ANNUAL REPORT

FOR THE YEARS

2015-2016 & 2016-2017

Indian Institute of Information Technology
Dharwad,

HUBBALLI, KARNATAKA

Contents

1. INTRODUCTION

The Indian Institute of Information Technology Dharwad, Karnataka is an autonomous institute set up by the Government of India (MHRD), Government of Karnataka and Industry Partners (represented by M/s Keonics) as a not-for-profit Public Private Partnership (N-PPP) Society. This is intended to be a world-class Information Technology Institute with the objective of developing professional expertise and addressing the increasing skill challenges of the Indian IT industry. It initially offers UG programs and later PG, doctoral and post-doctoral programs in various areas of IT.

1.1. Vision Statement

To be a globally renowned academy of information technology for societal development

1.2. Mission Statements

a. *To produce globally competent information technology professionals with the right mix of professional skills and ethical, societal and environmental concerns*

b. *To solve local problems using global technologies and solve global problems using local technologies across disciplines*

c. *To project the nation to the forefront of information technology research and development*

1.3. Chairperson's Message

As Chairperson of governing body of IIIT Dharwad, I would like to give few wisdom thoughts to the young generation around us: Vision without action is merely a dream; action without vision is merely passing time; but vision and action together can change the world. We can give our children only two things in life which are essential. Strong roots and powerful wings. Then they may fly anywhere and live independently. I knew then that to come up in life they require talent, hard work, aggression and connections. Of all the luxuries in life, the greatest luxury is getting freedom of the right kind. With my experience in life, I want to tell that having good relationships, compassion and peace of mind is much more important than achievements, awards, degrees or money. We should always have some aim in life which we must try to achieve while being of help to others.

1.4. Director's Message

I am very glad that IIIT-Dharwad is bringing out its first Annual Report for the years 2015-16 and 2016-17. As a young institute, IIIT-Dharwad has a unique opportunity to make a difference not only to Indian IT industry and the academic research community, but also the people of the entire region of North Karnataka. The twin cities of Hubballi and Dharwad are already a recognized centre for educational institutes of repute including engineering, medical, law and other colleges, universities and an Indian Institute of Technology. With this environment and rapidly improving connectivity to the IT capital Bengaluru and the business capital Mumbai, IIIT-Dharwad is strategically positioned to develop into one of the best institutes of national importance in the country, under able and caring mentorship by IIIT-Bangalore. In the coming years, with the support of its eminent Board of Governors, the Institute will make every effort to construct and move to its spacious permanent campus located in a pristine setting near Dharwad. One of the key strengths of this young Institute is its highly qualified and committed faculty with expertise and experience in a wide range of areas of information technology. As its first batch of students

graduate in 2019, IIIT-Dharwad is keen to push an effective research agenda and enhance its academic offerings by adding postgraduate and research programmes as well as more specializations of current relevance in undergraduate studies.

2. OVERVIEW

2.1. About the Institute

The Indian Institute of Information Technology Dharwad is one of 20 IIITs proposed under non-profit, Public-Private-Partnership (PPP) model set up by the Ministry of Human Resource Development (MHRD), Government of India. It is an academic and research Institute funded by the Government of India, Government of Karnataka and industrial partner Keonics. Recently, the Institute has been declared as an Institute of National Importance under the Indian Institutes of Information Technology (Public-Private Partnership) Act of Parliament (23 of 2017). The Institute commenced its academic session from August 2015. The Institute offers B.Tech programmes in Computer Science & Engineering and Electronics & Communication Engineering. The Institute is operating in a transit campus located at IT Park, Hubballi. A new campus for the IIIT-Dharwad is proposed to be built in 61.06 acres of land at Tadasinakoppa near Dharwad.

2.2. Location

The transit campus is located at IT Park in Hubballi near the famous Rani Chennamma Circle. The land allocated for the permanent campus is situated in Tadasinakoppa village near Dharwad. Hubballi-Dharwad are twin cities in the state of Karnataka and together form the 2nd largest urban conglomerate next to Bangalore. Hubballi is located about 410 kms northwest of Bangalore with excellent road and railway connectivity. As such, the Institute which is well positioned to benefit from the IT and industry ecosystem in Bangalore. Further, Hubballi-Dharwad are a significant concentration of educational institutions of repute including the Indian Institute of Technology (IIT) Dharwad, Karnataka University, University of Agricultural Sciences Dharwad, Karnataka State Law University, KLE Academy of Higher Education and Research, Karnataka Institute of

Medical Sciences (KIMS), SDM College of Medical Sciences and Hospital, and SDM College of Engineering and Technology. There are also several significant historical places located in the neighborhood *viz.,* Badami, Aihole, Pattadkal, Kittur, Hampi, Kudalasangama, and Vijayapura. Also, the cities are very close to the Western Ghats, declared as UNESCO World Heritage Site and are one of the eight "hottest hot-spots" of rich biological diversity, flora, and fauna in the world. Further, Dharwad is only 160 kms from the beaches and Panjim city in Goa, one of the most popular tourist destinations in India.

2.3. Campus

Currently the transit campus at IT Park, Hubballi has all the essential and well equipped infrastructure for running the Institute. This includes: Lecture rooms, an auditorium, a library, Computer Science Laboratory, Electronics and Communication Laboratory, Physics Laboratory, Professional Communication Laboratory, a sports room, administrative offices, faculty rooms and student hostels. It is planned to equip each class room with state-of-the-art projector and air-conditioning. The entire campus is connected with Wi-Fi facility and internet connectivity is available 24/7. To enable smooth conduction of classroom and laboratory sessions in case of power failures, the Institute has adequate UPS backup. IIIT-Dharwad central library has a collection of 2500 books and 150 CD/DVDs apart from magazines, journals and newspapers. Work is in progress to e-enable the entire library. IIIT-Dharwad offers separate hostels for boys and girls in a nearby location. The hostels are comfortable, clean, and tidy. Hostels are equipped with 24/7 security and internet connectivity.

Reception Area of IIIT Dharwad

2.4. Administration - Governance

The Institute is governed by a Board of Governors (BoG) which, along with the Senate, constitutes the authorities of the Institute. The Board includes representatives from MHRD, Government of Karnataka and the industrial partner. The Institute administration is the responsibility of the Director and Registrar as well as Deans and the Heads of Departments of Computer Science and Electronics & Communication Engineering.

