

COLLEGE OF ENGINEERING ADOOR - 691551



ANNUAL REPORT

APRIL 2014 - MARCH 2015

INTRODUCTION AND OUR ORGANIZATION

The versatile manifestations of engineering have had a profound and lasting impact on our civilization. From the grandeur of the pyramids and man's journey into space, to the recent information revolution, engineering continues to fascinate and enthrall.

The College of Engineering, Adoor (CEA), was established by Government of Kerala in 1994 under the Institute of Human Resource Development (IHRD), a Government of Kerala undertaking. CEA is located in the District of Pathanamthitta in the state of Kerala. Geographical boundaries are Western Ghats in the East and Arabian Sea in the West. Tamilnadu and Karnataka are the neighboring states. Admissions are carried out on the basis of the rank obtained in the All Kerala Common Entrance Examination (KEAM), conducted by the Controller of Entrance Examinations, Government of Kerala.

CEA is known for its academic excellence that provides undergraduate studies to about 1500 students in four disciplines. It imparts technical education and training in the fields of Computer Science and Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering, and Mechanical Engineering. The institution is affiliated to Cochin University of Science and Technology (CUSAT) known internationally for its academic excellence. College of Engineering, Adoor is a recognized institution by the All India Council for Technical Education, New Delhi.

The college is magnificently spread up in 11.94 acres of scenic paradise. The College has good infrastructure facilities, which includes a central library, department libraries, well equipped laboratories and workshops. The College has two buildings where the main block is a five storey building and the second one, workshop block is a single storey building; together have a total built-up area of 10,886.4 sqm. Administrative sanction for an additional built-up area of 2000 sqm with financial support from NABARD is obtained. CEA also has a computer centre with high speed internet connection. The college's power requirement is catered by the 11kV substation with a 75kVA standby generator and with separate backup generator for Electrical Engineering Laboratories. Since the very first year of inception, CEA has achieved many a milestone both in academic and co-curricular pursuits. It has always provided an able platform for the students to turn into excellent engineers paving the path for a successful career.

VISION AND MISSION OF THE INSTITUTE

OUR VISION

OUR MISSION

As an institution, our mission is to provide world class education, foster development in research and development in Electronics, Computer& Mechanical fields. We strive to evolve innovative application of technology, encourage entrepreneurship and build young men and women capable of assuming leadership of the society.

TEQIP –II

The Institute is one of the 19 institutes all over Kerala to have been selected for Technical Education Quality Improvement Programme (TEQIP) Phase-II, sub-component 1.1, with a funding of Rs.10.00 Crores. The MoU has been signed in February, 2013 and the project completion date is 31st October, 2016. The objective of the programme is "Strengthening Institutions to improve learning outcomes and employability of graduates".

BOARD OF GOVERNORS

1.	Prof. T.I. Eldho , Professor (Civil Engg.), IIT Mumbai	Chairperson
2.	Mr. K.C.Chandrasekharan Nair, Associate Principal	Member
	Consultant, KITCO, Cochin	
3.	Dr. Achuth Sankar Nair, Department of Computational	Member
	Biology and Bioinformatics, University of Kerala	
4.	Sri. L. L Ramachandran, Deputy General Manager (IS),	Member
	BPCL Kochi Refinery	
5.	Prof. Manju S Nair, Associate Professor, Department of	Member
	CSE, College of Engineering Adoor	
6.	Prof. John George, Associate Professor, Department of	Member
	EEE, College of Engineering Adoor	
7.	State Government Nominee(Ex-officio)	
	1. Addl.Sectry/Joint Sectry/Dy.Sectry (Admin Dept)	Member
	2.Secretary/Addl.Sectry/Joint ectry/Dy.Sectry(Fin Dept)	
8	Prof. Jyothi John (Ex-officio), Principal, College of	Member
	Engineering Adoor.	



TEQIP -II ACTIVITIES

A. General

- 1. The **mentor Dr. Ashalatha Thampuran**, Educationist and Former Principal of College of Engineering, Trivandrum, visited the campus on 01^{th} & 02^{th} September 2014 for the Second **mentoring of the institution**. She interacted with the TEQIP Coordinators, faculty, technical and office staff and UG and PG students.
- 2. The **Performance Auditor Mr. Suresh Dattatraya Khare**, Rtd. Deputy Director of. Technical Education., Govt. of Maharashtra and **Data Auditor Dr. Smitha Dharan**, Asso. Prof, College of Engg., Chengannur visited the campus on 13th to 15th October 2014 for the Second auditing of the institution. He interacted with the TEQIP Coordinators, faculty, technical and office staff and UG and PG students.
- 3. The firm **M/s Mohan & Mohan Associates, Chartered Accountants**, had conducted an **internal audit** for the financial statements of the College of Engineering Adoor for the two quarters of the financial year 2014-2015.
- 4. The **Post Procurement Audit** for FY -15 was conducted by **NPIU on 27.11.2014 at New Delhi.** The procurement coordinator and the finance coordinator attended the auditing with the requested procurement files.

