



# BHARAT

**INSTITUTE OF ENGINEERING AND TECHNOLOGY**

NAAC Accredited, NBA Accredited for UG Programmes: CSE, ECE

Approved by AICTE, New Delhi, Affiliated to JNTUH

**2016-17**

**3.5.1 Number of Collaborative activities for research, Faculty exchange, Student exchange/ internship per year.**

S.No	Name of the Organisation	No. of Activities	Nature of Activity
1.	Defense Research and Development Laboratory	02	Research Project
2.	CMC Academy	01	Research Project
3	Defence Electronics Research Laboratory(DLRL) DRDO	01	Research Project
4	Research Center Imarat , DRDO	01	Training
5	Electronics Corporation of India Limited	06	Research Project
6	People Waste Managers	02	Training
	<b>Total Activities</b>	<b>13</b>	



*20/9/17*

Principal  
Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501510

# BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, Accredited by NAAC and Accredited by NBA : UG Programmes - CSE, ECE, EEE & Mechanical  
Recognised by the Govt. of T.S. and Affiliated to JNTUH, Hyderabad.)

Sponsored by : CHINTA REDDY MADHUSUDHAN REDDY EDUCATIONAL SOCIETY

Mangalpally (Village), Ibrahimpatnam (Mandal), Ranga Reddy District - 501 510, Telangana. Tel : 08414 - 252399

Ref.:

BIET/2016

Date: 22/05/2016

To;  
The Manager  
DRDL  
Hyderabad

**Subject: Request for Consent of Student Project Work in the esteemed organization.**

Dear Sir,

I hope this letter finds you in good health and high spirits. I am writing on behalf of Bharat Institute of Engineering & Technology to request your esteemed organization's support in providing our students with an opportunity to undertake project work under your guidance.

As part of our academic curriculum, our students are required to gain hands-on experience through industry-oriented projects that enhance their practical knowledge and prepare them for professional challenges. We believe that your organization, being a leader in relevant industry or domain, would provide an excellent platform for our students to apply their theoretical learning to real-world scenarios.

We would be grateful if you could accommodate a group of our students for project/internship work for around 3 or 4 months. We assure you that our students are highly motivated and eager to contribute meaningfully under the supervision of your experts. Additionally, we are open to discussing specific project requirements and any other formalities necessary for a smooth collaboration.

We look forward to a positive response and a fruitful association with your organization. Please let us know a convenient time for further discussions on this matter.

Thank you for your time and consideration.

Yours sincerely,



Principal  
BIET  
Principal  
Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501510





भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100



सत्यमेव जयते

ONE  
HUNDRED RUPEES

भारत INDIA  
INDIA NON JUDICIAL

आन्ध्र प्रदेश ANDHRA PRADESH

Date: 06-12-2007 Serial No: 5,075

Denomination: 100

B 144 31

Purchased By :

T. KISHAN  
S/O LATE T. BALAJEE  
R/O HYD.

Sub Registrar  
Ex.Officio Stamp Vendor  
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For Whom :

CHAIRMAN IDST, C/O DLRL, HYD.

MEMORANDUM OF UNDERSTANDING

Between

INSTITUTE OF DEFENCE SCIENTISTS & TECHNOLOGISTS C/O, DLRL,  
CGLINES, HYDERABAD- 500005 (hereinafter called IDST).

and

BHARAT INSTITUTE OF ENGINEERING TECHNOLOGY, MANGALPALLY,  
IBRAHIMPATNAM, R.R.DIST - 501 510 (hereinafter called B.I.E.T)

1. PREAMBLE

Where as IDST is a society of Retired Defence Scientists (Regd No.S/4 5222 of 2003 registered at New Delhi) formed to extend support to DRDO organization on the ongoing scientific and technical projects. It is formed to tap the vast experience and knowledge acquired by the scientists during the course of their service.

Where as B.I.E.T is an accredited engineering institution by NBA, New Delhi engaged in imparting quality education to B.Tech and M.Tech students possessing excellent facilities for Research. B.I.E.T also has experienced faculty well versed in R&D activities.

Where as IDST described the scope of work to BIET and BIET has agreed for the bilateral co-operation for the said research work.

R102

M. J.



## 2.SCOPE OF MOU

IDST and B.I.E.T proposed bilateral co-operation in carrying out research work by undertaking a research project sanctioned to IDST by a DRDO Lab. The project envisages investigation on TIME and FREQUENCY DIFFERENCE OF ARRIVAL BASED GEO LOCATION TECHNIQUE FOR COMMUNICATION SIGNAL EMITTERS. The work involves mainly simulation and modeling using software like MATLAB,C,C++ etc.

Details of work and division of responsibilities are given in Annexure to this M.O.U.

## 3.DURATION OF THE PROJECT

The duration of the project is one year starting from the date of signing this MOU. The project PDC is 1<sup>st</sup> Feb 2009.

## 4.OPERATION AND EXECUTION OF PROJECT

Sri. G. Nagendra Rao, Retd. Scientist and Former Head of Communication Directorate at Defence Electronics Research Laboratory (DLRL) is the representative of the Institute of Defence Scientists and Technologists for execution of this project.

Prof. G. Kumaraswamy Rao and his team will represent B.I.E.T and responsible for the execution of the work.

## 5.FINANCIAL ARRANGEMENT

An amount of Rs. 2,50,000 (Rupees two lakhs fifty thousand only) towards technical services for this project will be paid to B.I.E.T by IDST in four installments with the payment terms as given below. The release of payments (ii), (iii), (iv) are subject to acceptance by IDST.

- (i) 25 % Advance within two months of signing MOU
- (ii) 30 % After completion of first stage viz., Time & Frequency Difference of arrival algorithm, processing
- (iii) 30 % After completion of second stage viz., Location Fix algorithm, processing
- (iv) 15 % After completion of third stage viz., conclusion of the project

The problems of financing during the project should be solved upon mutual agreement.

RIDC

127



## 6. RESPONSIBILITIES

Scope, division of work and responsibilities are included in annexure to this MOU.

Incase of representatives of IDST and B.I.E.T leave the organization, the Head of IDST and B.I.E.T can nominate the successors, on mutual consent.

Incase B.I.E.T desires to publish a part or full work in national/foreign journal, it should seek permission from DLRL through IDST. If objection is not received by B.I.E.T within 60 days of the request, B.I.E.T is free to publish the work.

The right to terminate the project will rest with both parties on mutual consent

## 7. ARBITRATION

All disputes arising out during the execution of this contract will be solved by mutual agreement. In case the disputes are not resolved the decision of the Chairman, IDST, Hyderabad branch will be final.

In witness whereof, IDST and B.I.E.T has executed this MOU as of the day and year set forth below.