2.5. Academic Programmes

The Institute currently offers four-year undergraduate B.Tech degree programmes in:

- Computer Science and Engineering (CSE).
- Electronics and Communication Engineering (ECE).

The Institute is planning to start Post-Graduate and PhD programmes soon.

2.6. Admission

Admission to B.Tech programmes offered through the ranking obtained in *Joint Entrance Examination - Main*, with seat selection and counseling conducted by Joint Seat Allocation Authority (JoSAA) for all participating institutes. Currently, a total intake of 40 seats is allocated for each programme. Reservation of seats is as per rules laid by the Government of India.

2.7. Examination and Evaluation

All academic programmes of the Institute follow credit-semester system with letter grades and relative grading. Minimum credits to be earned for the award of various degrees are specified in the respective curricula. The modalities for continuous evaluation of various courses being offered by the departments are decided by the Institute Senate from time to time and are followed scrupulously. Slow learners are given adequate chances to improve their performance.

2.8. Teaching Staff

The total sanctioned strength of teaching staff is 17. The department wise break-up of the sanctioned and in-position strength is given below:

Department	Sanctioned	In position as on 31.03.2017
Computer Science Engineering	7	4*
Electronics and Communication Engineering	7	2+1*
Mathematics	2	1
Physics	1	1
Humanities	0	1*
Economics	0	1*

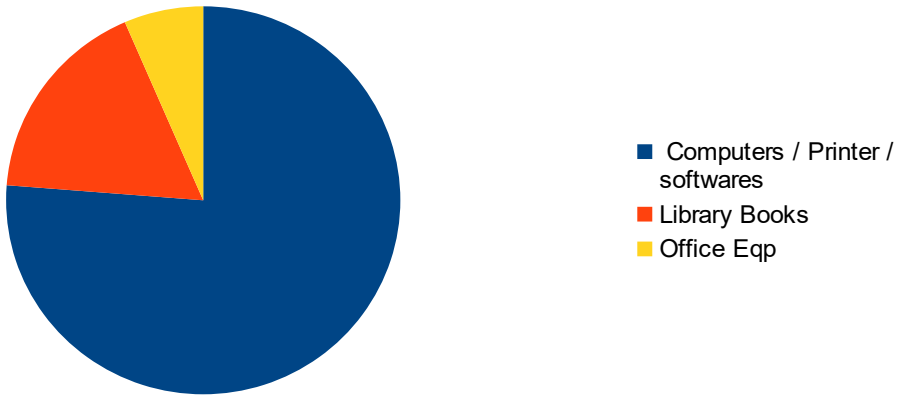
* Faculty hired on contract or under semester-wise ad hoc terms

2.9. Details of Assets

The details of the assets for the year 2015-2016 is categorized by computers and peripherals, electrical office equipments and library books and given below

Computers & Peripherals	Electrical/ Office Equipment	Library
Desktop computers (30)= Rs.14,48,494:00 Laptop:47999/- Projectors (2)= 59,061:00 Printer (2)= 53,805/- Giga smart switch=25500/- Biometric=24618/- Software (MS office /Tally)= 35911/-	Vending Machine= 13500/- Fan (8) = 15,199/- AC (2)= 1,31274/- cordless phone= 2299/- Geysar = 8782/-	Rs. 6,07,581/-

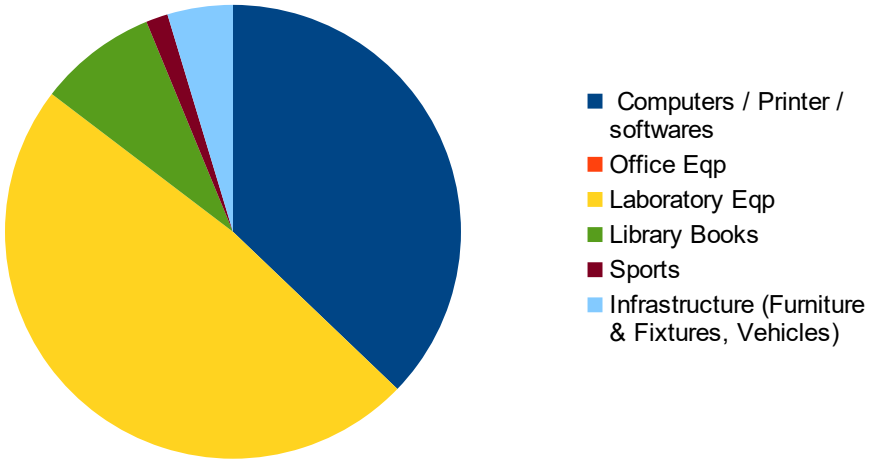
Graphically can be represented for the year 2015-2016



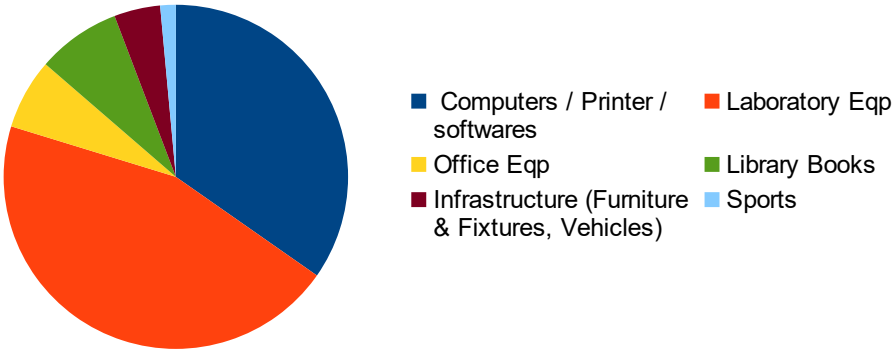
The details of the assets for the year 2016-2017 is categorized by computers and peripherals, electrical office equipments and library books and given below

Computers & Pheripherals	**Electrical/ office Equipment:**	**LAB EQP**	**Sports Eqp**	**Library**	**Furnitur e**
Desktop computers (30)= Rs.14,48,494:00 Printer (3)= 55,903/- Software (Matlab/ Antivirus) = Rs. 500337-	Fan (11) = 25950/- Cooler (1)= 7349/- AC (3)= 119039/- LED TV= 42250/- UPS= 72110/- Fridge = 13,100/- Washing Machine=22698/- oven=9170/- wet grinder:3484/- PA System: 34683/- Recorder=7140/- fire extnguisher= 24934/-	ECLAB (DSO/WG/ DMM/DB /DLM/KIT/PS) = 2343531/- PHY LAB = 256020/	Rs. 84034/-	Rs.4,53,861/	Guest House: 250183/-