B. BOG MEETINGS

Sl. No	BOG meeting	Date & Time	Venue
1	IV	13.06.14 10:00 AM	Conference Hall, College of Engineering Adoor
2	V	30.12.14 10:30 PM	HOTEL WHITE PORTICO, Adoor

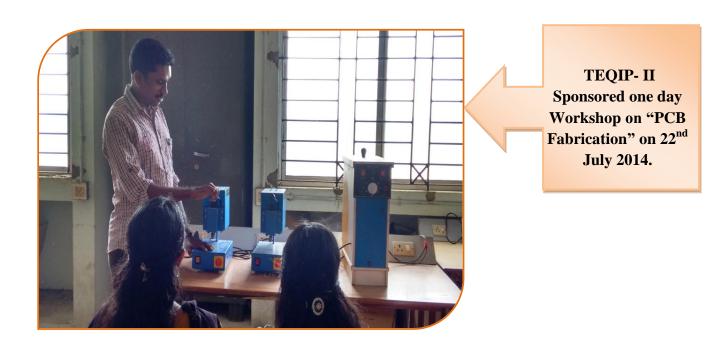
C. FACULTY DEVELOPMENT PROGRAMMES

i. FDP-Training Programmes organized in this institution

Faculty Development Programmes have been conducted in the Institution by all the departments to train the faculty from our college and from the colleges in and around Kerala. The resource persons

for the FDP were eminent personalities from Industries and reputed Institutions who have shared their knowledge and practical sessions. The faculty members were able to enhance their technical skills and also to equip themselves for enhancing the quality of students.









TEQIP- II Sponsored one day Workshop on "Effective technical writing using LaTeX" on 16th December 2014.





TEQIP- II Sponsored two days Workshop on "Application development with PYTHON" on 8th and 9th January 2015

ii Pedagogy Training Programs

Sl No	Name of the Program	Nature of the program	Date	No of participants	No of man days	Organizing Institute/organization
1	QEEE Workshop on "Pedagogy for effective use of ICT in Engineering Education"	Workshop	12 – 14 June 2014 (face to face) 15 June to 23 July 2014 (online) 24 – 26 July 2014 (face to face) 2 weeks (equivalent)	11* (10 participants + coordinator)	154	IIT Bombay (for institutes participating in QEEE project) Remote centre – College of Engineering Adoor
2	One day workshop on "Pedagogical Strategies for effective teaching – learning"	Workshop	11 July 2014	33	1	College of Engineering Adoor

iii. FDP/Institutional Reforms –Training Programmes attended outside this institution

The faculty members from College of Engineering, Adoor were able to participate in many of the training programmes outside the institution through TEQIP-II. The training programmes include technical training, management capacity enhancement training, and personality development training.

