

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Shobhavan Campus, Mijar, Moodbidri - 574225

(Affiliated to Visvesvaraya Technological University, Belagavi)

Approved by AICTE, New Delhi & Recognized by Government of Karnataka)



A Report on

“Semi Conductor Laboratory”

**Department of Electronics and Communication
Engineering**



सेमी - कंडक्टर लेबोरेटरी

Semi-Conductor Laboratory

अंतरिक्ष विभाग, भारत सरकार

Department of Space, Government of India

SL No	Contents
1.	MoU
2.	Summary of Student internship Activity 2019-20
3.	Details of correspondence letter for Internship from AIET
4.	Details of Acceptance letter for Internship from SCL
5.	Certificate of Internship Completion
6.	Declaration from Students
7.	Abstract of the Project work undertaken



सेमी - कंडक्टर लेबोरेटरी

Semi-Conductor Laboratory

अंतरिक्ष विभाग, भारत सरकार

Department of Space, Government of India

SCL/PPG/IV/067
December 6, 2018

सेक्टर - 72, सा. अ. सि. नगर - 160 071
Sector 72, S.A.S. Nagar - 160 071
(चण्डीगढ़ के समीप) पंजाब, भारत
(Near Chandigarh) Punjab, India
टेलीफोन / Phone : (0172)-229-6000, 6100, 6200, 6300, 6400
फैक्स / Fax : 0172-2237410
वेबसाइट / Website : www.scl.gov.in

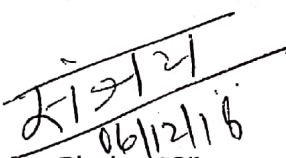
Dr.Praveen J.
Dean Academics
ALVA's Institute of Engineering & Technology
Shobhavana Campus, Mijar
Moodbidri - 574 225
Mangalore, Dakshana Kannada, Karnataka, India

Subject : MoU between SCL & AIET

Dear Sir,

Kindly find enclosed herewith a signed copy of Memorandum of Understanding (MoU) between SCL and AIET.

With Regards.


Sanjay Bhatnagar
Group Head-Project Planning Group
Mobile Phone : +91-9815503214
Telephone : +91-172-2236102/2296401
Email : sb@scl.gov.in
Website : www.scl.gov.in

Encl.a/a.

MEMORANDUM OF UNDERSTANDING

BETWEEN



SEMI-CONDUCTOR LABORATORY
DEPARTMENT OF SPACE, GOVERNMENT OF INDIA
S.A.S. NAGAR

AND



ALVA's INSTITUTE OF ENGINEERING & TECHNOLOGY
SHOBHAVANA CAMPUS, MIJAR, MOODEBIDRI - 574225,
MANGALORE, DAKSHANA KANNADA, KARNATAKA, INDIA

FOR

**COLLABORATION ON RESEARCH AND DEVELOPMENT,
FACULTY AND STUDENT EXCHANGE**

MEMORANDUM OF UNDERSTANDING

In furtherance of their mutual interest in the fields of education and research and as a contribution towards increasing national cooperation, Semi-Conductor Laboratory, Department of Space, Government of India, Sector 72, S.A.S. Nagar - 160071, Punjab, India (hereinafter referred to as SCL) and Alva's Institute of Engineering & Technology, Shobhavana Campus, Mijar, Moodbidri - 574225, Mangalore, DK, Karnataka, India (hereinafter referred to as AIET) have entered into this Memorandum of Understanding (MOU) on 6th day of Dec. 2018 as set forth below:

ARTICLE I

The MOU involves collaboration between SCL and AIET (both also referred to as institution) in related disciplines.

