

**A SELF STUDY REPORT OF
ACADEMIC EXCHANGE PROGRAMME**

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**NARESUAN UNIVERSITY, THAILAND
(21/04/2016-29/04/2016)**

**SUBMITTED TO
HON'BLE CHANCELLOR
HON'BLE MADAM CHANCELLOR**



AARUPADAI VEEDU INSTITUTE OF TECHNOLOGY
VINAYAKA MISSIONS RESEARCH FOUNDATION – DEEMED UNIVERSITY
SALEM, TAMIL NADU.



AN INSIGHT

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|--------------------------------------|---|
| <i>Names of the staff visited</i> | 1. Dr. Giri Rengasamy (DEAN, VMU) 2. Mr. P. Rajasekaran (HOD-EEE, AVIT) 3. Dr. B. Prabasheela (Associate Professor, Dept. of Biotechnology, AVIT) |
| <i>Names of the Students Visited</i> | 1. Animesh Ch. Dey (B.E EEE, AVIT). 2. Vignesh Ravichandran (B.E EEE, AVIT) 3. Akansha. KM (B.E Biotech, AVIT) 4. Mohanapriya. P (B.E Biotech, AVIT) |
| <i>Name of the Institution</i> | School of Renewable Energy, Naresuan University, phitsanulok, Thailand |
| <i>Period of the visit</i> | 21:4:2016 – 29:4:2016 (9 Days) |
| <i>Purpose of the Visit</i> | Student exchange program (AVIT-SERT) India-Thailand |
| <i>Sponsorship for the visit</i> | <ul style="list-style-type: none"> ▪ Vinayaka Missions University, India ▪ Naresuan University, phitsanulok, Thailand |

PLACES OF VISIT

DAY I

- Meeting with NU President
- Meeting with SERT Director
- Meeting with DEAN, faculty of Medicine
- Visit to Lotus Mall

DAY II

- Attended Songkran Festival at SERT

DAY III

- Visit to PV Modules Lab and Smart Grid.

DAY IV

- Visit to Ancient city (Sukhothai Province)
- Biogas Plant (Sukhothai Province)

DAY V

- Modern Energy Lab, Solar radiance testing.

DAY VI

- Energy material Lab
- Waste management (phitsanulok Province)

DAY VII

- Biomass Lab
- Gunkul Solar power plant 95MW

DAY VIII

- University central library
- Live Textile museum
- Wrap up session
- Famous Buddha temple
- Faculty of Science

DAY IX

- Thailand Science Park- National Science and Technology Development Agency (NSTDA) Bangkok.

TOPICS OF THE LECTURE

- | | |
|--|----------------------|
| 1. PV Application and smart Grid | -Mr. Yodthong |
| 2. Modern Energy (Fuel Cells) | -Dr. Sakda |
| 3. Environment at an age of Technology | - Dr. Giri Rengasamy |
| 4. Energy Materials (Thermo Electric) | -Mr. Tawat |
| 5. Biomass Energy | - Dr.Sahataya |
| 6. Overview of PV modules | -Mr. P. Rajasekaran |
| 7. Algal biomass-The Third Generation Biofuel | -Dr. B. Prabasheela |
| 8. Environment past, present and future | - Dr. Giri Rengasamy |
| 9. Environment – Global Issue | - Dr. Giri Rengasamy |
| 10. Science and Ethics | - Dr. Giri Rengasamy |
| 11. Curriculum design for environmental studies (Theory ,Practical and Project) | - Dr. Giri Rengasamy |

PRESENTATION BY THE STUDENTS

- | | |
|---|---------------------------|
| 1. Internet of things in Renewable energy | - Mr.Vignesh Ravichandran |
| 2. Waste Management | - Ms.Mohanapriya |

VISIT TO THAILAND

CHENNAI AIRPORT:

WE ALL AWAITED FOR THIS MOMENT AS WE WERE TO BOARD THE FLIGHT TO THAILAND. WE WERE REALLY EXCITED AND WE WERE ABOUT TO BOARD THE FLIGHT. AND FINALLY THE BOARDING PASS WAS ON OUR HAND AND IT SEEMED AS WE WERE ABOUT TO REACH THAILAND.