SI	Title of activity with date	Name of the	Name of the
no.		Beneficiaries	organization
1	STTP – Stochastic Methods in Analysis and processing of Digital Images 4 th – 7 th June 2014	Prof. Renjith Kumar D (EEE)	College of Engineering, Karunagapally
2	STTP - Non Destructive Testing $16^{th} - 21^{th}$ June 2014	Prof. Renjith Kumar D (EEE)	Govt. Engg. College Barton Hill, Thiruvananthapuram
3	Workshop – QEEE meeting 16 th June 2014	Prof. Manu M John (ME)	Casuarina Hall, India Habitai Centre, New Delhi
4	Regional Workshop on Environmental Management Framework (EMF) and Procurement Management 4 th – 5 th July 2014	Prof. Manu M John (ME) Prof. Renjith Kumar D (EEE)	Jadavpur University Salt Lake Campus, Kolkata
5	Regional Workshop for Student, Faculty and Non-Teaching Staff Satisfaction Survey $22^{nd} - 23^{rd}$ September 2014	Prof. Madhu A K (ME) Prof. Ajeesh S (CSE)	M S Ramaiah Institute of Technology, Bangalore
6	Workshop - The 5 th Asian Joint workshop on Thermophysics & Fluid science –Paper Presentation 23th – 26 th September 2014	Prof. Binulal B R (ME)	Graduate School of Engineering Sciences, Kyushu University, Japan
7	Feedback Session for QEEE 18 th October 2014	Prof. Madhu A K(ME), QEEE Coordinator	IIT Madras
8	Seminar on "Fostering Alumni Support for technological Entrepreneurship and Research" 9 th November 2014	Prof. Anoop A(ME)	College of Engineering. Trivandrum
9	Conference on the 44 th Annual National Convention of ISTE [Included Sessions dedicated to NBA Accreditation]	Prof. Manjunath N (ME) Prof. Joseph John Tharakan (ME)	College of Engineering. Trivandrum
10	STTP - Computational Fluid Dynamics and its applications 8 th to 12 th December 2014	Prof. Anoop A(ME)	College of Engineering, Trivandrum
11	STTP - Research Trends in Semiconductor device modeling and fabrication 8 th to 12 th December 2014	Prof. Rajesh M S(ECE) Prof. Sarojini S Potti (ECE)	College of Engineering, Cherthala

12	STTP - Assembly Language Programming using NASM 19 th to 21 st January 2015	Prof. Jayaram K (CSE) Prof. Deepa Sreedhar (CSE)	College of Engineering, Perumon
13	Conference – 3 rd International Conference on Nanoscience & Nano Technology –Paper presentation 4 th to 6 th February 2015	Prof. Sarojini S Potti (ECE)	SRM University, Tamilnadu
13	Conference -International Conference on advances in Bio-technology, Civil & Mechanical Sciences –Paper presentation 13 th to 14 th March 2015	Prof. Manu M John (ME) Prof. Venkitaraj K P(ME) Prof. Madhu A K(ME) Prof. Lasithan L G(ME) Prof. Sanchu S (ME)	Selvam College of Technology, Namakkal, Tamilnadu

iv. Publications by Faculty in National/International Conferences

SL No	Title of the paper	National/ International	Department	Journal/ Proceeding
1	Pattern similarity based clustering of Gene Expression Patterns	International	CSE	Journal
2	Joint Change Detection and Image Registration Method for Multitemporal SAR images	International	EC	Journal
3	Input Mapping and simulation analysis using adaptive network based Fuzzy Inference system	International	EC	Journal
4	Optimal Sizing Procedure of standalone PV system for university located in Western Ghats	International	EEE	Journal
5	Heat Transfer Enhancement in Tube Heat Exchanger with Ring Sector Insert	International	ME	Journal
6	Numerical Analysis on Natural Convection from Dual Heating Element in an Enclosure	International	ME	Journal
7	Numerical Investigation of Cylindrical Pin Fin Heat Sink in Natural Convection	International	ME	Journal
8	Performance and emission characteristics of ACI Engine by effect of Cerium Oxide nano particles as additive to diesel	International	ME	Journal
9	Application of silica aero gel as cryogenic insulation	International	ME	Journal
10	Optimization of length of Mixing Zone in GH2-GO2	International	ME	Journal