Agreed by  
B.I.E.T

Principal B.I.E.T  
Mangalpally,  
Ibrahimpattanam  
R.R. Dist - 501 510  
Date: 13-2-08

Witnesses:

- 1) G. Anandraswamy Rao 13-2-08
- 2) G. Rammohana Reddy 13-2-08

Agreed by  
IDST

R.D.L.  
Chairman IDST  
DLRL Campus, C G Lines  
Hyderabad -500 005

Date: 13.2.08

Witnesses:

- 1) Subash
- 2) Harmanth





**Institute of Defence Scientists & Technologists**  
(Reg at New Delhi Under Societies Act XXI of 1860-Reg. No. S/4 5222 of 2003)

**Hyderabad Branch**

DLRL Campus, Chandrayanagutta,  
Hyderabad – 500 005

Telefax: 040 – 24440375

E-mail: idst\_hyd2008@yahoo.co.in

Date : 05 Nov, 2015

**PATRON**

SA to RM & DG (R&D)  
DRDO

**PRESIDENT**

Sri A.K. Chakrabarti  
☎ (040) 29802430 (R)  
☎ 9849164521 (M)

**HYDERABAD BRANCH**

**CHAIRMAN**

Dr Harihar Singh  
☎ (040) 24441310 (O)  
☎ 9949032250 (M)

**VICE-CHAIRMAN**

Dr R.C. Mathur  
☎ (040) 24440375 (O)  
☎ 9441426510 (M)

*harihar2002@yahoo.com*

To

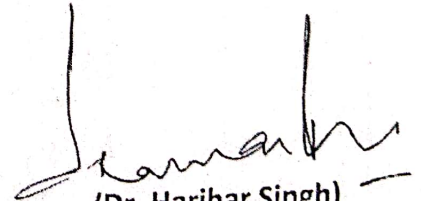
Prof G.Kumaraswamy Rao  
BIET, R.R. District  
HYDERABAD

Sir,

This has reference to the "Radar EW" course conducted recently by IDST(H) at BEL, Hyderabad premises. I wish to convey my deep gratefulness to you for the following expert lectures delivered by you at M/s Bharat Electronics Limited, Nacharam, Hyderabad. These talks were very well received by the course participants.

- i. Concepts of Radars & LPI Capabilities, Part I & II, on 09<sup>th</sup> Oct' 2015.
- ii. LPI Radar Vs ES Interceptor, on 17<sup>th</sup> Oct' 2015.

I would be seeking your continued support and guidance in future also for such endours.

  
(Dr. Harihar Singh)  
Chairman, IDST(H)



**Institute of Defence Scientists & Technologists**  
(Reg at New Delhi Under Societies Act XXI of 1860-Reg. No. S/4 5222 of 2003)

**Hyderabad Branch**

DLRL Campus, Chandrayanagutta,

Hyderabad - 500 005

Telefax: 040 - 24440375

E-mail: idst\_hyd



2008@yahoo.co.in

Our ref No. IDST/HYD/Proj/09-10

Hyderabad  
13<sup>th</sup> Apr 2009

**PATRON**

Sri. M.Natarajan.

SA to RM & DG (R&D)

DRDO

**PRESIDENT**

Shri K.Srinivasa

☎ (080) 26636326 (R)

☎ 09972183900 (M)

**HYDERABAD BRANCH**

**CHAIRMAN**

Dr. R.L.Saha

☎ (040) 24441310 (O)

☎ (040) 24341346 (R)

☎ 9490173248 (M)

**VICE-CHAIRMAN**

Smt Ramamani S.Sundaram

☎ (040) 24078503 (R)

☎ 40369373 (M)

☎ (040) 24440882 (O)

**TREASURER**

K. Mallikarjuna Rao

☎ (040) 24440882 (O)

☎ (040) 24345118 (R)

☎ 9849545118 (M)

**SECRETARY**

Cdr (Retd) V.D.Velalkar

☎ (040) 24440375 (O)

☎ (040) 27031559 (R)

☎ 9490808207 (M)

**SUB: GUIDANCE & SUPERVISION OF B. Tech. PROJECTS FOR FINAL YEAR  
ENGINEERING STUDENTS**

Dear Prof. Kumaraswamy Rao,

You will be happy to note that IDST Central Council has given its consent to our proposal to extend IDST to services to guide and supervise final year engineering students for projects for the award of B. Tech. Degree. This will facilitate IDST to contribute towards an important facet of engineering education in the country. This will also provide us an opportunity to fulfill a long felt need to highlight DRDO activities and achievements to young engineering graduates and involve many retired scientists(IDST members). into is enclosed main stream activities of IDST. A copy of guidelines for the purpose.

IDST Hyderabad will be approaching various engineering colleges to forward their requirements in respect of projects for final year engineering students for the academic year 2009-2010. IDST in consultation with engineering colleges will work out details regarding disciplines/areas/topics for the project works, number of students they would like to sponsor etc. In light above I request you to give your willingness before 15<sup>th</sup> May 2009 to undertake above task and provide the updated Bio-data as per the format enclosed. This will help us in creating a pool of scientists for the task before we approach engineering colleges.

I request for your cooperation and active participation to contribute towards quality engineering education in the country. I sincerely hope that you would accord priority for the same.

With warm regards

Encl: 1. Guidelines for IDST

2. Proforma for updated biodata

Yours sincerely

*R.L.Saha*  
(Dr R.L.Saha)

Chairman

To

Sri	G.KUMARASWAMY RAO 9-8-15, Maruthinagar Colony, Opp. New Santoshnagar Colony, Hyderabad-500059 e-mail: rao_gksdlrldrdo@yahoo.co.in
-----	---





भारत सरकार, रक्षा मंत्रालय  
Government of India, Ministry of Defence  
रक्षा अनुसंधान एवं विकास संगठन  
DEFENCE RESEARCH & DEVELOPMENT ORGANISATION  
रक्षा अनुसंधान एवं विकास प्रयोगशाला  
DEFENCE RESEARCH & DEVELOPMENT LABORATORY  
कंचनबाग हाक घर, हैदराबाद - 500 058 (भारत)  
P.O. : Kanchanbagh, Hyderabad - 500 058. A.P. INDIA

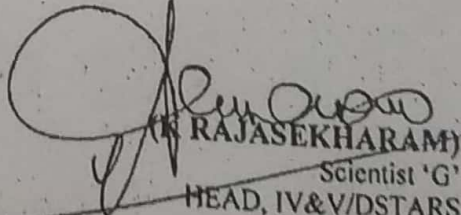
Date: 11<sup>th</sup> Apr 2017

## CERTIFICATE

This is to certify that MS. P. VEDA RAMYA SREE bearing ID No. 13E11A0446, G.BHAVANA bearing ID No.13E11A0408, K.VINOD KUMAR bearing ID No.13E11A0447, M.UDAY KIRAN bearing ID No.13E11A0443 of B.Tech (ECE), IV Year from BHARATH INSTITUTE OF ENGINEERING AND TECHNOLOGY, Hyderabad has successfully completed their Major Project on "*Simulation of Direct Sequence Spread Spectrum using Matlab*" under my supervision and guidance for a period of Two months in Defence Research & Development Laboratory, Kanchanbagh, Hyderabad, Telangana.

It is to certify that this report carries a bonafide account of project work carried out under my guidance.



  
(K. RAJASEKHARAM)  
Scientist 'G'  
HEAD, IV&V/DSTARS  
DRDL/DRDO

Principal  
Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501501  
K. RAJASEKHARAM  
SCIENTIST-'G'  
MINISTRY OF DEFENCE  
DRDL, HYDERABAD-58.