Graphically can be represented for the year 2016-2017



Graphically can be represented for both the year 2015-2017



3. COMMITTEES

3.1. Board of Governors:

The Board of Governors of IIIT Dharwad has the following eminent members:

1		Smt. Sudha Murty Chairperson, Infosys Foundation	Chairperson
2		Dr. N. Saravana Kumar Joint Secretary(ICC) MHRD, Govt. of India	Member
3		Mr. Gaurav Gupta Principal Secretary, Dept of IT, BT and S&T Government of Karnataka	Member
4		Prof. P. Balaram Former Director, Indian Institute of Science, Bangalore	Member

5		Sri. S.V. Ranganath, IAS Former Chief Secretary, GOK	Member
6		Prof. S. Sadagopan Director, IIIT Bangalore	Member
7		Prof. Pankaj Chandra Vice Chancellor and Chairman, Board of Management, Ahmedabad University	Member
8		Prof. Uday B Desai Director, Indian Institute of Technology, Hyderabad	Member
9		Prof. H.P. Khincha Former Vice Chancellor, VTU and Prof, IISc, Bangalore	Member

10		Sri. M.N. Vidyashankar, IAS President, IESA & Former Additional Chief Secretary to GOK	Member
11		Prof. Kavi Mahesh Director, IIIT-Dharwad	Member
12		Prof. S. Basavarajappa Registrar, IIIT-Dharwad	Non-Member Secretary

3.2. The Senate

Interim senate of IIIT Dharwad during 2015-16 and 2016-2017:

Sl No	Name	Designation	Address
1	Prof. S. Sadagopan	Chairman	Mentor Director, IIIT-Dharwad
2	Prof. B. S. Sonde	Member	IIIT-B
3	Prof. S. S. Prabhu	Member	IIIT-B
4	Prof. Chetan Parikh	Member	IIIT-B
5	Prof. S. Basavarajappa	Secretary	IIIT-Dharwad

3.3. Women's Security, Welfare & Grievance Committee:

The Institute being concerned about the security of women, has the following committee for ensuring their security and welfare:

	Name	**Post**
1	Prof. S. Basavarajappa	Chairperson
2	Dr. Goldina Ghosh	Executive Member
4	Dr. K. T. Deepak	Member
5	Ms. Nivedita Kasturi	Member
6	Ms. Suma S. Shetty	Member Secretary
7	Ms. Swati Math	Member

IIIT Dharwad has constituted Women Security, Welfare and Grievance Committee to proactively take up women issues to ensure safe and secure women friendly atmosphere in their work place. There was a letter regarding "National Policy for Empowerment of Women, 2016" from Secretary, Government of India, ministry of Women and Child development and was forwarded by Ministry of Human Resource Development, Department of Higher Education, Technical Section-1 to all the Mentor Directors of all IIITs including Dharwad.

The Women Cell Committee was formed on 22/08/2016 and the members were:

Sl.No	**Name**	**Post**
1.	Prof. G.V.C. Rajan, Deputy Director	Chairman
2.	Dr. Tejaswini M	Executive Member
3.	Dr. Basudeba Behera	Member
4.	Ms. Suma Shetty	Member Secretary
5.	Ms. Swathi Math	Member
6.	Ms. Vasudha Kulkarni	Member
7.	Dr. Deepak K. T	Member

The committee Members were reframed on 16/02/2017 and the list is as follows:

Sl.No	**Name**	**Post**
1.	Prof. G.V.C. Rajan, Deputy Director	Chairman
2.	Dr. Goldina Ghosh	Executive Member
3.	Ms. Nivedita Kasturi	Member
5.	Dr. Deepak K. T	Member
6.	Ms. Suma Shetty	Member
7.	Ms. Swathi Math	Member
8.	Ms. Akshata Hegadi	Member

9.	Ms. Vandya	Member
10.	Ms. Tejaswini	Member

3.4. Cultural and Sports Committee

Sl.No	Name	Post
1.	Dr. Jagdish D N	Chairman
2.	Dr. Deepak K. T	Member Secretary
3.	Dr. Basudeba Behera	Member
4.	Dr. Goldina Ghosh	Member

3.5. Technical Committee

Sl.No	Name	Post
1.	Dr. Vijay Bhaskar Semwal	Chairman
2.	Dr. Basudeba Behera	Member
3.	Dr. Lakshman Mahto	Member Secretary

3.6. Purchase Committee

Sl.No	Name	Post
1.	Prof. S. Basavarajappa	Chairman
2.	Dr. Jagdish D N	Member
3.	Dr. Vijay Bhaskar Semwal	Member
4.	Dr. Aswath Babu	Member
5.	Ms. Swati Matt	Member
6.	Mr. Ravi B Vitlapur	Member Secretary

4. INSTITUTE MANAGEMENT

4.1. Administration:

	Dr. Sudha N Murty	Chairperson, Board of Governors

From 20 July 2015 to 16 Feb 2016

	Dr. Swapan Bhattacharya	Mentor Director & Director, NITK, Surathkal
	Mr. R. Ravindranath	Mentor Registrar & Registrar, NITK Surathkal

From 16 Feb 2016 to 10th Mar 2016

	Prof. S. Sadagopan	Mentor Director & Director, IIIT Bangalore

	Mr. V.S. Prakash	Mentor Registrar & Registrar, IIIT Bangalore

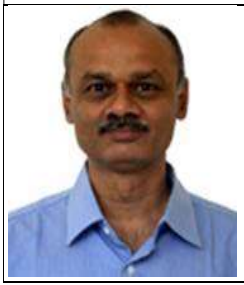
From 10th Mar 2016 to 3rd Oct 2016

	Prof. S. Sadagopan	Mentor Director & Director, IIIT Bangalore
	Prof. S. Basavarajappa	Registrar

From 3rd Oct 2016 to 21st Nov 2016

	Prof. S. C. Sharma	Director
	Prof. S. Basavarajappa	Registrar

From 21st Nov 2016 to 30th Mar 2017

	Prof. S. Sadagopan	Mentor Director & Director, IIIT Bangalore
	Prof. S. Basavarajappa Professor	Registrar
	Prof. Chetan Parikh Professor	Consulting Dean

