8	9	8	9
6	Consultancy and Externally Funded Projects	9	8	9	8
7	No. of Ph.D. graduates who took Academics as Career (Last 5 Years)	8	9	8	9
8	Students offered for higher studies	7	6	7	6
9	No. of qualified students NET/GATE/CAT etc (State/Central Civil Services)	6	6	6	6
10	Entrepreneurship	3	2	3	2

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	Total Score (out of 100)	73	71	73	71
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**Comments & Suggestions for Improvement**

1. Faculty members should put more effort for consultancy.
2. Industry institute linkage to be strengthened.
- 3, More Industrial tours for students be organized
4. Practical related to case studies be incorporated.
5. Students should be counseled for clearing GATE, Opting for higher studies & entrepreneurship etc.

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**SANT LONGOWAL INSTITUTE OF ENGINEERING & TECHNOLOGY**

**ACADEMIC AUDIT (2019-20 and 2020-21)**


**SUMMARY SHEET**

1.	Name of the Department .	Electronics and Communication Engineering			
2.	Name of Reviewer Designation & Address	From Academia		From Industry	
		Dr. Surinder Singh, HOD (ECE)-Convener Dr. J.S Dhillon, Dean (Academics) Dr. Anupma Marwaha, Professor (ECE) Dr. Ajay Pal Singh, Professor (ECE) Dr. D.C. Saxena, Professor (FET) Dr. J.K. Bhangu, Professor (M & H)  <b>External Expert:</b> Dr. B.S. Saini, NIT Jalandhar		---	
3.	Date of Meeting	21.09.2021			

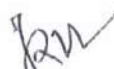
Score Summary															
Academic								Research (Max Score 100)	Departmental Infrastructure (Max Score 100)		Outcome (Max Score 100)		Total Score (700)		
ICD Program (Max Score 100)		UG Program (Max Score 100)		PG Programs (Max Score 100) (Average of all PG programs)		Doctoral Program (Max Score 100)									
2019- 2020	2020- 2021	2019- 2020	2020- 2021	2019- 2020	2020- 2021	2019- 2020	2020- 2021	2019- 2020	2020- 2021	2019- 2020	2020- 2021	2019- 2020	2020- 2021	2019- 2020	2020- 2021
84	77	82	79	89	88	76	73	82	83	92	94	73	71	578	565

**Note:** 1. Marks mentioned above is the average of the marks given by the experts.  
2. If marks have not been allotted for some attributes by the experts, total score can be scaled to maximum marks.

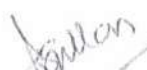
Signature of committee members:

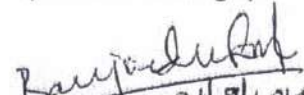
  
(Dr. Ajay Pal Singh)

  
(Dr. Anupma Marwaha)

  
(Dr. J.K Bhangu)

  
(Dr. D.C Saxena)

  
(Dr. J.S. Dhillon)

  
(Dr. B.S Saini)  
21/9/2021

  
(Dr. Surinder Singh)  
Name & Signature of HOD

## Justification of Academics activity in Session 2019-2020, 2020-2021

### A. ACADEMICS ASSESMENT of ICD (Annexure 'I')

A.1	ICD Program	Score (2019-20)		Score (2020-21)		Remarks
		Self-Assessment	Marks Obtained	Self-Assessment	Marks Obtained	
1.	Curriculum					Appropriate coverage of syllabus.
	Structure	2	2	2	2	Well structured
	Course Syllabi	2	2	2	2	Well-structured with effectiveness
	Industry orientation	2	1	2	1	Need to be improved
	Flexibility	2	1	2	1	Flexibility in terms of opting 2-year course and full time diploma course but no optional / elective courses
	Theory/ practical (contents/ratio).	2	2	2	2	1.3:1 is satisfactory
	Total	10	8	10	8	
2.	Equivalence of curriculum at National Level	5	4	5	4	In place
	Relevance of curriculum at national level	5	5	5	5	Satisfactory
	Total	10	9	10	9	Equivalence and relevance of designed Curriculum with model curriculum. $\geq 80$
3.	Formal Academic Load on Students					
	Teaching	3	3	3	3	Satisfactory
	Laboratory/Practical	3	3	3	2	Virtual labs was conducted due to covid
	Projects (minor/major)	4	2	4	2	Online Theoretical learning of projects
	Total	10	8	10	7	