दूरभाष / Phone : कार्यालय / Office: +91(40)24342436,  
Fax : +91(40)24340573 ई-मेल / E-mail : ksrinivas@drdl.drdo.in





Govt. of India  
Ministry of Defence  
DEFENCE R&D ORGANISATION  
DEFENCE RESEARCH & DEV. LABORATORY  
P.O. Kanchanbagh, Hyderabad - 500 058,  
Telangana State  
Phone No.040-24583151 Fax No.040-24583154

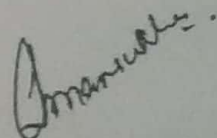
Date : 03<sup>rd</sup> April 2017

### CERTIFICATE

This is to certify that the project , titled " **AUTOMATIC TRAFFIC DENSITY CONTROL ANNOUNCEMENT OVER FM** " submitted by Student of **BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY** , IBRAHIMPATNAM, HYDERABAD at Directorate of Software Technology And Range Systems (DSTARS), Defence Research & Development Laboratory.

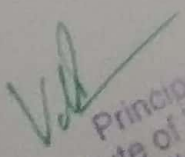
1. MISS. A.GAYATHRI (R.NO 13E11A04A7)
2. MISS. G.SUMA (R.NO 13E11A04D4)

During the project period from 10.01.2017 to 30.03.2017, they were found to be sincere & hard working and also took keen interest in the areas allied to their project work.

  
Jyoti Mansukhani,  
Scientist 'E'  
DRDL

JYOTI MANSUKHANI  
Scientist  
MIN.OF DEFENCE, GOVT.OF INDIA  
DRDL, HYDERABAD-58.



  
Principal  
Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501510

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Mangalpally (Village), Ibrahimpatnam (Mandal), Ranga Reddy District - 501 510, Telangana. Tel : 08414 - 252399

Ref.:

BIET/2016

Date: 22/05/2016

To;  
The Manager  
CMC  
Hyderabad

**Subject: Request for Consent of Student Project Work in the esteemed organization.**

Dear Sir,

I hope this letter finds you in good health and high spirits. I am writing on behalf of Bharat Institute of Engineering & Technology to request your esteemed organization's support in providing our students with an opportunity to undertake project work under your guidance.

As part of our academic curriculum, our students are required to gain hands-on experience through industry-oriented projects that enhance their practical knowledge and prepare them for professional challenges. We believe that your organization, being a leader in relevant industry or domain, would provide an excellent platform for our students to apply their theoretical learning to real-world scenarios.

We would be grateful if you could accommodate a group of our students for project/internship work for around 3 or 4 months. We assure you that our students are highly motivated and eager to contribute meaningfully under the supervision of your experts. Additionally, we are open to discussing specific project requirements and any other formalities necessary for a smooth collaboration.

We look forward to a positive response and a fruitful association with your organization. Please let us know a convenient time for further discussions on this matter.

Thank you for your time and consideration.

Yours sincerely,

*Vettihambabu*

Principal

BIET

Principal

Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501510





Ref: CMC/HYD/LP/16-17/218

March 18, 2017

**ACADEMIC PROJECT COMPLETION CERTIFICATE**

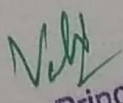
This is to certify that **Mr. G BHARATH (13E11A0405), Mr. T RAMBABU (13E11A0426), Mr. K SANTHOSH KUMAR (13E11A0429), Mr. V THIRUPATHI (13E11A0442)**, have successfully completed the Project titled **"EXAMINATION ROOM INFORMATION SYSTEM"** in Partial fulfillment of the **B.TECH (ECE)** course during the period **December 19, 2016. TO March 18, 2017.**

**SOFTWARE USED: KEIL**

  
Project Manager



A TATA Enterprise

  
Principal  
Bharat Institute of Engg. and Tech  
Pally(V), Ibrahimiah(M)  
Manga Reddy (Dist)-Telangana-501510

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Principal  
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भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

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सत्यमेव जयते

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HUNDRED RUPEES

भारत INDIA  
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R/O HYD.

Sub Registrar  
Ex.Officio Stamp Vendor  
S.R.O. CHAMPAPET

For Whom :

CHAIRMAN IDST, C/O DLRL, HYD.

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Between

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CGLINES, HYDERABAD- 500005 (hereinafter called IDST).

and

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RLO

M. J.



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RIDC

127



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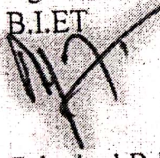
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In witness whereof, IDST and B.I.E.T has executed this MOU as of the day and year set forth below.


Agreed by  
B.I.E.T

  
Principal B.I.E.T  
Mangalpally,  
Ibrahimpattam  
R.R. Dist - 501 510  
Date: 13-2-08

Witnesses:

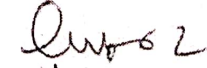
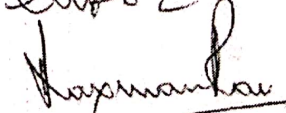
- 1) G. Anandraswamy Rao 13-2-08
- 2) G. Rammohana Reddy 13-2-08

Agreed by  
IDST

  
Chairman IDST  
DLRL Campus, C G Lines  
Hyderabad -500 005

Date: 13.2.08

Witnesses:

- 1) 
- 2) 



**Institute of Defence Scientists & Technologists**  
(Reg at New Delhi Under Societies Act XXI of 1860-Reg. No. S/4 5222 of 2003)

**Hyderabad Branch**

DLRL Campus, Chandrayanagutta,  
Hyderabad – 500 005

Telefax: 040 – 24440375

E-mail: idst\_hyd2008@yahoo.co.in

Date : 05 Nov, 2015

**PATRON**

SA to RM & DG (R&D)  
DRDO

**PRESIDENT**

Sri A.K. Chakrabarti  
☎ (040) 29802430 (R)  
☎ 9849164521 (M)

**HYDERABAD BRANCH**

**CHAIRMAN**

Dr Harihar Singh  
☎ (040) 24441310 (O)  
☎ 9949032250 (M)

**VICE-CHAIRMAN**

Dr R.C. Mathur  
☎ (040) 24440375 (O)  
☎ 9441426510 (M)

*harihar2002@yahoo.com*

To

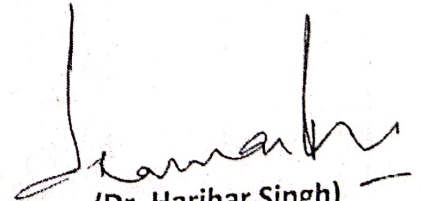
Prof G.Kumaraswamy Rao  
BIET, R.R. District  
HYDERABAD

Sir,

This has reference to the "Radar EW" course conducted recently by IDST(H) at BEL, Hyderabad premises. I wish to convey my deep gratefulness to you for the following expert lectures delivered by you at M/s Bharat Electronics Limited, Nacharam, Hyderabad. These talks were very well received by the course participants.

- i. Concepts of Radars & LPI Capabilities, Part I & II, on 09<sup>th</sup> Oct' 2015.
- ii. LPI Radar Vs ES Interceptor, on 17<sup>th</sup> Oct' 2015.

I would be seeking your continued support and guidance in future also for such endours.

  
(Dr. Harihar Singh)  
Chairman, IDST(H)



**Institute of Defence Scientists & Technologists**  
(Reg at New Delhi Under Societies Act XXI of 1860-Reg. No. S/4 5222 of 2003)

**Hyderabad Branch**

DLRL Campus, Chandrayanagutta,

Hyderabad - 500 005

Telefax: 040 - 24440375

E-mail: idst\_hyd



2008@yahoo.co.in

Our ref No. IDST/HYD/Proj/09-10

Hyderabad  
13<sup>th</sup> Apr 2009

**PATRON**

Sri. M.Natarajan.