	based Torch Igniter applying Numerical Techniques			
11	Numerical Simulation of Piezoelectric Diffuser Nozzle	International	ME	Journal
	Valve Micro pump			
12	Determination of Natural Convective Heat Transfer	International	ME	Journal
	Coefficient of Air over an Isothermal Surface			
13	The cloud Phone	National	CSE	Proceeding
14	Embedded System for Android Platform (Digital	National	CSE	Proceeding
	Watermarking)			
15	Confidential Information Security Systems	National	CSE	Proceeding
16	Music on cloud	National	CSE	Proceeding
17	My Child: Android Based Child Monitoring and	National	CSE	Proceeding
	Tracking System			
18	Security System Using Steganography	National	CSE	Proceeding
19	Video Stamps using QR Codes	National	CSE	Proceeding
20	SNAP THE THIEF- Security Application for Android	National	CSE	Proceeding
	Platform			
21	CONNECT - A Mobile - PC Android Application	National	CSE	Proceeding
22	ANYCAB- Advanced Cab Booking System in Android Platform	National	CSE	Proceeding
23	Global Application Development Server	National	CSE	Proceeding
24	Android Application for Public Security	National	CSE	Proceeding
25	Antiphishing using Visual Cryptography	National	CSE	Proceeding
26	Defenses Against Large Scale Online Password	National	CSE	Proceeding
	Guessing Attacks by using Persuasive click Points	27.1.1	COP	- I
27	Wireless Intrusion Detection Systems(WIDS)	National	CSE	Proceeding
28	Machine Tool Damage prediction using Model Characteristics	International	ECE	Proceeding
29	Transformers less DC-DC converter with high voltage gain based on Cockroft-Walton Multiplier	National	EEE	Proceeding
30	Influence of trapezoidal ribs on heat transfer in a	National	ME	Proceeding
	rectangular channel with 90 degree continuous ribs			
31	Experimental Analysis of Helically Coiled Heat	National	ME	Proceeding
32	Exchanger using Variable Pitch Numerical Analysis of Counter Rotating Fans	National	ME	Proceeding
33	Numerical analysis on NACA 9416 as a turbine blads	National	ME	Proceeding
33	profile	Tational	WIL	Trocccumg
34	Aerodynamic performance analysis and performance comparison of airfoils	National	ME	Proceeding
35	Numerical Analysis on Natural Convection from Dual Heating Element in an Enclosure	National	ME	Proceeding
36	Heat Transfer Enhancement in Tube Heat Exchanger with Ring Sector Insert	National	ME	Proceeding
37	Thermal Evaluation of a Sealed Electronic Cabinet using FloTHERM	National	ME	Proceeding

38	Bio heat transfer simulation during radio frequency ablation of Hepatic Tumor using Cool- Tip Electrode	National	ME	Proceeding
39	A numerical simulation on combination of wavy fins and plain fins	National	ME	Proceeding
40	Performance and emission characteristics of CI engine by effect of cerium oxide nano particle as additive to diesel	National	ME	Proceeding
41	Application of silica aero gel as cryogenic insulation	National	ME	Proceeding
42	Numerical study on heat transfer and fluid flow in PIN Fin -Dimple channels with fillet on Dimple edge	International	ME	Proceeding
43	Economical analysis of energy star labeled products with varying operating parameters	International	ME	Proceeding
44	Experimental Investigation of Heat transfer and pressure drop characteristics of Alumina Nano-fliud in tabular Flow with Ring Sector Inserts	International	ME	Proceeding

v Membership by Faculty in Professional Bodies

- ♣ Membership in ASME India Venkitaraj K P
- ♣ Membership in The Institution of Engineers(India) Lasithan L G
- 🖶 Membership in IEEE John George
- ♣ Membership in Professional Engineering Society SAE India –Venkitaraj K P

D STAFF DEVELOPMENT PROGRAMMES

i. Staff –Training Programmes organized inside this institution

Staff Development Programmes have been conducted inside the institution for the benefit of non-teaching staff and office administrative staff. Staffs from our college and from outside have participated and enhanced their knowledge, skills and personality. The following workshops organized by different departments enhanced the knowledge and skills of technical staffs.

- a. TEQIP- II Sponsored one day Workshop on "Android Programming" on 11th April 2014.
- b. TEQIP- II Sponsored one day Workshop on "PCB Fabrication" on 22nd July 2014.
- c. TEQIP- II Sponsored one day Workshop on "XILINX VIVADO DESIGN SUITE" on 27th August 2014.
- d. TEQIP- II Sponsored one day Workshop on "Microcontrollers" on 20th November 2014.

- e. TEQIP- II Sponsored one day Workshop on "Effective technical writing using LaTeX" on 16th December 2014.
- f. TEQIP- II Sponsored two days Workshop on "Application development with PYTHON" on 8^{th} and 9^{th} January 2015

ii. Staff-Training Programmes attended outside this institution

The non-teaching staff and office administrative staff from our institution have taken part in many of the staff development programmes conducted outside the institution.