4.	Evaluation Process					
	Continuing Evaluation	5	4	5	4	Affected due to covid in assignments and continuous evaluation for practical courses
	End-Term Evaluation	5	5	5	5	In-place
		10	9	10	9	The designed Curriculum have standard and continuous assessment grading criteria
5.	Opportunities provided during the year					
	Training	6	5	6	5	40% to 60 % of students can go for industrial training but student have submitted the reports in prescribed format
	Industrial Tour	2	1	2	0	No visit due to covid
	Internship	2	2	2	1	Opportunity is given to students for summer internship program held in department
	Total	10	8	10	6	
6.	Effectiveness of Assistance for ICD Students					
	Learning	4	3	4	3	Course files are submitted by individual faculty members well in time
	Tutorial System	6	4	6	4	Students have undergone tutorial classes for improving communication skills, analytical capabilities but more slots of tutorial and seminar classes is required for weaker students
	Total	10	7	10	7	
7.	Faculty Mentoring/Faculty Advisor System for	10	10	10	10	Role of class counsellors, tutor guardian scheme and student mentor scheme already in practice

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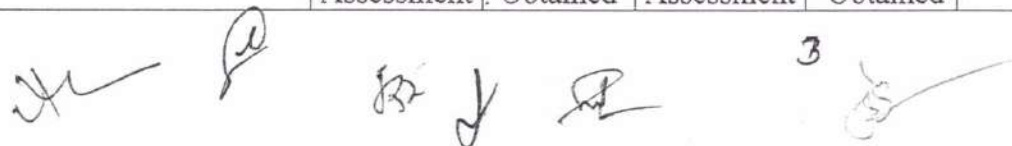
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	Students/Class of Students Tutor Guardian Scheme Tutor Mentor Scheme					Faculty mentoring/faculty adviser are available to admitted students >91%
8.	Extracurricular activity					
	Technical fest	3	2	3	0	Not conducted due to covid
	Non-academic societies	3	2	3	1	Running online
	Student Induction Programs	2	2	2	2	Student orientation programs have been conducted every year for 1 <sup>st</sup> year students
	Skill based Workshops	2	2	2	2	Online workshops have been conducted for students
	Total	10	8	10	5	40% to 60% of students are able to attended any practical, non-academic activity related to skill development due to covid
9.	Industry Linkage of ICD programs	10	8	10	8	Hands on training load (Practical+ Project +industrial training)/ total ICD load, $\geq 60\%$ & $< 75\%$
10.	Availability of workshop type lab/laboratory for hand on training	10	9	10	8	Central workshop, department's lab (PCB/S&M lab) for hands on training to students is available but due to covid, training is conducted only in online mode.
	<b>Total Score</b>	100	84	100	77	

#### A.2 ACADEMICS ASSESMENT of DEGREE (Annexure 'II')

A.2	Degree Program	Score (2019-20)		Score (2020-21)		Remarks
		Self-Assessment	Marks Obtained	Self-Assessment	Marks Obtained	