The two institutions shall seek to promote:

1. Exchange of Staff and Students (Faculty & Research Scholars; Under Graduate, Post Graduate & Doctoral Students and Research Project Employees) regarding Academics and Research for the mutual benefit of both institutions.
2. Exchange of Students for pursuing Courses of Study and Academic Programmes for mutual benefit of both institutions.
3. Collaboration in Teaching, Research & Development and Consultancy Activities.
4. Exchange of Academic & Research Material and Publications/IPs.
5. Cooperation in Projects and Research Activities of mutual interest.
6. Provision of Cultural and Intellectual enrichment opportunities for the Staff and Students of both institutions.
7. Collaboration in Research & Development in the areas of (i) Advanced VLSI Device Fabrication, (ii) MEMS Fabrication, (iii) VLSI Device/ MEMS Characterization, (iv) VLSI/CMOS-RF Circuit Design and (v) VLSI Device Modeling at both AIET and SCL. This also includes collaboration in setting-up and upkeep of the relevant infrastructure in both the institutions.
8. Publication of Research Papers in International Scientific Journals and in the Conferences.
9. Exchange of Students for Summer/Winter Internships
10. Publication of Intellectual Properties (IPs) developed jointly through Project/ Research Collaboration. Such IPs would acknowledge joint inventor-ship of Personnel/Students belonging to both the institutions, as applicable.
11. Writing Books/Booklets jointly in the areas of mutual interest.

ARTICLE II

The activities under this MOU will include:

1. Staff Exchange

Staff Exchange activities cover visits to either institution for any of the following Purposes:

- (i) Undertaking Joint Research

Dr. Phaven. J
Dean Academics.

Dr. J. N.
ग्रुप प्रमुख-परियोजना नियोजन ग्रुप
Group Head-Project Planning Group
सेमी-कंडक्टर लेबोरेटरी
Semi-Conductor Laboratory
अंतरिक्ष विभाग, भारत सरकार
Department of Space, Government of India

- (ii) Attachment of Staff for purposes of Curriculum Development & Review, Attendance in Courses and Upgrading of Teaching & Research Skills
- (iii) Participation in Seminars, Colloquia and other types of academic discussions
- (iv) Contributions to Teaching Programmes
- (v) Co-supervision of Post Graduate Students
- (vi) Conduct study tours, joint consultancy and research work
- (vii) Facilitation for pursuing Academic Courses (Post Graduate & Doctoral) for Department of Space / SCL Employees at AIET.

2. Student Exchange:

Student Exchange activities (for Under Graduate, Post Graduate & Doctoral Students) cover visits to either institution for any of the following purposes:

- (i) Participation in Research
- (ii) Internships for AIET Students at SCL

3. Exchange of Academic Materials:

Exchange of relevant Academic Materials will be carried-out subject to mutual agreement of both institutions.

ARTICLE III

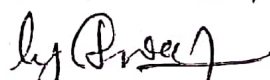
Implementation of cooperation based on this MOU shall be dealt with between the relevant Faculties and Divisions/ Departments of both institutions. Wherever necessary, a specific plan shall be worked-out for each activity setting-forth detailed arrangements for collaboration. Such plans shall be subject to approval of the appropriate authorities of each institution. To facilitate development of such plans, each institution shall nominate a member of its staff to coordinate activities arising under this MOU.

ARTICLE IV

Both institutions agree and undertake to keep confidential at all times information and/or data that may be exchanged, acquired and/or shared in connection with the area of cooperation, as mentioned above, unless otherwise the same information already exists in the public domain.

ARTICLE V

Ownership of findings of any joint research shall be vested in both institutions under this MOU and any publications regarding the same shall only be possible after prior approval from both institutions.

by 
Dr. Praveen. J
by 


ग्रुप प्रमुख-परियोजना नियोजन ग्रुप
Group Head-Project Planning Group
संस्थापक निदेशक
संस्थापक निदेशक
संस्थापक निदेशक
संस्थापक निदेशक
संस्थापक निदेशक

ARTICLE VI

The MOU shall remain in force for a period of 10 (TEN) years commencing from the date of signing and may be reviewed by mutual consent by serving 3 (Three) months written notice to the other institution. Upon renewal, both institutions shall select either to proceed with the existing or new terms of understanding.

ARTICLE VII

Both the SCL and AIET reserve the right to terminate this MOU by either institution giving 3 (Three) months written notice to the other. Where such termination occurs, the provisions of this MOU shall continue to apply to ongoing activities until their completion.

ARTICLE VIII

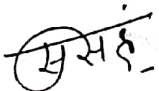
Participating staff and students involved in any activities under this MOU must adhere to the law of the country and the rules & regulations of the host institutions.