4.2. Faculty

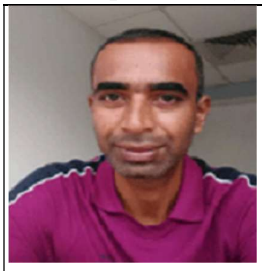
Teaching load of the institute is managed by the faculties hired by the institute in several modes as mentioned below:

4.2.1 Department of Computer Science and Engineering

	Name and Designation	Professional Details	Area of Interest and Specialization
	Dr. Rajendra Hegadi Associate Professor	Ph.D. from Dr. MGR Education Research Institute	Security Considerations for Internet and Intranet using Natural Numbers. Cryptography and Network Security

	Dr. Vijay Bhaskar Semwal Assistant Professor	Ph.D. from IIIT Allahabad	Development of data driven bipedal locomotion using hybrid and cellular automata.
	Dr. Goldina Ghosh Assistant Professor	Ph.D. from BIT, Mesra, Ranchi	Investigating Social Dynamics and Revolution of Social Network: An Itinerary of Human Computer Interaction and Hybrid Intelligence Approach"
	Ms. Nivedita Kasturi Lecturer	M.Tech	

4.2.2 Department of Electronics and Communication Engineering

	Dr. Jagadish D. N. Assistant Professor	Ph.D. from NIT Surathkal	VLSI PhD Thesis title: Design of Low Power Successive approximation Register Analogue-to-Digital Converter
	Dr. K.T. Deepak Assistant Professor	Ph.D. from IIT Guwahati	Speech Signal Processing, Audio Signal Processing and Image Processing PhD Thesis title: Foreground Speech Segmentation an Enhancement
	Dr. Basudeb Behera Assistant Professor	Ph.D. from IIT Guwahati	Micro/Nanoelectromechanical Systems(MEMS/NEMS)/ VLSI PhD Thesis Title: Modelling, Simulation and Fabrication of Surface Acoustic Wave Motors Employing Dual Friction drive.

4.2.3 Department of Applied Sciences

	Dr. Lakshman Mahto Assistant Professor in Mathematics	Ph.D. from IIT Mandi	Controllability of Partial Differential Equations, Abstract Cauchy Problems, Dynamical Analysis of Ecological and Neural Network Systems, Statistical Learning PhD Thesis Title: Analysis of Impulsive Fractional Functional Differential Equations.
	Dr. H. Aswath Babu Assistant Professor in Physics	Ph.D. from IIT Kanpur	Quantum Optics & Quantum Information Theory PhD Thesis title: Creation and control of nonlinear dynamical phenomena in all-optical bistable systems

4.2.4. Department of Humanities

	Prof. S. Basavarajappa Professor	Ph.D. from PSG College of Technology /Anna University	Development of data driven bipedal locomotion using hybrid and cellular automata.
	Smt.Anushree Kini Visiting faculty	Pursuing Ph.D.	

4.2.5 Faculty from BVB, Hubli (Taught during winter semester 2015)

A.S. Bennal

Mrs. Sunetha Budhihal

Mrs. Ujwala Pabil

Mrs. Sujatha Torgalmath

Mrs. Jayanti Shinde

Gururaj Tenali

Mrs. Manjula Pawar

A.S. Artal

Prof. B.L. Desai

4.3. Non-Academic Staff (Non-Teaching):

Sl No	NAME	DESIGNATION	Qualification
1	Smt. Suma S. Shetty	Secretary to Director	B.E. Electronics
2	Mr. Ravi Vitlapur	Technical Assistant	M.Tech
3	Smt. Swati Math	Accounts Superintendent	B.Com
4	Ms. Vasudha Kulkarni	Programmer	B.E.in CS
9	Mr. Yallappa L. Kuri	Office Assistant	PUC

All the non-academic staff is hired on the contract basis with various salary scales.

5. TEACHING PROGRAMMES

5.1. Programmes Offered

IIIT Dharwad started in transit campus with two branches in July 2015, and the details are given below:

Department wise seat intake for the year 2015-16 and 2016-17

Year	Seat Intake	
	Dept. of CSE	Dept. of ECE
2016-17	30	30
2015-16	30	30

5.2. Course-Wise Student Intake

Following is the table consisting of total number of students of all semester and all courses for the year 2015-16 and 2016-17.

Programme	2015-16	2016-17	Total
B.Tech	31	26	57

Following is the table consisting of total number of students of CSE and ECE branch for the year 2015-16 and 2016-17.

Programme	2015-16	2016-17	Total
B.Tech (CSE)	16	15	31
B.Tech (ECE)	15	11	26
Total	31	26	57

5.3. Admission Statistics of UG Programmes, Course-wise and State-wise

5.3.3. First Year B.Tech Admission 2015-16

Branch	OP	OP(PH)	OBC	OBC(PH)	SC	SC(PH)	ST	ST(PH)	MALE	FEMALE	TOTAL
Computer Science and Engineering	4	1	6	0	4	0	1	0	13	3	16
Electronics and Communication Engineering	7	0	3	0	2	0	3	0	13	2	15
Total	11	1	9	0	6	0	4	0	26	5	31

5.3.2. Second Year B.Tech Admission 2016-17

Branch	OP	OP(PH)	OBC	OBC(PH)	SC	SC(PH)	ST	ST(PH)	MALE	FEMALE	TOTAL
Computer Science &Engineering	5	0	6	0	2	0	2	0	12	3	15
Electronics & Communication Engineering	2	1	3	0	3	0	2	0	9	2	11
Total	7	1	9	0	5	0	4	0	21	5	26

5.4. Course-Wise Enrollment with Sex, Caste Break-Up

Following is course- wise enrolment with gender and caste break up, table also shows the details of all the three years enrolment details categorized with respect to caste and gender. Currently three batches are being enrolled and total number of students is 121.

Level/ Year	Open		OBC		SC		ST		Total		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
B.Tech (2016-2017)	7	1	8	1	3	2	3	1	21	5	26
B.Tech (2015-2016)	10	2	9	0	4	2	3	1	26	5	31
Total	17	3	17	1	7	4	6	2	47	10	57

5.5. Hostels

5.6. Accommodation

- There are two hostels for boys and two hostels for girls.
- There are four well-furnished rooms available in the transit campus for guests and visiting faculty members.
- Hostels are rented buildings which are near to the campus.
- All hostels are located in the area which has mini-canteens, co-operative stores, textbook shops and hospital.
- Hostels have respective common room where newspapers, magazines and TV facilities.
- Hostels also have wi-fi facility, twenty-four hours' water supply, and electricity (with power back up).
- All the four hostel have their respective mess and students are provided with breakfast, tea/coffee, lunch, high tea and dinner.
- There are 74 boys who have availed the hostel facility and 54 stay in first hostel and 21 in another.
- Each hostel has 1 administrative staff for managing hostel under the council headed by warden.
- Similarly 20 girls have availed the hostel facility, hostel "Study House" has 10 female students of first year and "Anchal" has 10 female students of 2nd and 3rd year.
- By keeping security of all the students in mind, each hostel has provided with security guard and CCTV camera.