SI no.	Title of activity with date	Name of the Beneficiaries	Name of the organization
1	Workshop –Moodle Software 30 th May – 01 st June 2014	Smt Saritha M S (Library)	S H College ,Thevara, Ernakulum
2	Workshop- Linux Server Administration 18 th to 22 th August 2014	Sri. Biji Varghese (CSE)	Academic Staff College of India, Hyderabad

E EQUIPMENTS PURCHASED THROUGH TEQIP

Sl.No	Name of the Equipment(qty)	Dept	Price(Rs)
1	NI Software site license(1)	ECE	5,99,025
2	MATLAB(1)	ECE&	6,73,463
		EEE	
3	ETAP(1)	EEE	1,99,937
4	DATA ACQUISITION SYSTEM(1)	ME	1,64,120
5	Thermal Imager -IR Camera(1)	ME	4,09,500
6	Multifunction Process Calibrator(2)	ME	3,94,165

7	Circulating Temperature Bath(1)	ME	2,99,250
8	Wind Tunnel(1)	ME	9,40,550
9	RESEARCH TYPE IC ENGINE(1)	ME	13,05,930
10	Vapor Compression Refrigeration Demo Unit(1)	ME	1,01,676
11	Vapor Absorption Refrigeration Test Setup(1)	ME	1,31,446
12	Digital Trainer kit & IC tester for digital(13)	ECE	1,22,955
13	DC Motor-Alternator Set(2)	EEE	4,07,031
14	Online UPS Phase II(2)	Institution	1,41,011
15	Clamp meters & Multimeters (31)	ECE&	2,49,679
		EEE	
16	Low Frequency DSO(14)	ECE&	2,86,650
		EEE	
17	Network Analyzer Package(1)	ECE	4,56,750
18	Centrifugal air compressor test rig(1)	ME	1,48,621
19	LCR Meter(1)	EEE	31,500
20	Server Systems(5)	Institution	6,22,877
21	Raspberry Pi(50)	ME, ECE	2,88,225
		&EEE	
22	Desktop Computers(182)	Institution	73,71,512
23	Inverted Metallurgical Microscope(1)	ME	2,62,984
24	Bomb Calorimeter(1)	ME	1,13,126
25	Vickers Hardness Testing Machine(1)	ME	1,31,250
26	Ammeter(20)	ECE	24,331
27	Breadboard(45)	ECE	17,483
28	Electrical Loads (72)	EEE	7,09,633
29	Programmable Logic Controller(1)	ECE	1,28,772

30	PCB Fabrication Facility(15)	ECE	1,16,701
31	Hand-held Oscilloscope(1)	EEE	2,00,060
32	Programmable Power Supply(2)	ECE	1,25,090
33	FPGA Development Boards With Xilinx ISE(1)	ECE	1,87,790
34	DC Motors(2)	EEE	1,97,169
35	RF Signal Generator(1)	ECE	4,32,623
36	CASCADE SET(1)	EEE	2,03,776
37	Universal Programmer(1)	ECE	39,239
38	High Voltage Power Supply(4)	EEE	49,922
39	V/f control setup(1)	EEE	95,940
40	Power Meter(1)	EEE	3,04,456
41	Equipments for advanced electrical engineering lab(9)	EEE	1,66,434
42	Test setups for advanced Electrical Engineering Lab(8)	EEE	4,80,566
43	PC BASED OSCILLOSCOPE(4)	ECE	1,24,551
44	NDT Equipments(2)	ME	2,27,535
45	DC Rectifier Unit(1)	EEE	1,43,698
46	Beagle Bone Black(2)	ECE	13,020
47	8051 Trainer Kit(16)	ECE	3,03,347
48	Equipments for Electrical Measurement Lab(4)	EEE	1,03,073
49	Induction Motors(3)	EEE	1,77,164
50	Special Induction Machines(3)	EEE	2,13,382
51	Raspberry Pi Accessories (50)	ME, ECE	36,750
		&EEE	
52	Universal Testing Machine(1)	ME	8,76,000
53	White Boards(20)	Institution	1,45,755
54	Digital Podium(2)	Institution	1,55,720

55	Ultra Short Throw Devices(1)	Institution	1,06,000
56	ID Card Printer(1)	Office	94,950
57	Multi station Fitness Equipment(1)	Institution	3,21,300
58	Printer (14)	Institution	1,90,400
59	Video Surveillance for main Library(1)	Library	39,730
60	Laptop Computers(22)	Institution	9,41,071
61	AICTE 2015 Renewal for Elsevier e-Journals(1)	Library	4,90,945
62	AICTE 2015 Renewal for ASME e-journals(1)	Library	1,68,696
63	AICTE 2015 Renewal for IEEE e-journals(1)	Library	3,95,010
64	Text Books of Electrical Engineering(1)	Library	5,84,832
65	Desk & Benches(50)	Institution	7,59,135
66	Drawing Stool(100)	Institution	1,54,575
67	Wooden Work Bench(2)	ME	1,34,881
		&EEE	

F IIIC CELL ACTIVITIES

A 3 day workshop of TBI College of Engineering Adoor was held on 25th march 2015 to 27th march 2015 at College of Engineering Adoor. The STARTUP TREK 2015 was inaugurated by Prof. Jyothi John (Principal, College of Engineering Adoor). In the inaugural address he stressed on the rationale for arranging an event of this nature.



