

EVALUATIVE REPORT OF THE DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

1. Name of the Department **Electronics and Communication Engineering**

2. Year of establishment **1996**

3. Is the Department part of a School/Faculty of the university?

Yes, Faculty of Engineering and Technology

4. Names of Programmes / Courses offered (UG, PG, M. Phil., Ph.D., Integrated Masters; Integrated Ph.D., etc.)

S. No.	Name of the Programme	Type of the Programme	Annual Intake
1	B. Tech. (E&C Engg.)	Regular	70
2	Ph.D.	Regular	As per availability of vacancies
3	B. E. (E & C Engg.)	Self financing	70

5. Interdisciplinary courses and departments involved Nil

6. Courses in collaboration with other universities, industries, foreign institutions, etc.

S. No.	Courses	Universities/Industries/Foreign institutions	
1	Ph.D. (Electronics and Communication Engineering)	Universities	IIT Kanpur, IIT Delhi, IP Univ., DTU, NSIT, AMU, UPTU
2	Ph.D. (Electronics and Communication Engineering)	Industries	BEL, C-DOT, DRDO, NTPC, NPL, HCL, IPRO.....
3	Ph.D. (Electronics and Communication Engineering)	Foreign institutions	No Formal collaboration, however teachers have their individual links.

7. Details of programmes / courses discontinued, if any, with reasons None

8. Annual/ Semester/Choice Based Credit System

S. No.	Name of the Programme	Examination System
1	B. Tech. (E & C)	Semester System
2	B. E. (E & C)	Annual System
3	Ph.D	Semester System

9. Participation of the department in the courses offered by other departments

S. No.	Name of Programme	Branch	Course offered
1	B.Tech. II Semester	Computer Engineering	Basics of Electronics and Communication Engineering
2	B.Tech. II Semester	Civil Engineering	Basics of Electronics and Communication Engineering
3	B.Tech. I Semester	Mechanical Engineering	Basics of Electronics and Communication Engineering
4	B.Tech. I Semester	Electrical Engineering	Basics of Electronics and Communication Engineering

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

S. No.	Post	Sanctioned	Filled	Actual (Including CAS & MPS)
1	Professor	2	2	4
2	Associate Professors	3	3	1
3	Asst. Professors	6	5	5

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

S. No.	Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. students guided for the last 5 years	
						Awarded	In progress
1	Prof. Mainuddin	Ph.D.	Professor	Opto-electronics and Communication	18	-	1
2	Prof. M. T. Beg	Ph.D.	Professor	Communication Engineering and Networking	25	2	8
3	Prof. D. R. Bhaskar	Ph.D.	Professor	Bipolar and CMOS Analog Integrated Circuits	28	4	2
4	Prof. M. R. Khan	Ph.D.	Professor	Retired			
5	Prof. S. N. Ahmad	Ph.D.	Professor	Analog Circuits and VLSI	22	2	6
6	Dr. Anwar Ahmad	Ph.D.	Associate Professor	Wireless Communication	26	-	-
7	Dr. S. A. Imam	Ph.D.	Assistant Professor	Sensors and Instrumentation	11	4	2
8	Dr. Dinesh Prasad	Ph. D.	Assistant Professor	Bipolar and CMOS Analog Integrated Circuits	11	-	4
9	Dr. S. A. Loan	Ph. D.	Assistant Professor	VLSI/ Nano Electronics	11	-	2
10	Dr. Neelofer Afzal	Ph. D.	Assistant Professor	Analog Circuits	11	-	2
11	Mrs. Amber Khan	M. Tech.	Assistant Professor	Signal Processing	7	-	-

12. List of senior Visiting Fellows, faculty, adjunct faculty, emeritus professors None

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

S. No.	Name of Programme	%
1	B. Tech. (E & C Engg.)	20
2	B. E. (E& C Engg.)	20

14. Programme-wise Student Teacher Ratio **15:1**

S. No.	Name of Programme	Student Teacher Ratio*
1	B. Tech. (E & C Engg.)	15:1

*As the teaching in the faculty is shared within the department, a consolidated student teacher ratio for the faculty has been calculated.