ARTICLE IX

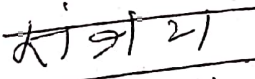
SCL and AIET welcome establishment of this MOU for cooperation and jointly agree to provisions as set out above. There are two copies of this MOU equally valid, one for each institution, effective after its signing by authorized signatories.

Semi-Conductor Laboratory

Alva's Institute of Engineering & Technology


Shri. Surinder Singh
 Director
 Director, Semiconductor Laboratory
 अंतरिक्ष विभाग, भारत सरकार
 Department of Space, Govt. of India
 सेक्टर-72, सा.अ.सि. नगर-160071, पंजाब, भारत
 Sector-72, S.A.S. Nagar-160071, Punjab, INDIA

Witness

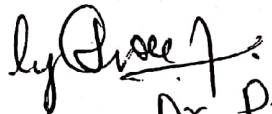

 ग्रुप प्रमुख-परियोजना नियोजन ग्रुप
 Group Head-Project Planning Group
 सेमी-कंडक्टर लैबोरेटरी
 Semiconductor Laboratory
 अंतरिक्ष विभाग, भारत सरकार
 Department of Space, Government of India

December 6, 2018


Dr. Peter Fernandes
 Principal
 Alva's Institute of Engineering & Technology,
 Mijar, MOODBIDRI - 574 225, D.K

Witness

Date:


Dr. Praveen J
 Dean Academics

6/12/18



Alva's Institute of Engineering and Technology signs MOU with Semiconductor Laboratory, Chandigarh.

Moodbidri: A memorandum of understanding has been signed between **Semiconductor Laboratory (SCL), Chandigarh** and Alva's Institute of Engineering and Technology (AIET), Mijar, Moodbidri, to work closely in research programmes and exchange scholars and students.

The agreement covers key areas of possible collaborations- to promote education and scholarly exchange, collaboration and technical interchange between the parties involved as educational partners, exchange of materials in education and research, publications and academic information. Jointly organize the workshops and conferences, seminars, short courses on developing design skills, technical training, invited talks on latest research topics and faculty development programmes.

The design work of VLSI chips will be carried out at Alva's institute of Engineering and Technology and fabrication of the same will be carried out at SCL, Chandigarh. The students of AIET will visit SCL on a regular basis to work on one of the fabrication units at SCL, Chandigarh.

The agreement was signed by Shri. Surinder Singh, Director SCL and Dr. Peter Fernandes, Principal AIET in the presence of Shri, Vivek Alva, Managing Trustee, Alva's Education Foundation(AEF), Dr Praveen J, Dean Academics & Professor AIET, Shri. Sanjay Bhatnagar, Group Head-Project Planning Group, SCL and Manoj Wadhwa, Group Head- Wafer Fabrication, SCL at **Semiconductor Laboratory, Chandigarh.**

Dr Praveen J, Dean Academics & Professor, AIET and Shri. Sanjay Bhatnagar, Group Head-Project Planning Group, SCL would be the liaison officer between AIET and SCL.

The formal exchange of MoU had taken place at **Semiconductor Laboratory, Chandigarh** on December 6th, 2018.



KARNATAKA

WEDNESDAY 16.01.2019

04 MANGALURU

“I have no report, I should”

Engg college signs MoU with Chandigarh lab

Students of AIET will visit SCL on a regular basis, will work closely in research programmes, exchange scholars, students

EXPRESS NEWS SERVICE
@Mangalore

A Memorandum of Understanding has been signed between Semiconductor Laboratory (SCL) of Chandigarh and Alva's Institute of Engineering and Technology (AIET), Mijar, Moodbidri, to work closely in research programmes and exchange scholars and students. The agreement covers key areas of possible collaborations — to promote education and scholarly exchange, collaboration and technical interchange between the parties involved as educational partners, exchange of materials in education and research, publications and academic information, and jointly organise workshops and conferences, seminars, short courses on developing design skills, technical training, invited talks on latest research topics and faculty development programmes.

The design work of Very large-scale integration (VLSI) chips will be carried out at AIET and fabrication of the same will be carried out at SCL, Chandigarh. The students of AIET will visit SCL on a regular basis to work on one of the fabrication units at SCL, Chandigarh.