5.7. Wardens

Boys Hostel Warden: Dr. Rajendra Hegde

Girls Hostel Warden: Dr. Goldina Ghosh

Boys Hostel:

Girls Hostel (Anchal Hostel)

5.8. Scholarships / Assistantships

We are guiding our students to apply for scholarship through national and state scholarship portal from financial year 2016-17.

As institute is new and students were unaware of applying for scholarship through national and respective state portal, there was a delay in receiving scholarship for financial year 2015-16 so, the institute has refund the fees of amount 8,96,000/- to SC/ST students.

5.9. BENIFITS FOR SC/ ST & HANDICAPPED STUDENTS:

Currently institute is not offering any fee waiver, however all the eligible students are given necessary support from institute to apply and obtain the scholarship from the various government agencies.

5.10. Examination Details

IIIT Dharwad was established in the year 2015; first batch of our institute will be graduating in the year 2019. Following is the result of first batch till fourth semester:

Batch 1; Admission Year: 2015-16							
Program Code	**Total Registered**	**8 - 10 CPI**	**7 - 7.99 CPI**	**6 - 6.99 CPI**	**Below 5 CPI**	**Total Pass**	**Pass Percentage**
CSE	16	4	2	6	1	13	81.25
ECE	15	5	4	1	1	11	73.33

Following is the result of second batch till second semester:

Batch 2; Admission Year: 2016-17							
Program Code	**Total Registered**	**8 - 10 CPI**	**7 - 7.99 CPI**	**6 - 6.99 CPI**	**Below 5 CPI**	**Total Pass**	**Pass Percentage**
CSE	15	3	4	5	1	13	86.66
ECE	11	1	4	3	0	8	72.72

6. RESEARCH & DEVELOPEMENT ACTIVITIES

Department of Computer Science & Engineering:

Research Centres:

- Human Computer Interaction & Bio-metric Centre (Proposed)
- Machine Leaning & Data Science Research Centre (Proposed)

Department of Electronics & Communication Engineering:

Research Centres:

- Microelectronic Systems (MEMS) Centre (Proposed)
- Information & Quantum Computing Centre (Proposed)

6.1. Patents

Name of the Author	Title of the Patent	Application No., Date of filling, Nationality	Filed/Awarded
Basudeba Behera and H. B. Nemade	Dual drive surface acoustic wave motor and the package	878/KOL/2014, 26th Aug. 2014, India	Examination Awaited
Basudeba Behera and H. B. Nemade	Dual drive surface acoustic wave motor and the package	978/KOL/2014, 24th Sep. 2014, India	Examination Awaited
Jagadish, D. N. and Bhat, M. S.	Low energy and area efficient nonbinary capacitor array based successive approximation register analog-to-digital converter	4777/CHE/2013	Examination Awaited
Jagadish, D. N., Laxminidhi T., and Bhat, M. S.	Switched capacitor integrator based successive approximation register analog to digital converter circuit and conversion method thereof	3549/CHE/2014	Examination Awaited

6.2. Journals Publications

- **Vijay Bhaskar Semwal and G.C. Nandi**, "Toward Developing a Computational Model for Bipedal Push Recovery–A Brief," in **IEEE Sensors Journal**, vol.15, no.4, pp.2021-2022, April 2015 (Impact factor-1.9).
- **Vijay Bhaskar Semwal and G.C. Nandi,** "Generation of Joints Trajectories for Bipedal locomotion using Hybrid automata model: A Rocking block based Approach" **IEEE sensor Journals**. Vol.16 no.12.

- **Vijay Bhaskar Semwal and G.C. Nandi,** "Design of Vector Field for Different Subphases of Gait And Regeneration of GaitPattern" **IEEE Transactions on Automation Science and Engineering**.
- **Vijay Bhaskar Semwal and G.C. Nandi,** Biometric gait identification based on a multilayer perceptron, **Robotics and Autonomous Systems**, Volume 65, March 2015, Pages 65-75.
- **Vijay Bhaskar Semwal and G.C. Nandi,** Biologically-inspired push recovery capable bipedal locomotion modeling through hybrid automata, **Robotics and Autonomous Systems**, Volume 70, August 2015, Pages 181-190.
- **Vijay Bhaskar Semwal and G.C. Nandi,** Robust and more accurate feature and classification using deep neural network, **Neural Computing and Application**, **Springer, 2015.**
- **Vijay Bhaskar Semwal et.al.** Optimized feature selection technique based on incremental feature selection for gait data collection , **Multimedia Tool and Application, Springer,2016**.
- **Semwal, V.B. & Nandi, G.C.**, "Bidirectional association of joint angle trajectories for humanoid locomotion: the restricted Boltzmann machine approach" **Neural Comput & Applic (2017).**
- **Vijay Bhaskar Semwal and G.C. Nandi, "**Multi objective optimized bipedal locomotion**" International Journal of Machine Learning and Cybernetics, Springer, 2017**
- **Semwal, Vijay Bhaskar, et al. ,** Computational CPG-Based Locomotion Control and Gait Planning of a Humanoid Biped Robot: The Matsuoka's Neural Oscillator Approach**, Neural Computing and Application, Springer, 2017(accepted)**
- **Arun Chauhan**, Krishna Kummamuru, and Durga Toshniwal, "Prediction of Places of Visit using Tweets", in Knowledge and Information Systems, Volume 50, Issue 1, pp 145–166 Springer, 2016. DOI : 10.1007/s10115-016-0936-x.
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6.3. Conference Publications

