CRITERIA 5	FACULTY INFORMATION AND CONTRIBUTIONS	200

4. FACULTY INFORMATION AND CONTRIBUTIONS

Table B.5.1

Name of the faculty member	Qualification			Association with the institution (years)	Designation	Date of joining the institution	Department	Specialization	Academic Research			Sponsored research (Funded research)	Consultancy and product development
	Degree (Highest degree)	University	Year of graduation						Research paper publication	Ph. D Guidance	Faculty receiving Ph.D during the assessment year		
Apurba Kr. Kalita	BE(Hons)	BITS Pilani	1984	33	Associate Prof	23/02/85	Electronics & Telecom. Engg.	Electronic Circuits & Networks	-				
Dinesh Shankar Pegu	M.Tech.	IITG	1993	24	Associate Prof	01/10/94	Electronics & Telecom. Engg.	Signal Processing	1				
Navajit Saikia	Ph.D	IITG	1993	19	Associate Prof	27/01/99	Electronics & Telecom. Engg.	Signal Processing	13	3		1	
Rashi Borgohain	Ph.D	ADBU	2018	10	Assistant Prof.	03/10/07	Electronics & Telecom. Engg.	Sensors, Nanotechnology	9		Y		
Bijoy Goswami	M.Tech	NITS	2009	6	Assistant Prof.	09/06/11	Electronics & Telecom. Engg.	VLSI, Micro Electronics	7				

Ruchira Mazumdar	M.Tech	ADBU	2013	8	Guest lecturer	13/04/10	Electronics & Telecom. Engg.	Microcontroller and embedded systems	-				
Jogananda Goswami	M.Sc.	GU	1998	6	Guest lecturer	04/03/13	Electronics & Telecom. Engg.	Electronics	-				
Kabindra Bhagawati	M.Tech	GU	2015	2	Guest lecturer	24/08/15	Electronics & Telecom. Engg.	RF Design	1				
Ankur J Sarmah	M.Tech	MIT, MAHE	2014	3	Guest Lecture	02/01/15	Electronics & Telecom. Engg.	Control System	2				
Siddanata Borah	M.Tech	ADBU	2016	2.5	Guest Lecture	08/01/16	Electronics & Telecom. Engg.	Digital signal processing	-				

Student-Faculty Ratio (SFR) (20)

No. of UG Programs in the Department (n): 1
No. of PG Programs in the Department (m): 0
No. of Students in UG 2nd Year= u1=67
No. of Students in UG 3rd Year= u2=66
No. of Students in UG 4th Year= u3=66
No. of Students in PG 1st Year= p1=0
No. of Students in PG 2nd Year= p2=0

Table B.5.2

Year	CAY(2017-2018)	CAYm1(2016-2017)	CAYm2(2015-2016)
U1.1	67	66	66
U1.2	66	66	66
U1.3	66	66	66
UG1	199	198	198
Total No. of Students in the Department (S)	S1=199	S2=198	S3=198
No. of Faculty in the Department (F)	F1=10+2	F2=10+2	F3=10+2
Student Faculty Ratio (SFR)	SFR1=S1/F1=16.58	SFR1=S2/F2=16.5	SFR1=S3/F3=16.5
Average SFR	SFR1+SFR2+SFR3/3=(19.9+19.8+19.8)/3=16.53		

Average assessment =16.53

Faculty Cadre Proportion (25)

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

Table B.5.3

Year	Professors		Associate Professors		Assistant professors	
	Required F1	**Available**	**Required F2**	**Available**	**Required F3**	**Available**
CAY	2	Nil	3	2	9	8
CAYm1	2	Nil	3	2	9	8
CAYm2	2	Nil	3	2	9	8
Average Members	RF1=2	AF1=0	RF2=3	AF2=2	RF2=9	AF3=8

Cadre Ratio Marks= = ~~9~~.375~~–~~ –

Faculty Qualification (25)

Table B.5.4

Years	**X**	**Y**	**F**	**FQ=2.5 x [(10X+4Y)/F)]**
CAY	2	6	14	7.86
CAYm1	1	7	14	6.79
CAYm2	1	7	14	6.79
Average Assessment				**7.15**

Faculty Retention (25)

Table B.5.5

(% of faculty retained during the period of three academic keeping CAYm3 as base year)	**Marks**
>=90% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
>=75% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
>=60% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
>=50% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	
<50% of required Faculty members retained during the period of three academic years keeping CAYm3 as base year	

Innovations by the Faculty in Teaching and Learning (20)

The department adopts various methodologies from time to time to enhance the teaching learning experiences and qualities to build an effective knowledge environment in the department. The following techniques are primarily used to cater the students in the best possible way from time to time for more effective Teaching and Learning in addition to the regular chalk and talk process.

a. Use of pedagogical techniques

Faculties use various ICT techniques as pedagogical initiative to improve teaching and learning, like

- **Power point presentation** to increase the visual impact of the course content being taught.
- **Animations** to better describe theories wherever possible or engineering processes
- **Standard online course material** like NPTEL or others maintained by reputed institutions are followed as supporting resource.