  
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1.	Curriculum					Appropriate coverage of syllabus.
	Structure	4	3	4	3	Well defined CO's and PO's as per OBE system
	Course Syllabi	3	3	3	3	Designing course structure as per AICTE/UGC norms in totality
	Flexibility	3	3	3	3	Professional elective courses and open Elective courses other than branch in each semester.
	Total	10	9	10	9	
2.	Status of study material developed by faculty for students	10	7	10	8	Topic wise Lecture notes and PPTs is developed by each faculty >70% & <80%
3.	Relevance of contents of courses taught to the students and scope of improvement	4	3	4	3	Adequate relevant contents of courses of program specific and other ailed subjects taught to students
	Revision of syllabus	3	3	3	3	BOS is conducted within three years
	Addition of new experiments	3	2	3	3	Based on Revised syllabus
		10	8	10	9	
4.	Formal Academic Load on Students					
	Teaching	3	2	3	2	<b>Satisfactory</b>
	Laboratory/Practical	2	2	2	1	Virtual lab was conducted due to covid
	Projects (minor/major)	2	2	2	1	Online Theoretical learning of projects
	Flexibility for reduced/increased course load due to academic difficulties/opportunities	1	1	1	1	
	Flexibility to extend course	1	1	1	1	

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	duration in limited, exceptional circumstances					
	Flexibility for opting the academic load for the Spring/Summer term/Distance Session	1	1	1	1	
	Total	10	9	10	7	
5.	Modern teaching methods in practice other than the conventional methods					
	E-Assisted Learning Availability of Library Resources	5	4	5	5	Course Materials, PPT developed by the faculty, need to develop more video lectures
	Multi-Media Assisted Teaching	5	4	5	5	All lecture is based on digital learning
	Total	10	8	10	10	
6.	Evaluation Process					
	Continuing Evaluation (Theory and Tutorial)	3	2	3	2	Sufficient no. of tutorials/ class assignments held
	End-Term Evaluation (Theory and Tutorial)	2	2	2	2	Question papers are set in accordance to meet out the Cos, POs and PSOs of the program
	Continuing Evaluation (Practical)	3	2	3	2	Lacking in continuous assessment of lab classes due to covid, lacking in case studies
	End-Term Evaluation (Practical)	2	2	2	2	Project works aligned with POs and PSOs of the program
	Total	10	8	10	8	
7.	Faculty-Student					





	Interaction					
	Fixed Slot	5	4	5	4	Class counsellor-student meeting Course counsellor-student meeting Training coordinator-student meeting
	Student teacher interaction after class	5	5	5	5	Any time within working hour
	Total	10	9	10	9	
8.	Opportunities provided during the year					
	Training	4	3	4	3	40% to 60 % of students can go for industrial training but student have submitted the reports in prescribed format
	Industrial visits	3	1	3	0	No visit due to covid
	Internship	3	3	3	3	Opportunity is given to students for summer internship program held in department
	Total	10	7	10	6	
9.	Effectiveness of Assistance for Students					
	Tutorial Classes	4	3	4	3	Students have undergone tutorial classes for improving communication skills, analytical capabilities but more slots of tutorial and seminar classes is required for weaker students
	Seminar	3	3	3	3	Seminars have been conducted for all the students
	Faculty mentoring/Faculty Advisor System	3	3	3	3	Faculty mentoring/faculty adviser are available to admitted students >91%
	Total	10	9	10	9	

10.	Placement %age	5	4	5	2	2020-2021-no. of students placed 11 2019-2020- no. of students placed are 30 2018-2019- no. of students placed are 14
	Higher Study	5	4	5	2	2019-2020- no. of students are 6 2018-2019- no. of students are 3
	Total	10	8	10	4	Average of <b>Placement %age/higher studies</b> $\geq 30\%$ & $< 40\%$
	<b>Total Score</b>	100	82	100	79	

### A.3 ACADEMICS ASSESMENT of PG Program (Annexure 'III')


A.3	PG Program	Score (2019-20)		Score (2020-21)		Remarks
		Self-Assessment	Marks Obtained	Self-Assessment	Marks Obtained	
1.	Curriculum					Appropriate coverage of syllabus.
	Structure	4	4	4	4	Well structured
	Course Syllabi	3	2	3	2	Designing course structure as per AICTE/UGC norms in totality
	Flexibility	3	3	3	3	Professional elective courses and open Elective courses other than branch in each sem
	Total	10	9	10	9	
2.	Formal Academic Load on Students					
	Teaching	3	3	3	3	Teaching load
	Laboratory/Practical	3	2	3	2	Labs were conducted on time
	Projects(minor/major)	4	4	4	4	Thesis work accomplished by students
	Total	10	9	10	9	
3.	Evaluation Process					