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

S. No.	Post	Sanctioned	Filled
1	Technical Staff	04	04
2	Administrative Staff	02	01

S. No.	STA	TA	Technician	Lab Attendant	Helper	Store Keeper	LDC	Peon
1	01	01	01	01	-	-	-	01

16. Research thrust areas recognized by funding agencies None

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

None

18. Inter-institutional collaborative projects and grants received None

a) All India collaboration b) International

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, etc.; total grants received.

Dr. Sajad A. Loan MODROB 7Lacs from AICTE

20. Research facility / centre with None

- state recognition
- national recognition
- international recognition

21. Special research laboratories sponsored by / created by industry or corporate bodies None

22. Publications:

Table for Research Publications of the Department

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S. No.	Item	Total Numbers
1	Number of papers published in peer reviewed journals (national / international) and conferences	Total Papers-151 International Journal-111 Conferences-40
2	Monographs	-
3	Chapters in Books	07 <ol style="list-style-type: none"> 1. Prof. D. R. Bhaskar, Ch. 3, Current-Feedback Op-Amps, Their applications, Bipolar/ CMOS Implementations and Their Variants of Integrated Circuits for Analog Signal Processing, SPRINGER, 2012. ISBN 978-1-4614-1382-0 2. Ammar Abdul-Hamed Khader, Mainuddin, Mirza Tariq Beg, “The Exploitation of Unused Spectrum for Different Signal’s Technologies” in the Book “Advances in Intelligent Informatics” pp. 157-167, Springer International Publishing Switzerland, 2015, ISBN 978-3-319-11217-6 3. Ammar Abdul-Hamed Khader, Mainuddin, Mirza Tariq Beg, “Bouncy Detector to Differentiate between GSM and WiMAX Signals” in the Book “Advances in Intelligent Systems and Computing” pp. 379-390, Springer International Publishing Switzerland, 2014, ISBN NO: 978-3-319-04959-5. 4. Amir Ahmad, Mainuddin, “A Novel Data Mining Technique to Study Customer Satisfaction”, in the book “Emerging Trends and Technologies in Data Management” , MacMillan Publishers ,India, 2012, ISBN NO: 978-935-059-032-4. 5. Amir Ahmad, Mainuddin, “A Novel Ensemble Method for Regression Problems”, in the Book “Emerging Trends and Technologies in Computer Science and Engineering”, MacMillan Publishers , India, pp.30-39, 2012, ISBN NO: 978-93505-9033-1. 6. R. Rajesh, Gaurav Singhal, P. M. V. Subbaroa, Mainuddin, R.K. Tyagi, A.L. Dawar, “Chemical Oxygen Iodine Laser: Current development status and applications” in book “Perspectives in Optics Research” pp. 83-170, Nova Science Inc., USA, 2011, ISBN NO: 978-1-61122-934-9.

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		7. Sajad A. Loan et. al. "A multizone doped high breakdown voltage lateral bipolar transistor on Buried Oxide Thick Step, Springer's Lecture Notes on Electrical Engineering, vol. 39, pp. 23-32, ISBN: 978-90-481-2311-7, 2009
4	Edited Books	-
5	Laboratory Manuals	-
6	Articles in Magazines	-
7	Editorials	-
8	Books with ISBN with details of publishers	01 1. Mainuddin, Gaurav Singhal, A.L. Dawar, "Sensors and Measurement Techniques for Chemical Gas Lasers", International Frequency sensor Association (IFSA) Publishing, Barcelona, Spain, 2014, ISBN-13: 978-84-617-1865-8
9	Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)	111
10	Citation Index – range / average	0-48/2.4
11	SNIP	0-1.8
12	SJR	0.03-1.4
13	Impact Factor – range / average	0-2.73
14	h-index	0-16

Please see Annexure ERD-1: Publication

Table for Research Publications of Individuals

S. No.	Name	H index	No. of papers in journals	Citation range index	Impact factor	No. of papers in conference
1	Prof. Mainuddin	-	10	0-8	0-1.616	0
2	Prof. D. R. Bhaskar	16	35	0-48	0.26-1.625	03
3	Prof. M. T. Beg	-	24	0	0.96-1	05