- **Selected Video Lectures** as an additional resource to bring clarity in understanding. These lectures may also be used to understand various dimensions of engineering skills required to handle situations as an engineer.
- **Web based courses** are used from time to time as additional resources. This may also help the students to learn about various related topics.
- **Electronic teaching materials** created while taking a course may be made available so that the students can access if they want to refer to.

b. Use of other instructional methods

- **Special lecture** are arranged in related fields of a course for better/ complete understanding of various concepts and aspects in a subject by the students. The special lectures are also arranged to motivate the students in the field of the course. These lectures are delivered by the concerned course teacher or by invited experts.
- **Hands on Trainings** are organized in the department for providing better practical knowledge to the students.

Faculty as participants in Faculty development/training activities/STTPs (15)

Table B.5.6

Name of the Faculty	Max. 5 per Faculty		
	CAY	CAYm1	CAYm2
Apurba Kumar Kalita	3	5	3
Dinesh Sankar Pegu	3	-	-
Navajit Saikia	3	5	5
Rashi Borgohain	5	5	3
Bijoy Goswami	-	5	5

Ruchira Mazumdar	3	3	5
Jogananda Goswami	3	5	3
Kabindra Bhagawati	3	5	3
Ankur Jyoti Sarmah	3	3	5
Siddhanta Borah	3	5	3
Sum	29	41	35
RF= Number of Faculty required to comply with 15:1 Student-Faculty ratio as per 5.	14	14	14
Assessment = 3 × (Sum/0.5RF) (Marks limited to 15)	12.43	17.57	15
Average assessment over three years (Marks limited to 15) = 15			

Research and Development (30)

Academic Research (10)

Research paper publications

Dr. Navajit Saikia

1. Prabin . Bora and Navajit Saikia "Image Retrieval Using One-Sided Linear Prediction Based Texture odelling ", ICVGIP 2002, *Proceedings of the Third Indian Conference on Computer Vision, Graphics & Image Processing*, Ahmadabad, India, December 16-18, 2002
2. Navajit Saikia ,Prabin K. Bora "Retrieving Video in Wavelet Compressed Domain", *8th International Conference on Information Technology* –, Bhubaneswar, Dec 20-23, 2005,
3. Navajit Saikia ,Prabin K. Bora "Video Authentication Using Temporal Wavelet Transform" - *15th International Conference on Advanced Computing and Communications (ADCOM 2007)*

4. Navajit Saikia ,Prabin K. Bora “A hybrid algorithm for video authentication” - *National Conference on Communications (NCC)2008* Jan. 2008,
5. Navajit Saikia ,Prabin K. Bora “Robust video hashing using the 3D-DWT “-*National Conference on Communications (NCC)2011* on - 28-30 Jan. 2011, IEEE
6. Navajit Saikia ”Perceptual hashing in the 3D-DWT domain”- *International Conference on Green Computing and Internet of Things (ICGCIoT), 2015* - 8-10 Oct. 2015 IEEE
7. Navajit Saikia ,Prabin K. Bora “Perceptual hash function for scalable video” - February 2014, *International Journal of Information Security 13(1),* Springer DOI 10.1007/s10207-013-0211-z
8. Gautam Chakraborty, Mridusmita Sharma, Navajit Saikia and Kandarpa Kumar Sarma, "Recurrent Neural Network Based Approach To Recognise Isolated Digits In Sylheti Language Using MFCC Features", *Proceedings of International Conference On Telecommunication, Power Analysis And Computing Techniques(ICTPACT) – 2017, ISBN: 978-1-5090-3381-2, 6th – 8th April 2017.*
9. Gautam Chakraborty and Navajit Saikia, "A Survey on Automatic Speech Recognition with special reference to Sylheti Language", *Proceedings of 5th International Conference on Computing for Sustainable Global Development, 14-16 March,2018.*
10. Gunajit Kalita, Navajit Saikia, "Reversible Comparator circuit using a new Reversible Gate", *Proc. Of 6th International Conference on Computer Communication Technology 25th - 27th Sep, 2015, Published by ACM*
11. Gunajit Kalita, Navajit Saikia, "Designing reversible arithmetic, logic circuit to implement micro-operation in quantum computation", *XXVII IUPAP Conference on Computational Physics , IIT Guwahati,(CCP2015)Published IOP in Journal of Physics: Conference Series759(2016) 012097*
12. A. J. Das and N.Saikia, “Pedestrian Detection using Dense LDB descriptor combined with HOG, ” *in IEEE International Conference on Information Technology (InCITe 2016), Amity University, 6th-7th Oct. 2016, Noida, India.*
13. A. J. Das, N. Saikia, K. K. Sarma, “Object classification and tracking in real-time: An overview” *in Emerging Technologies in Intelligent Applications for Image and Video Proc (V. Santhi, D. P. Acharjya and M. Ezhilarasan (eds.)), Chapter-11, pp. 250-295.*