	Continuing Evaluation	5	5	5	5	Continuous evaluation in terms of minors, quiz /assignments and continuous evaluation for practical courses in place
	End-Term Evaluation	5	5	5	5	In-place
		10	10	10	10	The designed Curriculum have standard and continuous assessment grading criteria
4.	Relevance of contents of courses taught to the students and scope of improvement	10	9	10	9	Adequate relevant contents of courses of program specific and other ailed subjects taught to students, Internal BOS meeting have been conducted for revision of syllabus within 3 years
5.	Modern teaching methods in practice other than the conventional methods					
	Availability of Library Resources and Major Search Engines (like Scopus, Web of Science)	5	5	5	5	Library e-resources, other search engines (IEEE, Elsevier etc) are available to students
	Multi-Media Assisted Teaching	5	4	5	4	Course Materials, PPT developed by the faculty, need to develop more video lectures
	Total	10	9	10	9	
6.	Technical Societies/ Colloquium for Students					
	Departmental Society	5	4	5	4	Electronic Society
	Student Chapter(s) of Professional Societies	5	5	5	5	ISTE,IEEE
		10	9	10	9	
7.	Opportunities provided during the year					

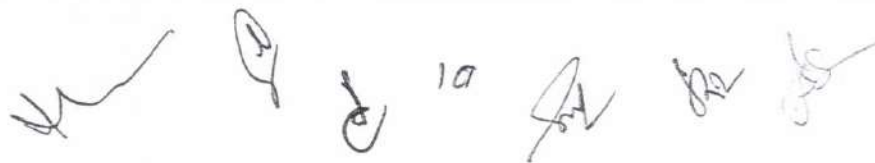
	Training	4	3	4	3	40% to 60 % of students can go for industrial training but student have submitted the reports in prescribed format
	Industrial visits	3	2	3	0	No visit due to covid
	Internship	3	3	3	3	Opportunity is given to students for summer internship program held in department
	Total	10	8	10	6	
8.	Collaboration with other departments (within institute)	10	9	10	9	Students do their research work in other departments
9.	Faculty mentoring	5	5	5	5	Role of class counsellors, tutor guardian scheme and student mentor scheme already in practice
	Faculty Advisor System for students	5	4	5	4	Faculty mentoring/faculty adviser are available to admitted students >91%
	Total	10	9	10	9	
10.	Monitoring and continuous evaluation of the project work assigned to the students (mechanism)	10	8	10	9	Supervisors are allotted to students in 2 <sup>nd</sup> semester. Continuous monitoring is done through time to time presentations
	<b>Total Score</b>	100	89	100	88	

#### A.4 ACADAMIC ASSESMENT OF Ph.D PROGRAM (Annexure 'IV)

		Score (2019-20)		Score (2020-21)		Remarks
		Self-Assessment	Marks Obtained	Self-Assessment	Marks Obtained	