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4	Prof. S. N. Ahmad	-	13	0	0.124-.44	08
5	Dr. S. A. Imam	-	14	0	0.016-0.835	15
6	Dr. Dinesh Prasad	9	20	0-48	0.26-1.264	01
7	Dr. S. A. Loan	4	8	0-18	0.748-2.74	4
8	Dr. Neelofer Afzal	-	4	0	0-0.739	4

23. Details of patents and income generated 01
 A patent entitled “An improved lateral bipolar junction transistor (BJT) on selective buried oxide (selbox) and a method for manufacturing the same” Patent Application No. 1478/DEL/2008 (<http://www.iitk.ac.in/siic/patentfiled.html>) by Dr. Sajad A. Loan
24. Areas of consultancy and income generated None
25. Faculty selected nationally/ internationally to visit other laboratories in India and abroad None
26. Faculty serving in
 a) National committees b) International committees c) Editorial Boards d) any other (please specify)

S. No.	Faculty	National/ International/ Editorial Boards/ Others
1	Prof. D. R. Bhaskar	National: UGC Expert Committees, NAAC, Ministry of IT, HRD, SSC Expert Committees International: -----
2	Prof. M.T. Beg	National: UGC Expert Committees, Ministry of IT Committees, SSC Expert Committees International: -----
3	Prof. S. N. Ahmad	National: UGC Expert Committees, SSC Expert Committees International: -----

27. Faculty recharging strategies
 Through QIP, Refreshers and Orientation Courses etc.
28. Student projects
- percentage of students who have done in-house projects including inter-departmental projects 100%
 - percentage of students doing projects in collaboration with other universities / industry / institute 0%
29. Awards / recognitions received at the national and international level by None
- Faculty
 1. Prof. Mainuddin, Commendation Certificate, Defence Research & Development Organization (LASTEC), Delhi-110054 in 2010.
 2. Prof. Mainuddin, Best Alumnus Award, Jamia Engineering Alumni Association (JEAA), Delhi-110025 in 2010.
 3. Dr. S. A. Loan
 - Doctoral / post doctoral fellows
 - Students

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30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any: None

31. Code of ethics for research followed by the departments: The department is very particular about discouraging plagiarism. It encourages depart members to follow IEEE Code of Ethics (<http://www.ieee.org/organizations/committee/emcc/>)

32. Student profile course-wise:

S. No.	Name of the Course (refer to question no. 4)	Applications received	Selected		Pass percentage	
			Male	Female	Male	Female
1	B. Tech. (E & C) (2007-2008)	*	65	9	*	
2	B. Tech. (E & C) (2008-2009)	22016	*		*	
3	B. Tech. (E & C) (2009-2010)	21632	66	04	*	
4	B. E. (E & C) (2009-2010)	262	62	04	*	

33. Diversity of students

S. No.	Name of the Course (refer to question no. 4)	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
1	B. Tech. (E & C Engg.)	3	22	49	1
2	B. E. (E & C Engg.)	-	20	80	-

34. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise. 320
[We don't forward the applications of GATE exams. So, there is no record maintained, this is a rough figure.]

35. Student progression

S. No.	Student progression	Percentage against enrolled
1	UG to PG	10
2	PG to M. Phil.	NIL
3	PG to Ph.D.	NIL
4	Ph.D. to Post-Doctoral	NIL
5	Employed	95
	• Campus selection	80
	• Other than campus recruitment	15
6	Entrepreneurs	5

36. Diversity of staff

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S. No.	Percentage of faculty who are graduates	
1	of the same university	22
2	from other universities within the State	NIL
3	from universities from other States	78
4	from universities outside the country	NIL

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

38. Present details of infrastructural facilities with regard to

- | | |
|---|----------------|
| a) Library | * |
| b) Internet facilities for staff and students | Yes, available |
| c) Total number of class rooms | 4 |
| d) Class rooms with ICT facility | 1 |
| e) Students' laboratories | 6 |