The agreement was signed by Surinder Singh, Director SCL and Dr Peter Fernandes, Principal AIET in the presence of Vivek Alva, Managing Trustee, Alva's Education Foundation (AEF).

Dr Praveen J, Dean Academics & Professor, AIET and Sri Sanjay Bhattacharjee, Group Head Project Planning Group, SCL, will be the liaison officer between AIET and SCL.

Semiconductor Laboratory, Chandigarh — an autonomous body under Department of Space, Government of India, is engaged in Research & Development in the area of Microelectronics to meet the strategic needs of the country. Formerly known as Semiconductor Complex Limited, a Government of India Enterprise, which was converted into Semi Conductor Laboratory under Department of Space, Government of India w.e.f. September 1, 2009. SCL has integrated facilities/ supporting infrastructure all under one roof and undertakes activities focused on Design, Development, Fabrication, Assembly & Packaging, Testing and Quality Assurance of CMOS and MEMS Devices for various applications. SCL is also engaged in Fabrication of Hi-Rel Boards, Radio Sonde Systems and indigenisation of electronic sub systems.

EXPRESS
MANGALURU

THE KA has quite issued 1 ment in each wa batch of Sunil I state d into th lating talos taking by th

2019/1/16 12:53

ಎಸ್‌ಸಿಎಲ್-ಆಲ್ವಾ ಸಂಸ್ಥೆ ನಡುವೆ ಒಡಂಬಡಿಕೆ ಸಂಶೋಧನಾ ಯೋಜನೆಗೆ ಅನುಮತಿ

ಮೂರುಬಿಡಿ: ಚಂಡೀಗಢದ ಸೆಮಿಕಂಡಕ್ಟರ್ ಲ್ಯಾಬೊರೇಟರಿ (ಎಸ್‌ಸಿಎಲ್) ಹಾಗೂ ಮುಂಬೈನಲ್ಲಿರುವ ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಎಂಜಿನಿಯರಿಂಗ್ ಮತ್ತು ತಂತ್ರಜ್ಞಾನ (ಆಲ್ವಾ) ನಡುವೆ ಸಂಶೋಧನಾ ಮತ್ತು ತಾಂತ್ರಿಕ ಸಹಕಾರದ ಒಡಂಬಡಿಕೆ ಸಹಿ ಮಾಡಲಾಗಿದೆ. ಈ ಒಡಂಬಡಿಕೆಯಡಿ ಎಸ್‌ಸಿಎಲ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಮತ್ತು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಎಸ್‌ಸಿಎಲ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಸೇರಿದಂತೆ ವಿವಿಧ ಅಂಶಗಳನ್ನು ಒಳಗೊಂಡಿರುತ್ತದೆ. ಈ ಒಡಂಬಡಿಕೆಯಡಿ ಎಸ್‌ಸಿಎಲ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಮತ್ತು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಎಸ್‌ಸಿಎಲ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಸೇರಿದಂತೆ ವಿವಿಧ ಅಂಶಗಳನ್ನು ಒಳಗೊಂಡಿರುತ್ತದೆ. ಈ ಒಡಂಬಡಿಕೆಯಡಿ ಎಸ್‌ಸಿಎಲ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಮತ್ತು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಎಸ್‌ಸಿಎಲ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಸೇರಿದಂತೆ ವಿವಿಧ ಅಂಶಗಳನ್ನು ಒಳಗೊಂಡಿರುತ್ತದೆ.