Dr. Rashi Borgohain

1. R. Borgohain, S. Sharma, and J. C. Dutta "Modelling Cylindrical nano size ISFET for Biosensor applications" Proc. of CODEC-06, Kolkata University, India,Dec. 2006
2. J. C. Dutta, S. Sharma, and R. Borgohain " Mixed Domain Modelling and Simulation of nano size ISFET for Bio-electronic device" Proc.of ICRTNT-06, Jadavpur University, India, 7th -9 th Dec. 2006
3. A. B. Kalita, S. Sharma, and R. Borgohain "Conical MOSFET: A Novel Device Geometry for Surrounding Gate MOSFET" International Conference on Recent Trends on Nanoscience and Technology (ICRTNT 06), Jadavpur University,7th-9th Dec. 2006
4. Ranjita Das, Rashi Borgohain, *et al*. "Study on sheet resistance variation in ZnO nanorod arrays upon exposure to LPG at room temperature." *Energy, Power and Environment: Towards Sustainable Growth (ICEPE), 2015 International Conference on*. IEEE, 2015.
5. Rashi Borgohain, Prabin Kumar Boruah, and Sunandan Baruah. "Heavy-metal ion sensor using chitosan capped ZnS quantum dots." *Sensors and Actuators B: Chemical* 226 (2016): 534-539.
6. Rashi Borgohain and Sunandan Baruah. "Design and analysis of UV detector using ZnO nanorods on interdigitated electrodes." *ADBU Journal of Engineering Technology* 4 (2016).
7. Rashi Borgohain, *et al.* "Detection of Zn^{2+} ion with UV light activated ZnO nanorods." *ADBU Journal of Engineering Technology* 5.1 (2016).
8. Rashi Borgohain, *et al*. , "NO_2 sensing at room temperature using ZnO nanorods on graphene", *International Conference on Advances in Nanotechnology (ICAN), 2017*
9. Rashi Borgohain and Sunandan Baruah. "Development and Testing of ZnO Nanorods Based Biosensor on Model Gram-Positive and Gram-Negative Bacteria." *IEEE Sensors Journal* 17.9 (2017): 2649-2653.

Research Guidance

Research Guide	Name of the Scholar	Topic of the Research	University & Year of Registration	Status
Dr.Navajit Saikia	Gunajit Kalita	Synthesis of Reversible Logic Circuit	Gauhati University YoR-2014	On going
	Gautam Chakravarty	Automatic Speech Recognition: Human Computer Interface for Sylheti language	Gauhati University YoR-2014	On going
	Amlan Jyoti Das	Features and Detectors for Video Surveillance	Gauhati University YoR-2014	On going

Faculty receiving Ph.D. during the assessment period

Faculty name	Research Topic	University	Guide	Date of awarding the degree of Doctor of Philosophy	Number of quality publications in refereed /SCI Journals, citations, Books/ Book Chapters
Dr. Rashi Borgohain	Study on Semiconducting Nanomaterials for the development of Novel Environmental Sensors	Assam Don Bosco University	Prof. Sunandan Baruah	31/01/2018	4

Sponsored Research (5)

Sl No	Title of the Project	Funding Agency	Amount	Duration
1	Capacity Building by Establishment of Centre of Excellence in High Performance Computing for Engineering Study & Research at Assam Engineering College	CDAC	65.72 Lakh	2 years (July'2014 to June'2016)

Development activities: (10)

Under MHRD sponsored programme (NEQIP, RUSA, etc.) :

- Faculty development program was organised on Microcontrollers and Embedded Systems during 19th Jan'16 and 23rd June'16.
- Smart class room was developed.
- Equipment/Machines were purchased for Electronic Device and Circuit Lab, Communication Lab, Microwave Lab, Digital System Design Lab, Microcontroller & Embedded System Lab and Computer Lab.

Under present TEQIP programme:

- Faculties of the department attended STCs/ FDPs.
- Expert talks on IoT, RFID, High Performance Computing, Industry-Academia relationship were organized during CAY 2017-2018.
- Hands-on training was organized on Microcontroller & Embedded Systems during 5th to 7th April'2018.
- Students from the department of Electronics & Telecommunication Engineering got selected for 4-weeks long internship at PSG college of Engineering & Technology, Coimbatore.

Under Govt. of India initiative:

- Super Computing Facility was developed under the sponsorship of CDAC.

Under Govt. of Assam initiative:

- Overseas Scholarship to Rajashri Goswami for internship at Pennsylvania state University from July 26th to August 25th 2017.

Consultancy (from Industry)(5): Nil

5.8 Faculty Performance Appraisal and Development System (FPADS) (30)

There is a Performance Appraisal System of the department for its faculty members which have to be prepared on a yearly basis. The Format for the system is given in **ANNEXURE VI.**

5.9. Visiting/Adjunct/Emeritus Faculty etc. (10)

Sl. No.	Name of Faculty	Qualification	Institute
1	Prof. Pradip Kumar Brahma	M.S.	Ex Principal, Assam Engineering College
2	Prof. P.H. Talukdar	Ph.D	Gauhati University