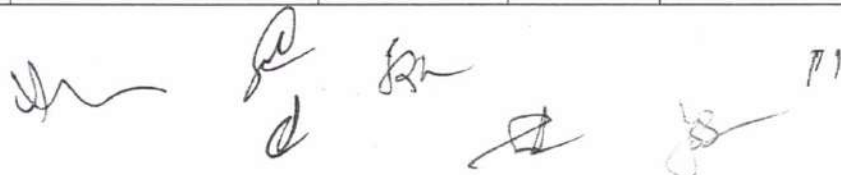
1.	Intake of Ph.D Students	10	8	10	7	<ul style="list-style-type: none"> <li>➤ Faculty wise available slot under full time (with fellowship)/(without fellowship)/part-time/ Sponsored projects</li> <li>➤ No slot allotted to ECE Department under Full Time with fellowship</li> <li>➤ No suitable candidate found under sponsored project.</li> </ul>
2.	Admission Process	10	7	10	7	Can be improved by offering more flexibility for interdisciplinary courses
3.	Pre-Ph.D Courses and Evaluation Process	10	8	10	8	<p>Pre Ph.D. course</p> <ul style="list-style-type: none"> <li>➤ Pre PhD course to be introduced in a faculty load.</li> <li>➤ Flexibility in Number of courses to be offered at the department level</li> </ul> <p>Evolution Process</p> <ul style="list-style-type: none"> <li>➤ Marks obtained in pre-PhD course and seminar performances.</li> <li>➤ Industrial/ research experiences.</li> <li>➤ 80% of admitted candidates complete coursework and seminar in stipulated time</li> </ul>
4.	Breadth and Depth of Knowledge of Students	10	8	10	7	<p>Marks obtained in PhD course work and seminar performances.</p> <p>Regular assessment process (monthly progress report/ annual progress report)</p> <p>70-80% score in qualifying exam and interview</p>
5.	Seminar/ Presentations and Technical Communication	10	7	10	8	<p>Seminar presentation in first and second semester and Annual presentation</p> <p>80% of admitted candidates complete coursework and seminar in stipulated time</p>



6.	Research Facilities available in the Department	10	5	10	8	<ul style="list-style-type: none"> <li>➤ Advance research equipment required under center of excellence</li> <li>➤ Lack of industry collaboration.</li> <li>➤ Flexibility in procurement of consumable items</li> <li>➤ Comparable with institute of regional eminence</li> </ul>
7.	Average No. of Research Students/Faculty	10	9	10	8	Based on required slot under each faculty. Average No. of Research Students/Faculty
8.	Average No. of Research Papers of Ph. D Students (Indexed Journals)	10	8	10	6	Need to improve the required research facility. Average No. of Research Papers of Ph. D Students 4
9.	Average Duration to Complete Ph.D (years)	10	8	10	8	Average Duration to Complete Ph.D 4 years
10.	Participation of Research Scholars in Conferences/Workshops	10	8	10	6	To provide the contingency grant to the research scholar to purchase small consumable items / additional page charge fee in peer review journal/ to attend the workshop in IITs/ISRO/DRDO. Average no. of Participations $\geq 2.5$ & $< 3$
<b>Total Score</b>		100	76	100	73	

### B Research (Annexure 'V')

		Score (2019-20)		Score (2020-21)		Remarks
		Self assessment	Marks Obtained	Self assessment	Marks Obtained	
1.	Research Ambience in the Department					
	Faculty Qualification	4	3	4	2	< 50% faculty with PhD







	Laboratory infrastructure	3	2	3	2	Adequately equipped laboratories
	Number of research scholars	3	3	3	3	Sufficient no of research scholars
	Total	10	8	10	7	
2.	Research Awareness among Doctoral Students	10	8	10	8	The student further elaborates on this and engages in extensive literature review and comes out with the research proposal.
3.	Thrust areas of research in the department					
	International relevance	4	3	4	3	
	Regional relevance	3	2	3	3	
	Local relevance	3	1	3	2	
	Total	10	6	10	8	Intelligent System & Image Processing RF, Microwave and Antenna Design VLSI Design Computational Electromagnetics, Nanoscale Antenna Design, Bio-Electromagnetics Broadband & Optical Communication Embedded System, Wireless Sensor Network
4.	Quality of Research	10	9	10	9	Average number of more than 20 publications per year
5.	Collaborations with other departments (within the institute) and at National, and International levels.	10	8	10	9	Adequate number of collaborations, need to improve