SA to RM & DG (R&D)

DRDO

**PRESIDENT**

Shri K.Srinivasa

☎ (080) 26636326 (R)

☎ 09972183900 (M)

**HYDERABAD BRANCH**

**CHAIRMAN**

Dr. R.L.Saha

☎ (040) 24441310 (O)

☎ (040) 24341346 (R)

☎ 9490173248 (M)

**VICE-CHAIRMAN**

Smt Ramamani S.Sundaram

☎ (040) 24078503 (R)

☎ 40369373 (M)

☎ (040) 24440882 (O)

**TREASURER**

K. Mallikarjuna Rao

☎ (040) 24440882 (O)

☎ (040) 24345118 (R)

☎ 9849545118 (M)

**SECRETARY**

Cdr (Retd) V.D.Velalkar

☎ (040) 24440375 (O)

☎ (040) 27031559 (R)

☎ 9490808207 (M)

**SUB: GUIDANCE & SUPERVISION OF B. Tech. PROJECTS FOR FINAL YEAR  
ENGINEERING STUDENTS**

Dear Prof. Kumaraswamy Rao,

You will be happy to note that IDST Central Council has given its consent to our proposal to extend IDST to services to guide and supervise final year engineering students for projects for the award of B. Tech. Degree. This will facilitate IDST to contribute towards an important facet of engineering education in the country. This will also provide us an opportunity to fulfill a long felt need to highlight DRDO activities and achievements to young engineering graduates and involve many retired scientists(IDST members). into is enclosed main stream activities of IDST. A copy of guidelines for the purpose.

IDST Hyderabad will be approaching various engineering colleges to forward their requirements in respect of projects for final year engineering students for the academic year 2009-2010. IDST in consultation with engineering colleges will work out details regarding disciplines/areas/topics for the project works, number of students they would like to sponsor etc. In light above I request you to give your willingness before 15<sup>th</sup> May 2009 to undertake above task and provide the updated Bio-data as per the format enclosed. This will help us in creating a pool of scientists for the task before we approach engineering colleges.

I request for your cooperation and active participation to contribute towards quality engineering education in the country. I sincerely hope that you would accord priority for the same.

With warm regards

Encl: 1. Guidelines for IDST

2. Proforma for updated biodata

Yours sincerely

  
(Dr R.L.Saha)

Chairman

To

Sri	G.KUMARASWAMY RAO 9-8-15, Maruthinagar Colony, Opp. New Santoshnagar Colony, Hyderabad-500059 e-mail: rao_gksdlrldrdo@yahoo.co.in
-----	---



Dated:

## CERTIFICATE

This is to certify that K.MANIKANTH & M.PRASHANTH & K.SRIKANTH of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY has undergone project training from 10<sup>th</sup> Feb 2017 to 17<sup>TH</sup> APRIL 2017 in the Defence Electronics Research Laboratory, Hyderabad-05. The project "GENERATION OF GPS SIGNAL FOR A GIVEN SATELLITE USING FPGA" is a record of the bonafide work undertaken by them towards partial fulfillment of the requirements for the award of the Degree of B.TECH. These have completed the assigned task satisfactorily.

(K.CHAKRADHAR)  
Sc 'C'  
DLRL, HYDERABAD

(V.REVATHI)

Sc 'G'  
Head  
MICROWAVES-III  
DLRL, HYDERABAD

(V RAMA SANKARAM)

Sc 'F'  
Gp Director HRD  
DLRL, HYDERABAD

वी. रामा शंकरम / V. RAMA SANKARAM  
वैज्ञानिक 'एफ' / SCIENTIST 'F'  
प्रधान एच.आर.डी. / Head HRD  
रक्षा इलेक्ट्रॉनिक्स अनुसंधान प्रयोगशाला  
Defence Electronics Research Laboratory  
हैदराबाद / HYDERABAD-500 005.



DLRL is an ISO 9001:2008 Certified Laboratory

Principal  
Bharat Institute of Engineering and Tech  
Mangalpally (V), Ibrahimpatnam (M)  
Ranga Reddy (Dist) - Telangana - 501510



# BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, Accredited by NAAC and Accredited by NBA : UG Programmes - CSE, ECE, EEE & Mechanical  
Recognised by the Govt. of T.S. and Affiliated to JNTUH, Hyderabad.)

Sponsored by : CHINTA REDDY MADHUSUDHAN REDDY EDUCATIONAL SOCIETY

Mangalpally (Village), Ibrahimpatnam (Mandal), Ranga Reddy District - 501 510, Telangana. Tel : 08414 - 252399

Ref.:

BIET/2016

Date: 22/05/2016

To;  
The Manager  
DRDL  
Hyderabad

**Subject: Request for Consent of Student Project Work in the esteemed organization.**

Dear Sir,

I hope this letter finds you in good health and high spirits. I am writing on behalf of Bharat Institute of Engineering & Technology to request your esteemed organization's support in providing our students with an opportunity to undertake project work under your guidance.

As part of our academic curriculum, our students are required to gain hands-on experience through industry-oriented projects that enhance their practical knowledge and prepare them for professional challenges. We believe that your organization, being a leader in relevant industry or domain, would provide an excellent platform for our students to apply their theoretical learning to real-world scenarios.

We would be grateful if you could accommodate a group of our students for project/internship work for around 3 or 4 months. We assure you that our students are highly motivated and eager to contribute meaningfully under the supervision of your experts. Additionally, we are open to discussing specific project requirements and any other formalities necessary for a smooth collaboration.

We look forward to a positive response and a fruitful association with your organization. Please let us know a convenient time for further discussions on this matter.

Thank you for your time and consideration.

Yours sincerely,



Principal  
BIET  
Principal  
Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501510





भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

रु. 100



सत्यमेव जयते

ONE  
HUNDRED RUPEES

भारत INDIA  
INDIA NON JUDICIAL

आन्ध्र प्रदेश ANDHRA PRADESH

Date: 06-12-2007 Serial No: 5,075

Denomination: 100

B 144 31

Purchased By:

T. KISHAN  
S/O LATE T. BALAJEE  
R/O HYD.

Sub Registrar  
Ex.Officio Stamp Vendor  
S.R.O. CHAMPAPET

For Whom:

CHAIRMAN IDST, C/O DLRL, HYD.

MEMORANDUM OF UNDERSTANDING

Between

INSTITUTE OF DEFENCE SCIENTISTS & TECHNOLOGISTS C/O, DLRL,  
CGLINES, HYDERABAD- 500005 (hereinafter called IDST).

and

BHARAT INSTITUTE OF ENGINEERING TECHNOLOGY, MANGALPALLY,  
IBRAHIMPATNAM, R.R.DIST - 501 510 (hereinafter called B.I.E.T)

1. PREAMBLE

Where as IDST is a society of Retired Defence Scientists (Regd No.S/4 5222 of 2003 registered at New Delhi) formed to extend support to DRDO organization on the ongoing scientific and technical projects. It is formed to tap the vast experience and knowledge acquired by the scientists during the course of their service.

Where as B.I.E.T is an accredited engineering institution by NBA, New Delhi engaged in imparting quality education to B.Tech and M.Tech students possessing excellent facilities for Research. B.I.E.T also has experienced faculty well versed in R&D activities.

Where as IDST described the scope of work to BIET and BIET has agreed for the bilateral co-operation for the said research work.