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G STUDENT DEVELOPMENT ACTIVITIES

Through TEQIP-II, many Training Programmes have been conducted for the benefit of students to enhance their subject knowledge, practical knowledge. Many programmes have been conducted to improve the skills needed for company placements which include aptitude based trainings, communication skills and personality development programmes.

- A Soft Skill Training programme named "Aptitude Training Program" was conducted to improve the aptitude skills for the final year students of all ECE, EEE and CSE departments for the placement drives from 06.05.2014 to 08.05.2014. The sessions were handled by Rajesh P.S, Jayesh J.L and Rajaraman (Placement Trainers, Career Launcher, Trivandrum)
- A Soft Skill Training programme named "Aptitude Training Program" was conducted to improve the aptitude skills for the final year ME students for the placement drives from 28.08.2014 to 30.08.2014. The sessions were handled by Midhunjith A.K, Syam Mohan and Rajan Thampuran (Aptitude Trainers, Career Launcher, Trivandrum)
- An Expert Talk about Research Prospectus in Computational Fluid Dynamics to create awareness regarding research areas in Finite Element Methods for all ME

students including PG students on 24.10.2014. The Session was handled by **Prof.** *Eldho T I, Professor (Civil Engg.), IIT Mumbai.*

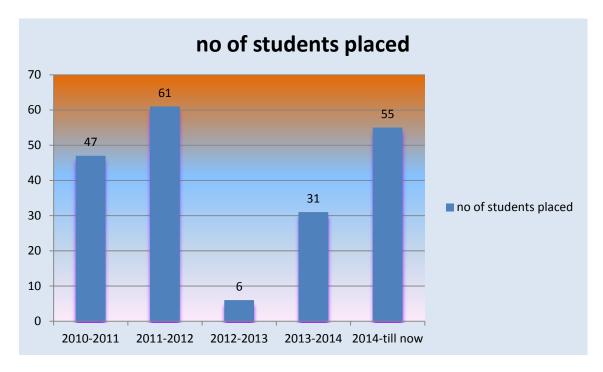
An Expert Talk about "Professional Grooming" was conducted for CGPU Members on 06.03.2015. The session was handled by *Arun Antony*, Asst professor, Farook Institute of Management Studies, Calicut.

H ACADEMIC SUPPORT PROGRAMMES

Weak students were identified and the subjects that the students feel difficult both in the current semester and the arrear subjects were identified and remedial classes were arranged through TEQIP-II as part of Academic Support Programmes for the benefit of students. This arrangement is done to improve the academic results and the list of such programmes is listed.

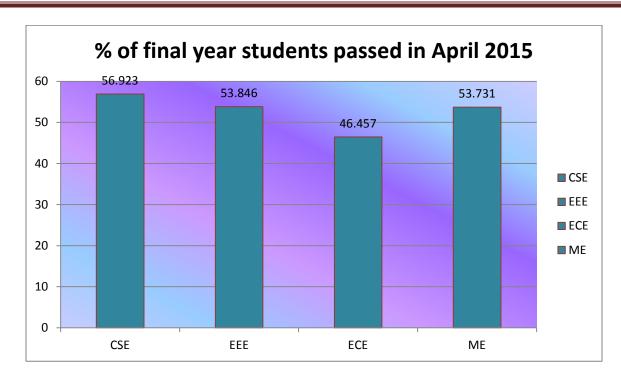
	Dept	Name of the Subject	Total No of	No of
REMEDIAL			Beneficiaries	Hours
TUTORIAL /				Engaged
BRIDGE	EEE	EE 403 Electrical machines I	15	10
COURSES	ECE	EC 1303 Network Theory	13	12
CONDUCTED	Combined for first	1101 Engineering Mathematics – I	180	30
	year all branches			
		1108 Computer Programming	65	6

H PLACEMENT PERCENTAGE



I RESULT ANALYSIS

- > Mr. SAYUJ. S secured First Rank in CUSAT B.Tech Degree Examination 2015 in ME.
- > Ms. NITYA S ABRAHAM secured Third Rank in CUSAT B.Tech Degree Examination 2015 in CSE.



J TRANSITION RATE