AS WE ENTERED TO THE FLIGHT(FD 154), IT WAS THE AIR HOSTESS WHO CHERISHED US 'WELCOME' IN THAI LANGUAGE. SO THE THAI EXPERIENCE WAS ABOUT TO START.

FLIGHT TOOK OFF AND WE GOT AMUSED AS THE CITY LIGHTS OF CHENNAI WAS SEEMED AS THE STARS TWINKLING IN THE SKY, CLOUDS SEEMED TO BE FLOATING AROUND US. IT WAS A GREAT EXPERIENCE FOR ALL OF US.

WE ALL FELT ASLEEP AND THERE BEEN AN ANNOUNCEMENT 'WE ARE ABOUT TO REACH BANGKOK WITHIN 30 MINUTES'. AS WE WOKED UP THERE WAS A BEAUTIFUL CITY WAITING FOR US AND IT'S NON OTHER THAN BANGKOK. THE SPARKING LIGHTS OVER THE BANGKOK CITY WAS MUCH MORE BEAUTIFUL THAN THE CHENNAI ONE. IT LOOKED LIKE THAT THE LIGHTS IN THE CITY WERE DECORATED AND IT MADE US FEEL THAT IT WAS DECORATED TO WELCOME US.

AND WITHIN A FRACTION OF SECONDS THE FLIGHT LANDED. AFTER COMPLETING ALL SECURITY CONCERNED PROCEDURE WE WERE AT THE ARRIVAL GATE AND FROM A DISTANCE A GUY WAS WAVING A NAME PLATE WITH 'AVIT' WRITTEN ON IT. THE GUY NAMED DIHA FROM SERT CAME TO RECEIVE US. INSTANTLY TWO VAN PICKED US FROM AIRPORT AND WE DEPARTED FOR NARESUAN UNIVERSITY.

DATED:21-04-16

DAY-1

A CHEERFUL MORNING OF BANGKOK WAS WAITING FOR US AND WE WERE ABOUT TO REACH OUR DESTINATION- NARESUAN UNIVERSITY.

AND THE WAIT ENDS.....IT'S NARESUAN UNIVERSITY.

9.00 AM: WELCOMED BY ONE OF OUR BEAUTIFUL HOSTS DR. MALINEE AND WE WERE ACCOMODATED WITH OUR RESPECTIVE DORMS TO GET FRESH.

11.30AM: DR. MALINEE RECEIVED US AND WE WENT TO THE SERT CANTEEN TO HAVE LUNCH.

12.00PM: WE REACHED SERT CANTEEN AND WE GOT AMAZED WITH THE HOSPITALITY THAT THE PEOPLES OF NARESUAN UNIVERSITY SHOWED TO US. WE WERE WELCOMED BY DR. SUKRATI AND MANY OF HER COLLEAGUES.

SO IT WAS LUNCH TIME. WE WERE ALL ABOUT TO EXPLORE THE FAMOUS THAI FOODS. THOSE LOOK A BIT DIFFERENT BUT IT WAS REALLY DELICIOUS. SIMPLY WE CAN SAY THAT , WE GOT A ROYAL TREATMENT.



1.00PM: AS PER THE SCHEDULE IT WAS THE TIME TO MEET THE NU PRESIDENT DR. SUJIN JINAHYON.

DR. MALINEE TOOK US TO THE PRESIDENT'S OFFICE. WE WERE WELCOMED THERE BY THE STAFFS AND BEEN INTRODUCED WITH SOME OF THEM.

NU PRESIDENT ARRIVED. HE ADRESSED HIMSELF AND WE ALL INTRODUCED EACH OTHER. HE SPOKE ABOUT HIS FUTURE VISION AND TECHNOLOGIES WHICH INCLUDES GREEN TECHNOLOGIES LIKE SWITCHING INTO LED'S OVER BULBS. HIS FUTURE VISION WAS QUITE BIT DIFFERENT BUT IT HAS A REALISTIC POSSIBILITY. HIS IDEAS AND VISIONS WAS ENOUGH TO EXPLORE ADVANCEMENTS IN TECHNOLOGIES. HE SPOKED OVER GENERAL TOPICS , THAI CULTURE AND MANY MORE.