R102

M. J.

1



## 2.SCOPE OF MOU

IDST and B.I.E.T proposed bilateral co-operation in carrying out research work by undertaking a research project sanctioned to IDST by a DRDO Lab. The project envisages investigation on TIME and FREQUENCY DIFFERENCE OF ARRIVAL BASED GEO LOCATION TECHNIQUE FOR COMMUNICATION SIGNAL EMITTERS. The work involves mainly simulation and modeling using software like MATLAB,C,C++ etc.

Details of work and division of responsibilities are given in Annexure to this M.O.U.

## 3.DURATION OF THE PROJECT

The duration of the project is one year starting from the date of signing this MOU. The project PDC is 1<sup>st</sup> Feb 2009.

## 4.OPERATION AND EXECUTION OF PROJECT

Sri. G. Nagendra Rao, Retd. Scientist and Former Head of Communication Directorate at Defence Electronics Research Laboratory (DLRL) is the representative of the Institute of Defence Scientists and Technologists for execution of this project.

Prof. G. Kumaraswamy Rao and his team will represent B.I.E.T and responsible for the execution of the work.

## 5.FINANCIAL ARRANGEMENT

An amount of Rs. 2,50,000 (Rupees two lakhs fifty thousand only) towards technical services for this project will be paid to B.I.E.T by IDST in four installments with the payment terms as given below. The release of payments (ii), (iii), (iv) are subject to acceptance by IDST.

- (i) 25 % Advance within two months of signing MOU
- (ii) 30 % After completion of first stage viz., Time & Frequency Difference of arrival algorithm, processing
- (iii) 30 % After completion of second stage viz., Location Fix algorithm, processing
- (iv) 15 % After completion of third stage viz., conclusion of the project

The problems of financing during the project should be solved upon mutual agreement.

RIDC

127

## 6. RESPONSIBILITIES

Scope, division of work and responsibilities are included in annexure to this MOU.

Incase of representatives of IDST and B.I.E.T leave the organization, the Head of IDST and B.I.E.T can nominate the successors, on mutual consent.

Incase B.I.E.T desires to publish a part or full work in national/foreign journal, it should seek permission from DLRL through IDST. If objection is not received by B.I.E.T within 60 days of the request, B.I.E.T is free to publish the work.


The right to terminate the project will rest with both parties on mutual consent

## 7. ARBITRATION

All disputes arising out during the execution of this contract will be solved by mutual agreement. In case the disputes are not resolved the decision of the Chairman, IDST, Hyderabad branch will be final.

In witness whereof, IDST and B.I.E.T has executed this MOU as of the day and year set forth below.


Agreed by  
B.I.E.T

  
Principal B.I.E.T  
Mangalpally,  
Ibrahimpattanam  
R.R. Dist - 501 510  
Date: 13-2-08

Witnesses:

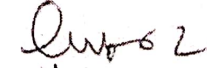
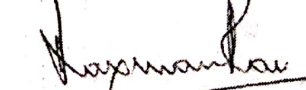
- 1) G. Anandraswamy Rao 13-2-08
- 2) G. Rammohana Reddy 13-2-08

Agreed by  
IDST

  
Chairman IDST  
DLRL Campus, C G Lines  
Hyderabad -500 005

Date: 13.2.08

Witnesses:

- 1) 
- 2) 





**Institute of Defence Scientists & Technologists**  
(Reg at New Delhi Under Societies Act XXI of 1860-Reg. No. S/4 5222 of 2003)

**Hyderabad Branch**

DLRL Campus, Chandrayanagutta,  
Hyderabad – 500 005

Telefax: 040 – 24440375

E-mail: idst\_hyd2008@yahoo.co.in

Date : 05 Nov, 2015

**PATRON**

SA to RM & DG (R&D)  
DRDO

**PRESIDENT**

Sri A.K. Chakrabarti  
☎ (040) 29802430 (R)  
☎ 9849164521 (M)

**HYDERABAD BRANCH**

**CHAIRMAN**

Dr Harihar Singh  
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**VICE-CHAIRMAN**

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☎ (040) 24440375 (O)  
☎ 9441426510 (M)

*harihar2002@yahoo.com*

To

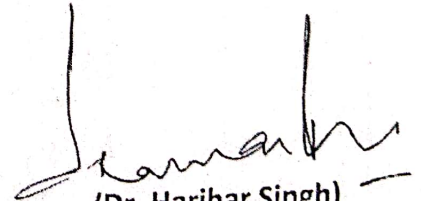
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E-mail: idst\_hyd



2008@yahoo.co.in

Our ref No. IDST/HYD/Proj/09-10

Hyderabad  
13<sup>th</sup> Apr 2009

**PATRON**

Sri. M.Natarajan.

SA to RM & DG (R&D)

DRDO

**PRESIDENT**

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ENGINEERING STUDENTS**

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Encl: 1. Guidelines for IDST

2. Proforma for updated biodata

Yours sincerely

*R.L.Saha*  
(Dr R.L.Saha)

Chairman

To

Sri	G.KUMARASWAMY RAO 9-8-15, Maruthinagar Colony, Opp. New Santoshnagar Colony, Hyderabad-500059 e-mail: rao_gksdlrldrdo@yahoo.co.in
-----	---



Tel: +91-40-24306309  
Fax: +91-40-24306375



Defence R&D Organization  
Dr. APJ Abdul Kalam Missile Complex  
Research Centre Imarat  
Vignyanakancha POST  
HYDERABAD - 500 069

No. RCI/CSL/1421/GEN

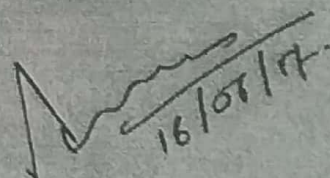
Date: 16<sup>th</sup> June 2017

## C E R T I F I C A T E

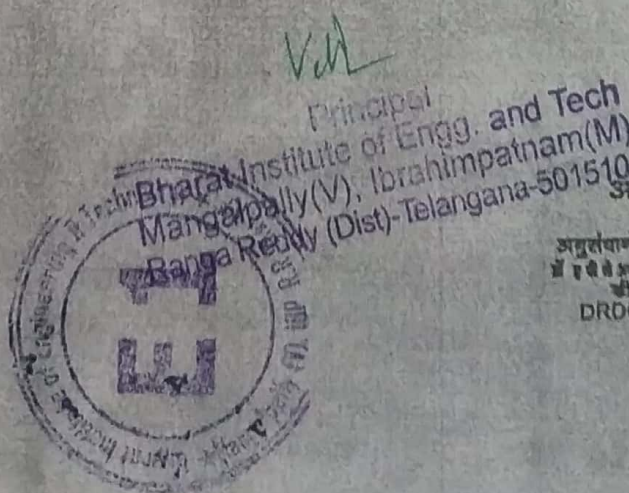
This is to certify that the **B. Tech.** Degree students of **BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY**, Mangalpally, Ibrahimpatnam, R.R.District in Electrical & Electronics Engineering (EEE) has completed the **Industrial Training** under our guidance and supervision during the period from 30<sup>th</sup> May 2017 to 16<sup>th</sup> June 2017 in **Research Centre Imarat (RCI)**, a Lab of DRDO, Hyderabad.

**Mr. RAMAVATH NARENDAR** : **15E15A0221**

It is also certified that this report carries a bonafide account of **Industrial Training** carried out under my guidance. His performance during this period is satisfactory.