ಚಂಡೀಗಢದ ಎಸ್‌ಸಿಎಲ್-ಆಲ್ವಾ ಒಡಂಬಡಿಕೆಗೆ ಸಹಿ

ಮೂರುಬಿಡಿ: ಮ. 17: ಚಂಡೀಗಢದ ಸೆಮಿಕಂಡಕ್ಟರ್ ಲ್ಯಾಬೊರೇಟರಿ (ಎಸ್‌ಸಿಎಲ್) ಹಾಗೂ ಮುಂಬೈನಲ್ಲಿರುವ ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಎಂಜಿನಿಯರಿಂಗ್ ಮತ್ತು ತಂತ್ರಜ್ಞಾನ (ಆಲ್ವಾ) ನಡುವೆ ಸಂಶೋಧನಾ ಮತ್ತು ತಾಂತ್ರಿಕ ಸಹಕಾರದ ಒಡಂಬಡಿಕೆ ಸಹಿ ಮಾಡಲಾಗಿದೆ. ಈ ಒಡಂಬಡಿಕೆಯಡಿ ಎಸ್‌ಸಿಎಲ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಮತ್ತು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಎಸ್‌ಸಿಎಲ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಸೇರಿದಂತೆ ವಿವಿಧ ಅಂಶಗಳನ್ನು ಒಳಗೊಂಡಿರುತ್ತದೆ. ಈ ಒಡಂಬಡಿಕೆಯಡಿ ಎಸ್‌ಸಿಎಲ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಮತ್ತು ಆಲ್ವಾ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್‌ನ ವಿದ್ಯಾರ್ಥಿಗಳು ಎಸ್‌ಸಿಎಲ್‌ನಲ್ಲಿ ತರಬೇತಿ ಪಡೆಯುವುದು ಸೇರಿದಂತೆ ವಿವಿಧ ಅಂಶಗಳನ್ನು ಒಳಗೊಂಡಿರುತ್ತದೆ.

Summary of Student Internship Activity under MOU from 15th July to 2nd September 2019

Sl. No.	Type of activity	Venue	Resource person	No. of Students	Section/ Sem	Duration
1	Internship	SCL, Chandigarh	Mr S.N MITTAL Scientist//Engineer 'SF' VLSI Test Division Semi-Conductor Laboratory (SCL) (Department of Space, Govt. of India) Mohali, Punjab	02- ECE	6th Sem	50 Days 15/07/2019 to 02/09/2019

Dr. Praveen J/ Alvas Engineering College/ Moodbidri/Karnataka/ Internship Details.

From: Praveen J (praveenj_vishruth@yahoo.in)

To: sb@scl.gov.in

Date: Tuesday, 14 May, 2019, 01:46 am GMT-7

Respected sir,

I am hereby sending internship letter alone with two students detail .

Thanks with regards ,

Dr. Praveen J. BE, M-Tech, Ph.D

Professor & Dean Academic (CSE/ECE/ISE)

Department of Electronics & Communication Engineering

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K - 574225

Ph - 8884767555

Email: praveenj_vishruth@yahoo.in

Website: www.aiet.org.in



Internship Letter to SCL.pdf
297.6kB



Raziya Banu Documents.pdf
2.7MB



Bhuvanesh Documents.pdf
2.8MB



ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

A Unit of Alva's Education Foundation (R)

(Affiliated to Visvesvaraya Technological University, Belagavi

Approved by AICTE, New Delhi & Recognised by Government of Karnataka)

Shobhavana Campus, Mijar, Moodbidri - 574 225, Mangalore, D.K., Karnataka State.

Phone : 08258-262724 (O), 262725 (P), Telefax:08258-262726

Email : principalaiet08@gmail.com, Web:www.aiet.org.in

Date: 14/05/2019

To,

Sri. Sanjay Bhatnagar,
Group Head, PPG
Semi-Conductor Laboratory,
Department of Space,
Govt. of India,
Sector 72, S.A.S Nagar - 160 071
Punjab, India.

Greetings from Alva's Institute of Engineering and Technology.

Respected Sir,

Sub: Student Internship/Project at your esteemed organization:-

We sincerely express our gratitude and Heartfelt thanks for your kindness and support for Alva's Institute of Engineering and Technology. Moodbidri, Mangalore, Karnataka.

The following two students are interested to carry out their Final year Internship/Project in your esteemed organization in the field of Electronics and Communication Engineering from 10th July 2019 to till completion. Kindly do the needful.

Looking forward for your guidance and Continuous support.

Sl No	Name	USN	Year of Admission in that Institute	Course being Undertaken	Sem/ Branch	Phone Number	Email ID
1	Bhuvanesh M	4AL16EC015	2016-2020	Electronics and Communication Engg.	6 th Sem	86187 38892	bhuvaneshm2016@gmail.com
2	Raziya Banu	4AL16EC058	2016-2020	Electronics and Communication Engg.	6 th Sem	94821 13660	raziyabanubhr@gmail.com

Dr. Praveen J
Dean (Academics)

Dr. Peter Fernandes

Principal

Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

Document Enclosed:-

College ID card, Aadhar card, SSLC Marks Card, PUC Marks card, 1st to 5th Sem Engineering marks card.