S. No.	Name of Laboratory Course
1	Advanced Analog Signal Processing
2	Active Filters and Signal Processing
3	Circuit Simulation Lab
4	Analog Electronics I Lab
5	Analog Electronics II Lab
6	Digital Signal Processing Lab
7	Microwave Engineering Lab
8	Microprocessor Lab
9	Communication Engineering Lab
10	Logic Design Lab
11	VLSI Lab
12	Instrumentation Lab
13	Transducers Lab
14	Digital Circuits and Systems Lab
15	Image Processing Lab

f) Research laboratories 1

39. List of doctoral, post-doctoral students and Research Associates

- | | |
|------------------------------|-----|
| a) from the host university: | NIL |
| b) from other universities: | NIL |

40. Number of post graduate students getting financial assistance from the university. NA

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology. NA

42. Does the department obtain feedback from

- a. Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the

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department utilize the feedback? Yes, by discussions in B.O.S.

b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback? Yes, by Informal methods

c. Alumni and employers on the programmes offered and how does the department utilize the feedback? Yes, by Informal methods

43. List the distinguished alumni of the department (maximum 10)

S. No.	Name of Students	Position
1	Diksha Gera	Sr. Position at ADOBE(Singapore)
2	Yassir Nihal	Project Manager TCIL, Riyadh
3	Imran Lankar	Sr. Position at CADENCE (USA)
4	Mahesh Asnani	Sr. Position at ABB Ltd. (India)
5	Wasiq Zia	Sr. Position at OrCAD (New Delhi)
6	V. K. Sharma	DRDO (India)
7	S. M. Rizvi	St Microelectronics (India)
8	Dr. Sameena Sha	Thomson Returer

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

45. List the teaching methods adopted by the faculty for different programmes.

Lecture, Chalk and Black Board, OHP, LCD Projector, Seminar etc.

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

By critically analyzing data regarding student academic performance and placement, and by applying this information to constantly update the syllabus and teaching methodology.

47. Highlight the participation of students and faculty in extension activities. Participates in NSS, NCC, CSI Annual techno-cultural Algorithm Fest and Annual techno-cultural IEEE Encomium Fest.

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

We involve them in workshop/ seminar/ extension lecture/ industry visit. They are also attached with faculty for their research work.

49. State whether the programme/department is accredited/ graded by other agencies? If yes, give details.

Yes,

TCS ranked us B

TIMES group ranked us in top 25 in 2012

OUTLOOK ranked us at 12 in India in 2011

50. Briefly highlight the contributions of the department in generating new knowledge, basic or

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applied. The department has contributed in generation of new knowledge through strong focus on research and publication both by students and faculty.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the Department.

Strengths:

- Versatile and talented faculty
- Excellent research facilities
- Good laboratory infrastructure with state of art hardware and software tools
- Modern and up-to-date syllabus which is at par with the syllabus followed at IIT's and NIT's
- Large number of aspirants for admissions. There is a huge demand for all courses offered by the department

Weaknesses

- Understaffed, part-time faculty teaching many courses
- Lower quality of evening course
- Lack of name recognition outside the country
- No faculty exchange programme
- No. of student in each class is large

Opportunities

- Department can strive to receive grants for research/ consulting project from bodies like UGC, AICTE, DST, DOE etc.
- Incorporating technology into courses (video, pod cast, smart classes etc.)
- Collaboration with universities in India and Abroad
- Industry tie-ups and joint research
- Faculty and students exchange programmes can be started

Challenges

- To deepen the knowledge and skills of the students on the basic concepts, theories and practical that will equip them in their professional work involving analysis, systems implementation, operation and maintenance of the various applications in the field of Electronics and Communications Engineering
- Constant changes to technology- electronics and communication technology is changing fast so the department has to update itself continuously
- Likely budget cuts and reduction in state funding- how to generate income from alternative sources
- To push for new faculty positions and then to find suitable candidates to occupy these positions.
- Quality focus, result & goal orientation in a group situation

* Information to be provided by Dean Office, F/O Engg. and Tech., JMI

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52. Future plans of the department.

- a. To start M.Tech. Program in Electronics and Communication Engineering.
- b. To establish Modern VLSI Lab
- c. To establish advanced Analog Signal Processing Lab
- d. To establish advanced Communication Lab
- e. To convert all class rooms into SMART CLASS