  
16/06/17

**ASISH DUTTA**  
Scientist 'E'  
CSL/RCI



आशीष दत्ता/ASISH DUTTA  
वैज्ञानिक 'E'/Scientist 'E'  
अनुसंधान केंद्र इमारत/Research Centre Imarat  
डॉ. ए.पी.जे. अब्दुल कलाम मिसाइल कम्प्लेक्स/Dr. APJ Abdul Kalam Missile Complex  
बी.आर.सी.डी., रक्षा मंत्रालय, हैदराबाद  
DRDO, Ministry of Defence, Hyderabad-69



Govt. of India, Ministry of Defence,  
Research & Development Organization,  
RESEARCH CENTER IMARAT (RCI),  
Dr. APJ ABDUL KALAM MISSILE COMPLEX  
VIGNYANA KANCHI P.O.  
HYDERABAD - 500069.

### CERTIFICATE

This is to certify that ANURAG bearing Admission number 14E11A0204, Department of EEE from BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY, IBRAHIMPATNAM(M) has completed the Mini Project titled MODELLING & SIMULATION OF DC MOTOR DRIVE under my supervision and guidance from 30<sup>th</sup> May 2017 to 15<sup>th</sup> June 2017 at RESEARCH CENTER IMARAT(R.C.I), HYDERABAD.

His performance during this project work is satisfactory.

(DR. G. MALLIKARJUNA RAO)

SCIENTIST 'F'

CONTROL SYSTEMS LAB,  
RCI, MINISTRY OF DEFENCE  
(DRDO), HYDERABAD.

Place: Hyderabad,  
Date: 15/06/2017.



Principal  
Bharat Institute of Engineering & Technology  
Mangalpally,  
Ibrahimpatnam  
Dist: Telangana-501510

डॉ. वि. मल्लिकार्जुन राव / Dr. G. MALLIKARJUNA RAO  
वैज्ञानिक 'एफ' / Scientist 'F'  
नियंत्रण प्रणाली प्रयोगशाला / Control Systems Laboratory  
अनुराग केंद्र, इमरात / Research Centre Imarat  
डॉ. ए.पी.जे. अब्दुल कलाम मिसाइल कम्प्लेक्स / Dr. APJ Abdul Kalam Missile Complex  
वैज्ञानिक कान्ची पोस्ट, मंगलपल्ली, इमरात  
DRDO, Ministry of Defence, Govt. of India, Hyd-69





Government of India,  
Ministry of Defence  
Def. Res. & Dev. Organization  
**RESEARCH CENTRE IMARAT**  
Vigniyana Kancha PO  
HYDERABAD - 500 069

Date: - 14-06-2017

## CERTIFICATE

This is to certify that the Project on "Command Line Interface for Embedded Debugging for ARM processor" is a bonafide work carried out by PULLURI SAI, bearing Roll No. 14E11A0235, a student pursuing B.Tech. in Electrical Engineering in Bharat Institute of Engineering and Technology, Ibrahimpatnam, R.R Dist, HYD. under my guidance and supervision. He has done this mini project during JUNE 2017 & completed the assigned project within the time and his conduct during the project is commendable.

Project Guide

*R. Reddy*

Ramesh Reddy C  
Sc 'E', DNEC



रमेश रेड्डी सि / RAMESH REDDY C.  
विभागीय / Scientist  
निदेशालय, वाईएनएच एवं एम्बेडेड कंप्यूटर  
Directorate of Navigation and Embedded Computers  
अनुसंधान केंद्र भारत Research Centre IMarat  
रेल्वे स्टेशन, विज्ञान कान्चा, मिन. ऑफ़ डिफेंस, हैदराबाद-500069

*VJM* Principal  
Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501510

# BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Sponsored by : CHINTA REDDY MADHUSUDHAN REDDY EDUCATIONAL SOCIETY

Mangalpally (Village), Ibrahimpatnam (Mandal), Ranga Reddy District - 501 510, Telangana. Tel : 08414 - 252399

Ref.:

BIET/2016

Date: 22/05/2016

To;  
The Manager  
ECIL  
Hyderabad

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Yours sincerely,

*Vettihambabu*

Principal  
BIET  
Principal  
Bharat Institute of Engg. and Tech  
Mangalpally(V), Ibrahimpatnam(M)  
Ranga Reddy (Dist)-Telangana-501510







इलेक्ट्रॉनिक्स कॉर्पोरेशन ऑफ इण्डिया लिमिटेड  
Electronics Corporation of India Limited  
(भारत सरकार का उद्यम) - (A Govt. of India Enterprise)  
कम्प्यूटर शिक्षा प्रभाग / COMPUTER EDUCATION DIVISION



**CERTIFICATION OF PROJECT  
COMPLETION**

Date: 06/04/2017

This is to certify that Mr. KATIKAM NARESH (13E11A04B6), Mr. GULLA UPENDER (13E11A04D7), Mr. BUTHUKURI RAJKUMAR (13E11A04C2), are the students of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY pursuing B.TECH., (ELECTRONICS AND COMMUNICATION ENGINEERING) have done their Major project work entitled "FIRE EXTINGUISHER ROBOT" in partial fulfilment for the award of the degree mentioned above and that this report is a bonafide account of the project carried out under our guidance. These students displayed analytical capability, have innovation approach to solve problems and have produced good result.

*[Signature]*

L VASUDEVA MURTHY  
AGM & HEAD, CED  
FSG ECIL, HYDERABAD

(L, VASUDEVA MURTHY)  
(HEAD: CED)



*[Signature]*

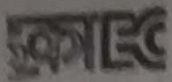
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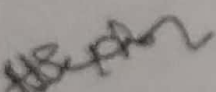
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Date: 08/04/2017

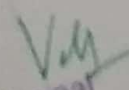
This is to certify that Ms. Y. ANUSHA (13E11A0403), Mr. E. BHARATH KUMAR (13E11A0406), Ms. P. MANISHA (13E11A0417) AND Ms. C. SHIREESHA (13E11A0430) are the students of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY, HYDERABAD pursuing B.Tech., (ELECTRONICS AND COMMUNICATION ENGINEERING) have done their project work entitled "IOT BASED HOME AUTOMATION USING ARM" during 23-02-2017 to 22-03-2017 in partial fulfillment for the award of the certificate in the degree mentioned above and that this report is a bonafide account of the project work carried out under our guidance. The students displayed analytical capability, have innovative approach to solve problems and have produced good result.

  
N.S. SEKHAR BABU

INCHARGE: CED

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INCHARGE, CED, ECIL  
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**CERTIFICATION OF PROJECT  
COMPLETION**

Date: 06/04/2017

This is to certify that Mr. V NIHAR (13E11A04B8), Mr. B SIDHARTH (13E11A04D0), Ms. V PREETHI (13E11A04C0), are the students of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY pursuing B.TECH., (ELECTRONICS AND COMMUNICATION ENGINEERING) have done their Major project work entitled 'ENERGY-EFFICIENT TRANSMISSION OF DWT IMAGE' in partial fulfilment for the award of the degree mentioned above and that this report is a bonafide account of the project carried out under our guidance. These students displayed analytical capability, have innovation approach to solve problems and have produced good result.