Fwd: Internship Confirmation during July 2019.

From: Bhuvan M (bhuvaneshm2016@gmail.com)

To: praveenj_vishruth@yahoo.in

Date: Friday, 14 June, 2019, 04:59 am GMT-7

----- Forwarded message -----

From: Head HRDD <head_hrdd@scl.gov.in>

Date: Thu, 13 Jun 2019, 17:00

Subject: Internship Confirmation during July 2019.

To: head_hrdd <head_hrdd@scl.gov.in>

Dear Student,

Your application for Internship (4-Weeks to 6-Months) at SCL, beginning 1st of July 2019 has been approved based on your academic record and MOU. You may please report to SCL with all original documents (including letter of request for internship from your college / institute / university, Photocopies of Detailed Marks Cards 10+2 onwards) and three recent passport size photographs for completion of Internship joining formalities in 1st of July 2019.

(If you have already submitted original internship letter from your concerned officer pl. ignore it.)

Regards.

Head-HRDD

मानव संसाधन विकास प्रभाग

Human Resource Development Division

सेमी-कंडक्टर लेबोरेट्री / Semi-Conductor Laboratory

अंतरिक्ष विभाग, भारत सरकार / Dept. of Space, Govt. of India

सेक्टर-72 / Sector - 72

सा अ सिं नगर-160 072 / S A S Nagar - 160 072

चंडीगढ़ के समीप / Near Chandigarh

दूरभाष/ Phone : +91 172 2296404,

ई-मेल/ E-Mail: head_hrdd@scl.gov.in

वेबसाइट/ Website: www.scl.gov.in

Fwd: Internship Confirmation during July 2019.

From: Bhuvan M (bhuvaneshm2016@gmail.com)
To: praveenj_vishruth@yahoo.in
Date: Thursday, 17 October, 2019, 01:46 am GMT-7

----- Forwarded message -----

From: **Bhuvan M** <bhuvaneshm2016@gmail.com>
Date: Tue, Jun 18, 2019 at 2:25 PM
Subject: Re: Internship Confirmation during July 2019.
To: Head HRDD <head_hrdd@scl.gov.in>

Good Afternoon Sir,

As per the discussion with our Dean Academics Dr. Praveen J, We are Reporting to the SCL, Chandigarh on **15th July 2019** along with necessary documents.

As per the Direction of Dean Academics we will carry the Internship for a duration of **2 months (8 weeks)**.

On Thu, Jun 13, 2019 at 5:00 PM Head HRDD <head_hrdd@scl.gov.in> wrote:

Dear Student,

Your application for Internship (4-Weeks to 6-Months) at SCL, beginning 1st of July 2019 has been approved based on your academic record and MOU. You may please report to SCL with all original documents (including letter of request for internship from your college / institute / university, Photocopies of Detailed Marks Cards 10+2 onwards) and three recent passport size photographs for completion of Internship joining formalities in 1st of July 2019.

(If you have already submitted original internship letter from your concerned officer pl. ignore it.)

Regards.

Head-HRDD

मानव संसाधन विकास प्रभाग

Human Resource Development Division

सेमी-कंडक्टर लेबोरेट्री / Semi-Conductor Laboratory

अंतरिक्ष विभाग, भारत सरकार / Dept. of Space, Govt. of India

सेक्टर-72 / Sector - 72

सा अ सिं नगर-160 072 / S A S Nagar - 160 072

चंडीगढ़ के समीप / Near Chandigarh

दूरभाष/ Phone : +91 172 2296404,

ई-मेल/ E-Mail: head_hrdd@scl.gov.in

वेबसाइट/ Website: www.scl.gov.in

Fwd: Internship Confirmation during July 2019.