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- **Vijay Bhaskar Semwal and G.C. Nandi**, "State Prediction of Huamn Gait using Cellular Automata", 9th ACM international Conference on Machine Learning & Computation-2017, Signapore
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- **Goldina Ghosh,** Nivedita Kasturi, 'Expansion of Social Connectivity: a concept of Big Data Analysis and Genetic Algorithm Modeling', Conference on Information and Communication Technology (CICT'17)
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- R Suresh, MP Kumar, **S Basavarajappa**, TS Kiran, M Yeole, N Katare, Numerical Simulation & Experimental study of wear depth and Contact pressure distribution Of Aluminum MMC Pin on Disc Tribometer, Materials Today: Proceedings 4 (10), 11218-11228.
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- VM Ravindranath, GSS Shankar, **S Basavarajappa**, R Suresh, Optimization of Al/B 4 C and Al/B 4 C/Gr MMC Drilling Using Taguchi Approach, Materials Today: Proceedings 4 (10), 11181-11187
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6.4. Research Project

Name of the Faculty	Title of the Project	Agent	Tentative Date of Submission
Dr. Vijay Bhaskar Semwal	Development of data driven Computer Assistive hand.	SERB- early career award	December, 2017
Dr. Vijay Bhaskar Semwal	Development of Computational Bipedal walk	DST	December, 2017

6.5. Lab setup

Name of the Staff	Sponsorship body	Name of the Lab	Year
Basudeba Behera	IIIT Dharwad	Digital Electronics, Analog Electronics	2016
Jagadish D N		Analog Electronics	2016-17
Jagadish D N		Control Systems	2016-17
Jagadish D N		VLSI	2017-18
Dr. Aswath Babu H	IIIT Dharwad	Physics Undergraduate Laboratory	2017

7. CENTRAL FACILITIES AND SERVICES

7.1. Computing & IT Services

IIIT Dharwad maintains the Central Computer Center as that caters to the requirements of computing and networking of the institute. Central Computer Center has the following facilities:

- IIIT Dharwad augments the needs of academic departments through its own modest LAN of 60 Desktop nodes (specifications listed below).

System Feature	Hardware
Make, Model & No. of Systems	HP 406G1 (60)
Processor	Intel Core i5 4570
RAM	4 GB
Hard Drive	500 GB
Operating Systems	Windows 8.1 Pro 64-bit Ubuntu 16.0 4 LTS

- The computers of IIIT Dharwad are used to support Computational Practice Labs, General Purpose Learning & Internet access, and various co-curricular and other student activities.
- These systems are maintained in air-conditioned space and with 10kVA uninterrupted power supply (UPS).
- The center also provides laptops to faculty members for research and academic purpose.
- The following software are made available for the student and faculty members for laboratory and research purpose.

SI. No.	Software
1.	MATLAB
2.	Scilab
3.	BOUML

4.	Digital Linguistic Mentor (30 License)
5.	Visual Paradigm
6.	Wireshark
7.	Netcrunch
8.	Ping Plotter
9.	Ngspice
10.	Electric
11.	Keil microvision

- IIIT Dharwad maintains the campus network backbone connectivity and internet connections on 24×7 basis.
- The IT Park has wired connectivity and also Wi-Fi Routers that have been installed for benefit of students and faculty members with a bandwidth of 10 Mbps (1:1 to start with).
- IIIT-Dharwad provides the campus backbone services with Multi-Core OFC using 10 Mbps. It houses the 10 Mbps internet connection to Software Technology Parks of India (STPI), associated networking equipment's and sufficient hardware to handle the critical backbone network services.
- Institute website is developed by the Media Marketing located at STPI, Hubballi and hosted by STPI, Hubballi. The Institute website provides the necessary information about the Institute, Board of Governors, Faculty Members, Academics, Admission, Facilities etc.
- Institute also provides faculty and staff (27 mail ID's) with webmail access@iiitdwd.ac.in registered at Ernet India. Each ID is provided with space of 1GB.

7.2. CENTRAL LIBRARY

Central Library offers its services to about 150 users comprising faculty members, staff members, and students. Presently the library management is maintained manually and the automation of Central Library is in process. The Library is provided with a system specified below for office, database, official communication to vendors/purchase, placing orders, ledger maintenance etc.

The Institute has presently 2621 total volumes with 307 titles. The volumes procured over the last three years are listed below.

Academic Year	No of Titles	No of Volumes
2015-2016	56	1300
2016-2017	154	926
Gratis	37	37
Total	**307**	**2621**

The library issues books to the faculty members, staff members, and students with the following copies and renewal duration:

- Faculty : Maximum 10 Copies with duration of one semester.
- Staff : Maximum 5 Copies with duration of one month.
- Students : Maximum 5 Copies with duration of 15 days.
- Periodicals: The Institute maintains the availability of following periodicals on Daily/Weekly basis:
  - Daily Newspapers: Vijayvani (Kannada), Deccan Herald (English), The Hindu (English), Times of India (English), The Hindu Patrika (Hindi).
  - Weekly Employment Newspaper.
- Magazines: The following magazines are provided in the library:
  - India Today
  - The Week
  - Electronics For You
  - Data Quest
  - Complimentary Magazines/Journals
- The library also consists of 150 collections of CD/DVD issued along with various books and journals.
- Along with academic syllabus books, the library maintains around 100 reference and competitive books for exams like GATE, GRE, etc.
- The library has sitting occupancy of 60 at a time in the present transit campus at IT Park, Hubballi. Presently the timings of Library is from 9 am to 6.30 pm.
- The library maintains a set of rules and regulations that are followed by the users.

7.3. DEPARTMENT LABORATORY FACILITIES

The institute has two major branches of Bachelor of Technology (B Tech)

a. Electronics and Communication Engineering

b. Computer Science Engineering

The laboratories are classified as below:

7.3.1. Electronics and Communication Engineering Laboratories

The laboratories for ECE are classified as below:

7.3.1.1. Digital Electronics Laboratory:

- Digital Electronics Laboratory introduces the first year students to understand the concepts of basic logic gates (AND, OR, NOR, etc.) and the realization logic functions such as (Conversions from BDC to EXCESS 3, etc., Decoding and Encoding, Mux and Demux, etc.).
- All the basic necessary devices and power supplies are provided for the execution of these experiments.

7.3.1.2. Analog Electronics Laboratory:

- Analog Electronics Laboratory introduces the second year students to understand the concepts of analog circuits such as Diode Circuits, Transistor Circuits, etc.
- The students are introduced to learn the usage of Digital Storage Oscilloscope, Function Generators, Power Supplies, etc.

7.3.1.3. Microprocessor and Microcontroller Laboratory:

- Microprocessor and Microcontroller Laboratory introduces the second year students to understand the concepts Microprocessor and Microcontrollers such as 8085, 8051, ARM 7 etc.
- The students are introduced to concepts of programming and interfacing using the boards, usage of KEIL software, etc.