6.	Impact and Quality of Publications	10	9	10	8	Average citation per faculty is 205
7.	Relevance of Research to Knowledge Generation and Social Relevance	10	9	10	8	Approx. 20 publications in SCI/Scopus indexed journals
8.	Student Exposure for Attending Quality Conferences/Symposia	10	9	10	8	More than 4 students per year attended IEEE conferences
9.	Inter departmental collaborations	10	7	10	8	In place
10.	Industry/externally funded sponsored research (Numbers and amount)	10	9	10	10	(Running Projects-6 Nos) (Amount- 1Crore (Approx.))
	<b>Total Score (out of 100)</b>	<b>100</b>	<b>82</b>	<b>100</b>	<b>83</b>	

**C. Departmental Infrastructure (Annexure VI)**

		Score (2019-20)		Score (2020-21)		Remarks
		Self-Assessment	Marks Obtained	Self-Assessment	Marks Obtained	
1	Adequacy of Class Rooms and Multi-Media Facility	10	8	10	9	7 classrooms in which 4 are multimedia classrooms, sufficient as per strength Availability of classes conducted in classrooms at department >75%



						Availability of Multimedia facility in classrooms >75%
2	Availability of Laboratories	10	8	10	9	In place
3	Availability of Conference/Seminar Room, etc.	10	9	10	9	3 available , Requires more for online activities
4	Availability of Seating Space for Faculty and Research Students	10	10	10	10	In place
5	Availability of Internet Services in Research Labs and Class Rooms	10	10	10	10	Wifi campus
6	Departmental Library and E-Resources	10	10	10	10	The library has more than 1000 textbooks and reference books. Apart from the books, the library has also a collection of Ph.D. and M.Tech theses, B.Tech and ICD project reports, and industrial training reports. The library has a reading area wherein the students and staff may go and read the study material.
7	Computing Facilities and Software	10	9	10	9	Sufficient number of commercial software's are available for students
8	Adequacy of Offices and Furnishing for Faculty	10	9	10	9	In-place
9	Faculty- Student Ratio	10	9	10	9	21.9

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10	Support Staff (Technical/Administrative) Adequacy	10	10	10	10	Adequate
	<b>Total Score (out of 100)</b>	100	92	100	94	

**D. Outcomes (Annexure 'VII')**

		Score (2019-20)		Score (2020-21)		Remarks
		Self-assessment	Marks Scored	Self-assessment	Marks Scored	
1	i. Placements for ICD	3	2	3	1	Above 50 % of passed students are promoted to B.E lateral entry
	Placement of B. Tech	3	2	3	1	Total Students placed: 11
	Placement of Masters Student	2	1	2	2	Total students placed:02
	Placement of Ph. D Students	2	2	2	2	More than 90% take academics as carrier
	Total	10	7	10	6	
2	Average No. of Ph. Ds Awarded per Year	10	7	10	9	Ph.D Awarded during 2020-21:07 2019-20:02 2018-2019:03 Average no of Ph.D awarded = 04
3	Publications per Faculty in Indexed Journals/Year (Average of last three years)	10	9	10	8	Average Publications: 6 per faculty
4	Average Citations per Faculty/Year (Last-Three Years) (Web of Science/Scopus)	10	9	10	8	16

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5	Recognitions; Awards (National/International) to Faculty/Students	10	8	10	9	Prof. Surinder Singh, 202011048252, Smart UV-C Safe Disinfect Waste Bin and Method Prof. AP Singh, 202111006773 An Apparatus and Method for Determining Relative Concentration of a Sample Dr Surinder Singh and Dr Dilip Kumar and one JRF Dr Sukhbir Singh have been recognized as top 2% scientist in the world as per Stanford University survey.
6	Consultancy and Externally Funded Projects	10	9	10	8	Numbers and amount) (Running Projects-6 Nos) (Amount- 1Crore (Approx.)
7	No. of Ph.D. graduates who took Academics as Career (Last 5 Years)	10	8	10	9	More than 90% student take academics as carrier
8	Students offered for higher studies	10	7	10	6	03
9	No. of qualified students NET/GATE/CAT etc (State/Central Civil Services)	10	6	10	6	04
10	Entrepreneurship	10	3	10	2	Lacking
	<b>Total Score (out of 100)</b>	100	73	100	71	



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