From: raziya banu (raziyabanubhr@gmail.com)

To: praveenj_vishruth@yahoo.in

Date: Thursday, 17 October, 2019, 02:47 am GMT-7

----- Forwarded message -----

From: raziya banu <raziyabanubhr@gmail.com>

Date: Tue, Jun 18, 2019 at 2:27 PM

Subject: Re: Internship Confirmation during July 2019.

To: Head HRDD <head_hrdd@scl.gov.in>

Good Afternoon Sir,

As per the discussion with our Dean Academics Dr. Praveen J, We are Reporting to the SCL, Chandigarh on **15th July 2019** along with necessary documents.

As per the Direction of Dean Academics we will carry the Internship for a duration of **2 months (8 weeks)**.

On Thu, Jun 13, 2019 at 5:00 PM Head HRDD <head_hrdd@scl.gov.in> wrote:

Dear Student,

Your application for Internship (4-Weeks to 6-Months) at SCL, beginning 1st of July 2019 has been approved based on your academic record and MOU. You may please report to SCL with all original documents (including letter of request for internship from your college / institute / university, Photocopies of Detailed Marks Cards 10+2 onwards) and three recent passport size photographs for completion of Internship joining formalities in 1st of July 2019.

(If you have already submitted original internship letter from your concerned officer pl. ignore it.)

Regards.

Head-HRDD

मानव संसाधन विकास प्रभाग

Human Resource Development Division

सेमी-कंडक्टर लेबोरेट्री / Semi-Conductor Laboratory

अंतरिक्ष विभाग, भारत सरकार / Dept. of Space, Govt. of India

सेक्टर-72 / Sector - 72

सा अ सिं नगर-160 072 / S A S Nagar - 160 072

चंडीगढ़ के समीप / Near Chandigarh

दूरभाष/ Phone : +91 172 2296404,

ई-मेल/ E-Mail: head_hrdd@scl.gov.in

वेबसाइट/ Website: www.scl.gov.in



सेमी - कंडक्टर लेबोरेटरी
Semi-Conductor Laboratory
अंतरिक्ष विभाग, भारत सरकार
Department of Space, Government of India



सेक्टर - 72, सा अ सि नगर - 160 071
Sector 72, S.A.S. Nagar - 160 071
(चण्डीगढ़ के समीप) पंजाब, भारत
(Near Chandigarh) Punjab, India
टेलीफोन / Phone (0172)-229-6000, 6100, 6200, 6300, 6400
फैक्स / Fax : 0172-2237410
वेबसाइट / Website : www.scl.gov.in

SCL:HRDD:8001:June.2019:01
September 02, 2019

CERTIFICATE

This is to certify that Ms. Raziya Banu (Enroll. No. 4AL16EC058) B.E.- Electronics & Communication Engineering student of Alva's Institute of Engineering & Technology, Mangalore has completed her Internship Training successfully as part of her B. E. curriculum, on the topic of "Firmware Development of Memory Based Internet Security Gate" from July 15, 2019 to September 02, 2019 at Semi-Conductor Laboratory.

(Ashwani Kumar Tuknayot)
Head-HRDD

H.O.D.
Dept. Of Electronics & Communication
Alva's Institute of Engg & Technology
Mijar, MOODUBIDRI - 574 225

अश्वनी कुमार तुक्नायत
Ashwani Kumar Tuknayot
प्रमुख-मानव संसाधन विकास विभाग
Head-Human Resource Development Division
सेमी - कंडक्टर लेबोरेटरी
Semi-Conductor Laboratory
अंतरिक्ष विभाग, भारत सरकार
Dept. of Space, Government of India
सेक्टर-72, मोहली-160071 (पंजाब)
Sector-72, Mohali-160071 (Punjab)