*L. Vasudeva Murthy*  
L VASUDEVA MURTHY  
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FSG ECIL, HYDERABAD  
(L. VASUDEVA MURTHY)  
(HEAD: CED)



*V. R. Reddy*  
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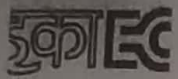
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Date: 19/04/2017

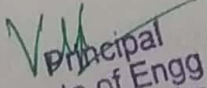
This is to certify that Mr. P.V. KAUSHAL (13E11A0466), Mr. CHIRUMAMILLA UPENDRA (13E11A0494) and Ms. AKIREDDY SPANDANA (13E11A0487) are the students of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY, HYDERABAD pursuing B.Tech., (ELECTRONICS AND COMMUNICATION ENGINEERING) have done their project work entitled "VEHICLE POSITIONING SYSTEM WITH EXACT LOCATION ADDRESS BASED ON ARM7" during 05-01-2017 to 04-02-2017 in partial fulfillment for the award of the certificate in the degree mentioned above and that this report is a bonafide account of the project work carried out under our guidance. The students displayed analytical capability, have innovative approach to solve problems and have produced good result.

  
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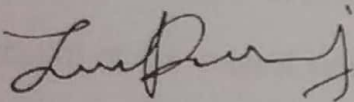
  
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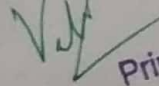
This is to certify that Mr. N DINESH (13E11A04A5), Mr. E SAIKIRAN GOUD (13E11A04C5), Mr. C VISHNESHWAR REDDY (13E11A04E0), are the students of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY pursuing B.TECH., (ELECTRONICS AND COMMUNICATION ENGINEERING) have done their Major project work entitled "CHNAGE DETECTION IN SAR IMAGES BASED ON IMAGE FUSION AND FUZZY CLUSTERING" in partial fulfilment for the award of the degree mentioned above and that this report is a bonafide account of the project carried out under our guidance. These students displayed analytical capability, have innovation approach to solve problems and have produced good result.




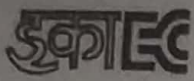
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(L, VASUDEVA MURTHY)  
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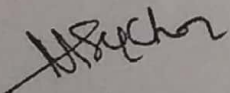
### CERTIFICATION OF PROJECT COMPLETION

Date: 21/04/2017

This is to certify that Mr. VUPPU ARUN KUMAR (13E11A04A1), Mr. TABJUL BHARATH KUMAR(13E11A04A2) and Mr. PALERU YELLA REDDY (13E11A04E1) are the students of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY, HYDERABAD pursuing B.Tech., (ELECTRONICS AND COMMUNICATION ENGINEERING) have done their project work entitled "REAL TIME AUTOMATION OF AGRICULTURE FOR SOCIAL MODERNIZATION OF INDIAN AGRICULTURAL SYSTEM USING GSM" during 20-02-2017 to 19-03-2017 in partial fulfillment for the award of the certificate in the degree mentioned above and that this report is a bonafide account of the project work carried out under our guidance. The students displayed analytical capability, have innovative approach to solve problems and have produced good result.



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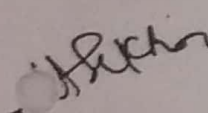




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Date: 18/04/2017

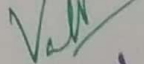
This is to certify that Mr. EMANI JANAKI RAM (13E11A0464), Mr. MARRU NANDAKISHORE (13E11A0469) and Mr. THANDA ANIL KUMAR (14E15A0403) are the students of BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY, HYDERABAD pursuing B.Tech., (ELECTRONICS AND COMMUNICATION ENGINEERING) have done their project work entitled "FINGER PRINT AUTHENTICATED ACCESS CONTROL AND AUTOMATED DOOR OPENING SYSTEM" during 30-01-2017 to 28-02-2017 in partial fulfillment for the award of the certificate in the degree mentioned above and that this report is a bonafide account of the project work carried out under our guidance. The students displayed analytical capability, have innovative approach to solve problems and have produced good result.

  
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2016-17



## Memorandum of Cooperation



WHEREAS, the BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY hereafter called as BIET which is affiliated to Jawaharlal Nehru Technological University, Hyderabad and approved by All India Council for Technical Education (AICTE), India, and the PEEPAL WASTE MANAGERS, Hyderabad, India hereby called as PEEPAL have come together to cooperate on the Industry-Academia Partnership in terms of:

- 1. Sponsored R&D Projects:**  
PEEPAL shall collaborate as Industry partner for R&D projects proposed by BIET and shall jointly apply for grants from funding agencies to design and develop new technology or product essential for market.
- 2. Industrial Consultancy:**  
BIET shall offer consultancy services to PEEPAL by deputing its faculty to provide Advisory, Technical and R&D support to ongoing industrial projects
- 3. Laboratory Establishment:**  
BIET shall establish Pelletisation Plant inside the campus by procuring infrastructure from PEEPAL on cost-to-cost basis. Where as, improvement and enhancement of pellet production shall be facilitated by this laboratory jointly with PEEPAL.
- 4. Technology Transfer:**  
BIET shall collaborate with PEEPAL for forest waste management and set-up an incubation centre at campus of BIET. Where as, PEEPAL shall facilitate technology transfer for effective management of forest waste to produce useful and reusable products to the market.
- 5. Development Activity:**  
PEEPAL shall provide internship and training opportunities for full time students of BIET pursuing Bachelor of Technology course in Mechanical Engineering along with academic projects and workshops.

By

26/10/2016

**Dr. B. Prasada Rao, IPS (Retd.)**  
Director - Training & Placements

Bharat Institute of Engineering & Technology  
Mangalpally Village, Ibrahimpatanam  
Hyderabad - 501510, Telangana, India

By

26/10/2016

**Mr. Harshavardhan Erra**  
Director

M/s Peepal Waste Managers  
Plot No. 101 & 102, Snehapuri Colony,  
Nagole, Hyderabad - 500068, India



Place: Hyderabad, INDIA  
Date: 26-October-2016





## Memorandum of Cooperation



WHEREAS, the **BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY** hereafter called as BIET which is affiliated to Jawaharlal Nehru Technological University, Hyderabad and approved by All India Council for Technical Education (AICTE), India, and the **PEEPAL RENEWABLES INDIA PRIVATE LIMITED COMPANY**, Hyderabad, India hereby called as PEEPAL have come together to cooperate on the Industry-Academia Partnership in terms of:

**1. Sponsored R&D Projects:**

PEEPAL shall collaborate as Industry partner for R&D projects proposed by BIET and shall jointly apply for grants from funding agencies to design and develop new technology or product essential for market.

**2. Industrial Consultancy:**

BIET shall offer consultancy services to PEEPAL by deputing its faculty to provide Advisory, Technical and R&D support to ongoing industrial projects

**3. Laboratory Establishment:**

BIET shall establish research laboratory with 3KW capacity biogas plant inside the campus preferably near the canteen area by procuring infrastructure from PEEPAL on cost-to-cost basis. Where as, improvement and enhancement of electricity generation process shall be facilitated by this laboratory jointly with PEEPAL.

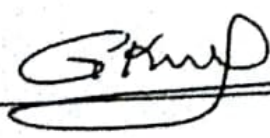
**4. Technology Transfer:**

BIET shall collaborate with PEEPAL for electronic waste management and set-up an incubation centre at BIET campus. Where as, PEEPAL shall facilitate technology transfer for effective management of electronic waste to produce useful and reusable products to the market.