7.3.1.4. Control Systems Laboratory:

- Control Systems Laboratory introduces the second year students to understand the concepts of basic control systems, realization of first and second order systems using RLC network, study the modeling and performance of LTI systems using simulation tools like SCILAB/MATLAB.

7.3.1.5. Communication Laboratory:

- Communication Laboratory introduces the Third Year students to understand the concepts of basic communication networks, realization of communication networks using basic analog circuits, etc.

7.3.1.6. VLSI Laboratory:

- VLSI Laboratory introduces the third year students to understand the basic concepts of Very Large Scale Integration IC with the aid of tools like Electric, Ngspice, Vivado, Basys FPGA boards etc.
- To execute the above mentioned laboratories, along the conventional consumables the Electronics and Communication Department has following facilities:

S. I. No	Equipment / Device with Make Model	Quantity (Nos)
1.	Digital Storage Oscilloscope: Keysight DSOX2022A 200MHz	8
2.	Function Generator: Keysight 33521B 25MHz	8
3.	Digital Multi Meter: Keysight U1252B 4.5 digit True RMS	15
4.	8085 Trainer Kit: Advanced Electronics Systems	5
5.	8086 Trainer Kit: Advanced Electronics Systems	5
6.	Arm 7 Trainer Kit: Advanced Electronics Systems	8
7.	8051 Trainer Kit: Advanced Electronics Systems	8
8.	FPGA Boards: Digilent Basys 3 Board With Vivado	5
9.	Decade Resistance Box	10
10.	Decade Capacitance Box	10

11.	Decade Inductance Box	10
12.	DC Power Supplies	8
13.	USB to Serial Converters	8

7.3.2. Computer Science Engineering Laboratories

7.3.2.1. Introduction to Programming Lab:

- Introduction to Programming is the subject taught to first semester students.
- They are taught about C programming language.
- Both theory and practical classes are conducted.
- Firstly, the basic concept and the syntax about the topics are discusses in the theory class.
- In the tutorial class the programs to be performed in the lab session is discussed.
- The logic of the programs to be performed in the lab is discussed.
- There are three theory classes and one tutorial class.
- Each lab session is of two hours.
- They are also taught about Python.
- In this case they are asked to perform mini projects.

7.3.2.2. Compiler Construction and Design Lab:

- The course is for fifth semester.
- In this course the construction of different phases of compiler are dealt with.
- The lab deals with the lexical analysis, syntax analyzer, and semantic phase.
- The Flex is used for lexical analyzer and YACC compiler is used for semantic analyzer.
- The major portion of course is related to design of top down and bottom up parsing.
- Projects based on different machine learning algorithm for text classification and tokenization like SVM, ELM etc. are assigned to students.

7.3.2.3. Object Oriented Analysis and Design Lab:

- Object oriented analysis and design lab is conducted for fifth semester computer science and engineering students.
- Lab deals with the Designing of OO models like class, state, and interaction modeling for the given application.
- Design advanced OO models like use case relationships, procedural sequence diagrams, and special constructs on activity models for the given application are also dealt with.
- Faculty covers the required portions in the theory classes and then students are asked to conduct the experiments under the supervision of faculty.
- Students have to study the given case study and then design the models in the Visual

Paradigm or BoUml tool. Both the modeling software are Community version software.

7.3.2.4. Computer Network Lab:

- Computer Network Lab is for fifth semester Computer Science Engineering (CSE) students.
- The lab aims to make the students understand the core concepts of networking and their implementation in real time networks.
- Socket programming is performed using socket system calls.
- Wireshark (an open source packet capturing software) is used in every lab.
- Students are taught how hubs, switches, and routers work in the internet.
- Students also interact with DNS servers, DHCP , etc. in access and core networks.

7.3.2.5. Database System Lab:

- Database system lab is for fifth semester CSE students.
- This lab enables students to develop conceptual and physical data modules, and determine what information management methods and techniques are appropriate for a given problem.
- By the end of the course students learn be able to implement some appropriate information management solutions that reflects all suitable constraints including scalability and feasibility.
- Students are encouraged to use open source DBMS software as back end servers.

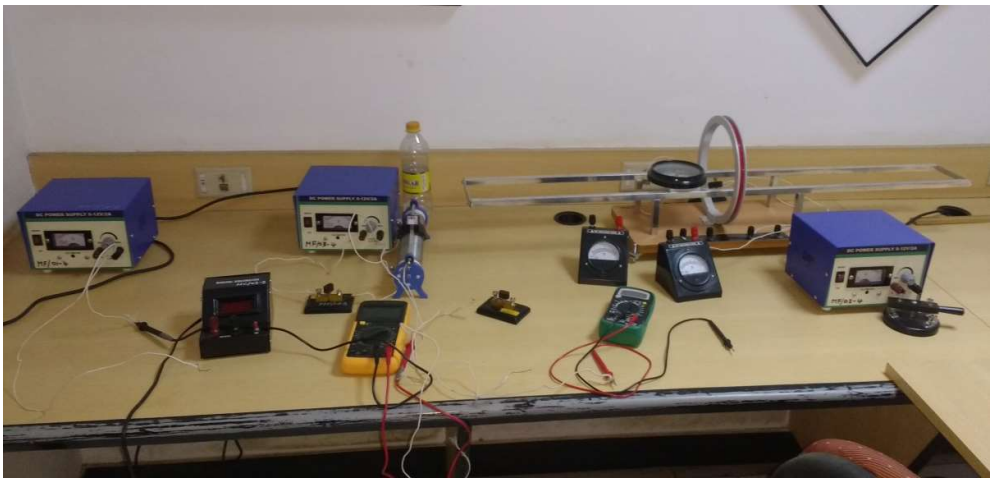
7.3.3. Physics Laboratories:

The Institute provides the two basic Physics laboratories:

7.3.3.1 Physics Undergraduate Lab:

Physics Undergraduate Lab provides the first hands on experience for undergraduate first year students to the Fundamental Physics Laws. The list of experimental setup are as mentioned below:

- Laser diffraction experimental setup
- Spectrometer experimental setup
- Netwon's rings experimental setup
- Optical fiber aperture detection setup
- Thermal conductivity
- Bar Pendulum setup
- Young's Modulus setup
- Tangent Galvanometer setup
- Calibration of Thermocouple
- Polarization setup



7.3.3.2. Modern Physics Lab:

- Modern Physics Lab provides the hands on experience for undergraduate second year students with the Advanced Physics Concepts.
- The laboratory establishment is under process.