सेमी - कंडक्टर लेबोरेटरी

Semi-Conductor Laboratory

अंतरिक्ष विभाग, भारत सरकार

Department of Space, Government of India



सेक्टर - 72, सा. अ. सि. नगर - 160 071

Sector 72, S.A.S. Nagar - 160 071

(चण्डीगढ़ के समीप) पंजाब, भारत

(Near Chandigarh) Punjab, India

टेलीफोन / Phone : (0172)-229-6000, 8100, 6200, 6300, 6400

फैक्स / Fax : 0172-2237410

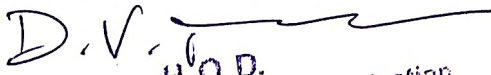
वेबसाइट / Website : www.scl.gov.in

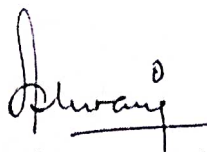
SCL:HRDD:8001:June.2019:01

September 02, 2019

CERTIFICATE

This is to certify that Mr. Bhuvanesh M. (Enroll. No. 4AL16EC015) B.E.- Electronics & Communication Engineering student of Alva's Institute of Engineering & Technology, Mangalore has completed his Internship Training successfully as part of his B. E. curriculum, on the topic of "Firmware Development of Memory Based Internet Security Gate" from July 15, 2019 to September 02, 2019 at Semi-Conductor Laboratory.


H.O.D.
Dept. Of Electronics & Communication
Alva's Institute of Engineering & Technology
Mangalore, MOHALLA - 674 220


(Ashwani Kumar Tuknayot)
Head-HRDD

अश्वनी कुमार तुक्नायत
Ashwani Kumar Tuknayot
मानव-साधन संसाधन विकास प्रभाग
Head-Human Resource Development Division
सेमी - कंडक्टर लेबोरेटरी
Semi-Conductor Laboratory
अंतरिक्ष विभाग, भारत सरकार
Dept. of Space, Government of India
सेक्टर-72, मोहली-160071 (पंजाब)
Sector-72, Mohall-160071 (Punjab)

FIRMWARE DEVELOPMENT OF MEMORY BASED INTERNET SECURITY GATE (I-GATE)

AN PROJECT REPORT

Submitted

In partial fulfilment of the requirements for the award of degree of

**BACHELOR OF ENGINEERING
IN
ELECTRONICS AND COMMUNICATION ENGINEERING**

Submitted by:

**BHUVANESH M
[USN: 4AL16EC015]**

**RAZIYA BANU
[USN: 4AL16EC058]**

Under the Guidance of

Mr S.N MITTAL

Scientist//Engineer 'SF'

VLSI Test Division

Semi-Conductor Laboratory (SCL)

(Department of Space, Govt. of India)

Mohali, Punjab



**ALVA'S INSTITUTE OF ENGINEERING
AND TECHNOLOGY, MOODBIDRI,
D.K. KARNATAKA**



**Semiconductor Laboratory
Department of Space**

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY, MIJAR,
MOODBIDRI, KARNATAKA- 574225**

September-2019



DECLARATION



Semiconductor Laboratory
Department of Space

We hereby declare that the project work entitled "**FIRMWARE DEVELOPMENT OF MEMORY BASED INTERNET SECURITY GATE (I-GATE)**" is being submitted to Aiva's Institute of Engineering and Technology, in partial fulfilment for the award of B.E degree in Electronics and Communication Engineering. The work was originally designed and executed by us under the guidance of our supervisor **Mr. S.N MITTAL** and was not a duplication of work done by someone else. We hold the responsibility of the originality of the work incorporated into the thesis.

Signature of the Candidate

Bhuvanesh M

Signature of the Candidate

Raziya Banu

CHAPTER 1

ABSTRACT

"Internet Security Gate" as the name indicates, is used for switching the internet and intranet. It is designed to establish a secure path between internet and intranet using relay switch.

The project has mainly three modes.

- The first mode is default mode in which device switch from one server to other (internet to intranet or vice versa) after every thirty seconds.
- In the second mode user can vary the value of timer to switch from one server to other.
- The third mode is command mode in which the user can switch on any server how long he desire. The network toggle control is through PC parallel interface.

Data flow for incoming Emails:

Email sent from internet to intranet will be received by gateway mail server after passing through perimeter security. It will be stored on incoming mail queue for further delivery. Intermediate server will fetch the mail from internet mail server and will deliver to single mail box on intermediate server. Intranet email server will fetch the mail from intermediate server and deliver it to user's mail box.

Data flow for outgoing Emails:

Emails sent to public domain from SCL intranet mail server will store in mail queue for further delivery. Internal mail server will deliver it to intermediate server. The intermediate mail server will deliver it to gateway mail server. Gateway email server will deliver it to respective recipient domain email server.