**5. Development Activity:**

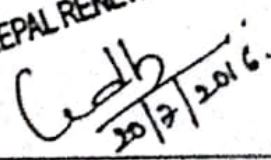
PEEPAL shall provide internship and training opportunities for full time students of BIET pursuing Bachelor of Technology courses especially in Electrical and Electronics Engineering, Mechanical Engineering, and other relevant disciplines along with academic projects and workshops.

By

  
Prof. G. Kumaraswamy Rao  
Director - R&D

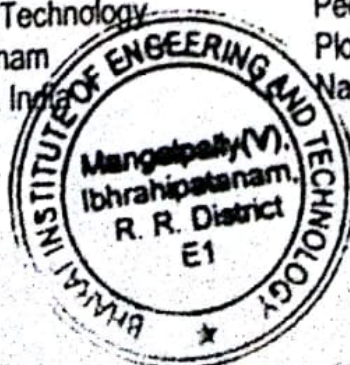
Bharat Institute of Engineering & Technology  
Mangalpally Village, Ibrahimpatanam  
Hyderabad - 501510, Telangana, India

By

  
Mr. Harshavardhan Erra  
Director

Peepal Renewables India Pvt. Ltd.  
Plot No. 101 & 102, Snehapuri Colony,  
Nagole, Hyderabad - 500068, India

Place: Hyderabad, INDIA  
Date: 20-July-2016







**BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY**

Ibrahimpattanam -501 510, Hyderabad

### **Activity Report of Collaboration with People Waste Managers**

A guest lecture on "CONDITON Assessment Program On Turbine Generators" is organized for III-EEE students on 28th Feb 2017. Resource person: Mr. P.G.S. KUMAR, Former AGM, BHEL, Hyderabad delivered a lecture on above said topic. 69 Students and 8 Faculty members participated and made the programme successful.



Guest Lecture on "CONDITON Assessment Program On Turbine Generators"

**Date of the Event:** 28th February 2017

**Location:** [BIET]

**Organized By:** Department of Electrical and Electronics Engineering (EEE)

**Target Audience:** III-Year Electrical and Electronics Engineering (EEE) Students

**Resource Person:** Mr. P.G.S. Kumar, Former AGM, BHEL, Hyderabad

#### **1. Introduction**

A guest lecture on the topic "Condition Assessment Program on Turbine Generators" was organized for the third-year Electrical and Electronics Engineering (EEE) students on 28th February 2017. The lecture was aimed at providing students with valuable insights into the



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condition monitoring and assessment practices for turbine generators, a critical component in power plants and energy systems. The session was delivered by **Mr. P.G.S. Kumar**, a distinguished professional with extensive experience in the field, having served as the Assistant General Manager (AGM) at Bharat Heavy Electricals Limited (BHEL), Hyderabad.

## 2. Objectives of the Lecture

The primary objectives of the guest lecture were:

- To introduce students to the concept of **Condition Assessment Programs (CAP)** for turbine generators.
- To explore the various methodologies and techniques used for monitoring the health and performance of turbine generators.
- To provide real-world industry insights and practical applications of condition assessment in the power generation sector.
- To help students understand the importance of proactive maintenance and its role in ensuring the longevity and efficiency of turbine generators.

## 3. Lecture Highlights

The guest lecture was divided into several sections, covering both theoretical concepts and practical aspects related to turbine generator condition assessment.

### 3.1 Overview of Turbine Generators

Mr. P.G.S. Kumar began the session by providing an overview of **turbine generators** used in power plants. He explained the importance of these generators in converting mechanical energy into electrical energy and highlighted their critical role in the functioning of thermal, hydro, and nuclear power plants.

### 3.2 Need for Condition Assessment

The resource person elaborated on the significance of **condition assessment programs** in monitoring the health of turbine generators. He stressed that regular monitoring of generators



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can help identify issues such as wear and tear, vibration anomalies, and thermal stresses, which can lead to costly breakdowns if not addressed promptly.

- **Early Detection of Faults:** Mr. Kumar emphasized that regular condition assessments help in the early detection of faults, reducing downtime and preventing catastrophic failures.
- **Prolonging Equipment Life:** A well-structured CAP can significantly extend the life of turbine generators by ensuring timely maintenance and repairs.

### 3.3 Techniques Used for Condition Assessment

Mr. Kumar presented various techniques employed for condition monitoring of turbine generators, which include:

- **Vibration Analysis:** This technique is used to detect abnormalities in the mechanical system, which could indicate issues such as misalignment, imbalance, or bearing failures.
- **Thermography:** Infrared thermography is used to detect temperature variations in generator components, which may be a sign of impending failure due to overheating.
- **Oil Analysis:** Monitoring the quality and properties of the lubricating oil is crucial for identifying internal wear in turbine generators.
- **Acoustic Emission Monitoring:** This technique is used for detecting high-frequency acoustic signals that may indicate cracks or defects in the turbine structure.
- **Electrical Signature Analysis:** Monitoring the electrical performance of the generator helps in identifying issues with electrical windings or stator faults.

### 3.4 Importance of Data Collection and Analysis

Mr. Kumar discussed the importance of **data collection** and **trend analysis** in the condition assessment process. He highlighted that continuous monitoring and historical data play a crucial role in predicting potential failures and planning maintenance schedules. He introduced concepts like **predictive maintenance** and the use of **advanced diagnostic tools** that leverage big data and machine learning for enhanced prediction accuracy.



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### 3.5 Case Studies and Practical Examples

The lecture included practical case studies from Mr. Kumar's extensive experience at BHEL, where he shared real-world examples of condition assessment programs implemented in large power plants. These case studies illustrated the challenges faced in turbine generator maintenance and the effective solutions developed through condition monitoring practices.

### 4. Interactive Session

After the lecture, an interactive session was held where students actively participated in discussions with Mr. P.G.S. Kumar. Several students posed questions related to specific turbine generator problems, maintenance strategies, and career opportunities in the field of power plant maintenance. Mr. Kumar provided detailed answers and offered valuable career guidance for students aspiring to work in the power generation industry.

### 5. Feedback from Students

The students expressed immense satisfaction with the content and delivery of the lecture. Some of the feedback highlights include:

- **Relevance to Curriculum:** Students found the content highly relevant to their academic curriculum, particularly in the areas of power generation and maintenance.
- **Industry Insights:** Many students appreciated the real-world examples and case studies that provided insight into industry practices and challenges.
- **Engaging Session:** The interactive nature of the session, combined with Mr. Kumar's experience and expertise, made the lecture engaging and informative.

### 6. Conclusion

The guest lecture on "Condition Assessment Program on Turbine Generators" proved to be an enriching experience for the III-year Electrical and Electronics Engineering students. It provided them with a comprehensive understanding of the importance of turbine generator



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maintenance and the techniques used to assess their condition. The lecture also highlighted the relevance of condition monitoring in enhancing the reliability and efficiency of power plants.

The session was not only informative but also inspiring for students, encouraging them to explore the field of power generation and maintenance further. The department looks forward to organizing similar industry-oriented sessions in the future to bridge the gap between theoretical knowledge and practical applications.

## **7. Acknowledgments**

We would like to express our sincere gratitude to **Mr. P.G.S. Kumar** for sharing his valuable knowledge and experiences with the students. Special thanks to the faculty members and organizers who made this event possible.



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