7.3.4. Professional Communication Lab:

Professional Communication Laboratory introduces the first year students to learn and improve on the Listening, Speaking, Reading, and Writing skills. Students are provided with Digital Linguistic Mentor (DLM) Software that has various modules as listed below:

- **Primary:** Alphabets, numerals, colours, animals, birds, shapes, rhymes, moral stories, pronunciation, practice, learning through cartoons, fun, music, games, stories, situations, activities, discussion, interviews, etc.
- **Intermediate:** Communicative English, errors, errors in spoken English, poems, monologues, compositions, etc.
- **Advanced:** Grammar videos, documentaries and newshunt, short fictions, listening and

writing skills, roleplay, etc.

- **Professional communication skills:** Public speaking, debating, letter writing, reporting, CV, job hunting, leadership, etc.
- **Business English:** Customer service, HR, sales, job interviews, socializing, business news, announcements, etc.

Other than these, the professional communication lab also has features that can help students learn Foreign Languages and Hindi. Students can also take assistance of the DLM software to prepare for IELTS & TOFEL, Aptitude, GRE-Tests, and GK.

7.4. Campus Facilities:

The Institute has the following provisions at the transit campus at IT Park, Hubballi

- Six classrooms with occupancy of 60 students in each
- One seminar/auditorium hall with 120 seats
- Institute has one cafeteria with 60 seats
- Two lavatories for both men and two lavatories for women
- A UPS is also provided for uninterrupted power backup

7.5. Sports Facilities

The institute has indoor game facilities for the following games:

- Table Tennis
- Carrom
- Chess


The institute has outdoor ground assistance from B. V. Bhoomaraddi College of Engineering and Technology, Hubballi, wherein the required sports equipment would be provided by IIIT Dharwad as indicated below:

Sport	Equipment's Available
Cricket	Two Cricket Kits (Bats, Balls, Stumps, Pads, Guards, Helmet, Glove), One Cricket Mat, One Bat Stroke
Table Tennis	01 Table, 04 Rackets
Carom	02 Boards
Badminton	02 Pairs of Rackets and one Net
Basket Ball	02 Balls
Volley Ball	02 Balls
Football	02 Balls

The students of IIIT Dharwad have achieved Bronze (3rd Prize) in Basket Ball Competition at inter IIIT 2016 sports meet organized at Kancheepuram Campus.

Mr. Vinayak (fifth semester student) has participated in several Yoga Competitions and is now preparing for state level competition.

7.6. Other Facilities:

Medical Facilities: The institute provides Group Medical Insurance to all students

Postal Facilities: The transit campus is located close to the Vidyanagar Post Office

Passport Office: IT Park, Hubballi that houses the transit campus has passport office in the ground floor of the building

Transportation: The Karnataka State Road Transportation Corporation Old Bus Stand is located at a distance of 600 meters from the campus

Hubballi Railway Station is at a distance of 1.9 KM from the campus

Hubballi Airport is at a distance of 5.2 KM from the campus

8. NOTABLE ACHIEVEMENTS

8.1. Expert lecturers delivered in Conferences/ Seminars/ Workshops/ Schools/ other training programs

Name of the Staff	Title	Place, Year
Dr. Basudeba Behera	Microelectromechanical Systems (MEMS) Actuators in Real Life	KLS Gogte Institute of Technology, Belgavi, Karnataka, India of AICTE sponsored two day National Seminar on "Data Analytics in Education Management System" on 31st Oct. 2017
Dr. Lakshman Mahto	Approximate controllability of sub-diffusion equations	Department of Mathematics, Indian Institute of Science, Bangalore, India on 13th January, 2017

8.2. Participation in Conferences/ Seminars/Workshops/Schools/other training programs

Name of the Staff	Title	Year
Dr. Lakshman Mahto	Advanced Workshop on Partial Differential Equations and Applications	Department of Mathematics, Central University of Tamil Nadu, May 29 - June 11, 2017
Dr. Lakshman Mahto	GIAN course on Fractals and Splines in Approximation and Interpolation Theory	Department of Mathematics, IIT Madras, 15-29th July 2016
Dr. Lakshman Mahto	Advanced Level Workshop on Controllability Of Heat And Wave Equations	IIT Mandi, 16-20th November 2015

8.3. Training, Learning and Workshop Attended

Name of the Faculty	Name of the Training/Learning/Workshop Attended	Sponsored by	Place of Attending	Number of days	Date
Nivedita Kasturi	Research Trends in Data Analytics conducted by CSE department of BVBCET-Hubli	TEQIP	BVBCET-Hubli	3 days	15-03-2017 to 17-03-2017
Nivedita Kasturi	Use of ICT in Education for online and Blended Learning Conducted by IIT-Bombay	KLE's Dr.MSS College of Engineering and Technology	KLE's Dr.MSS College of Engineering and Technology	4 weeks	2-05-2016 to 10-07-2016

8.4. Awards

8.9.1 Department of Computer Science and Engineering

Name	Awards
Dr. Vijay Bhaskar Semwal	▪ SERB travel support to attend the IEEE conference Tencon -2016, Singapore ▪ Organized the IEEE sponsor conference RICE-2017.
Ms. Nivedita Kasturi	State Eligibility Test qualified in March 2016 K-SET (Karnataka State Eligibility Test for Lectureship) exam qualified in the year 2016 with Aggregate marks of 204 out of 300

8.9.1.1 Department of Electronics and Communication Engineering

Name	Awards
Dr. Basudeba Behera	• Science and Engineering Research Board (SERB), Government of India sponsored Travel grant to present my research paper at 2016 IEEE International Ultrasonic Symposium, Tours, France on 18th – 21st Sep 2016.

8.9.1.2 Any other achievements by department or personal

Name of the Faculty	Name of the Training/Learning/Workshop Attended	Sponsored by	Place of Attending	Number of days	Date
Nivedita Kasturi	Research Trends in Data Analytics conducted by CSE department of BVBCET-Hubli	TEQIP	BVBCET-Hubli	3 days	15-03-2017 to 17-03-2017

Nivedita Kasturi	Use of ICT in Education for online and Blended Learning Conducted by IIT-Bombay	KLE's Dr.MSS College of Engineering and Technology	KLE's Dr.MSS College of Engineering and Technology	4 weeks	2-05-2016 to 10-07-2016