HE WAS AROUND 80+ BUT STILL HE WAS HUMOROUS. HE SHOWED US INNOVATIVITY HAS NO AGE. HE STILL HAS A LOT OF INNOVATIVE IDEAS WHICH IS ENOUGH MORE TO BRING A CHANGE IN THE SOCIETY. APART FROM ALL THIS WE CAN HONESTLY SAY THAT THE MEETING SESSION WAS ENOUGH TO MOTIVATE SOMEONE.



1.50PM: WE ALL GOT HONOURED BY THE NU PRESIDENT AND WE HEARTLY THANKED HIM FOR THE WAY HE ADRESSED US.AND HAD A PHOTO SESSION WITH NU PRESIDENT AND HIS STAFFS.

2.00PM: IT WAS THE TIME TO HAD A SESSION WITH THE SERT DIRECTOR.

WE REACHED THERE BY 2.00PM AND ADRESSED BY SERT DIRECTOR DR. SUKRATI. WE HAD A DISCUSSION OVER THE PLANNED SCHEDULE OF THE VISIT AND THE SEMINARS THAT WE ARE GOING TO TAKE.



2.50PM: WE ALL GOT HONoured BY THE SERT DIRECTOR IN A TRADITIONAL WAY WITH GARLANDS IN OUR HAND AND GIFTS.

3.00PM: IT WAS NOT SCHEDULED BUT BECAUSE OF OUR KEEN INTEREST THEY HAD ARRANGED A SESSION WITH THE DEAN OF FACULTY OF NU MEDICAL SCIENCES.

HE SPOKE TO US OVER VARIOUS MEDICAL TERMS.WE WERE GIVEN WITH AN IDEA OF ADVANCEMENTS THAT THE NU HOSPITALS HAS UNDERTAKEN WITHIN SEVERAL YEARS, THE STEPS THAT THEY HAD TAKEN FOR THE BETTERMENT OF SOCIETY MEDICALLY .



AFTER SUCH A SESSION WE HAD A DISCUSSION OVER SEVERAL DISEASE AND THEIR PRECAUTIONS AND THE ADVANCED MEDICAL EQUIPMENTS THAT THE NU HOSPITALS ARE EQUIPPED WITH.AFTER ALL THIS WE TOO HAD A PHOTO SESSION.

5.00PM: SIGHTSEEING

AFTER GOT ADRESSED WITH PRESIDENT, DIRECTOR AND THE DEAN IT WAS TIME TO GET RELAXED. AND SHOPPING CAN MAKE YOU FEEL RELAXED AND THAT'S WHAT WE DID,WENT FOR SHOPPING TO THE NEAREST MALL"LOTUS".

7.30PM: IT WAS THE TIME FOR THEIR WELCOME DINNER.

WE GOT SURPRISED WHEN WE WERE TAKEN IN TO A WELL DECORATED RESTAURANT. IT WAS DR. SADKA WHO WELCOMED US THERE. THE DINNER TABLE WAS FULL OF THAI DISHES WHICH WERE NOT FAMILIAR TO US BUT STILL WE HAD A LOT TO EXPLORE, AND FINALLY HAD A GREAT DINNER.

MUST SAY: DIFFERENT PEOPLE, DIFFERENT PLACE AND DIFFERENT TASTE.

8.30PM: RETURNED BACK TO OUR RESPECTIVE DORMS.

DATED:22-04-16

DAY 2

8.00AM: IT WAS REALLY HARD TO GET UP BY 7.00 OF THE MORNING BECAUSE OF THE TIME LAG THAT BOTH COUNTRIES HAVE. STILL WE WAKED UP AND GOT READY BY 8.00AM OF THE MORNING AS WE WERE REALLY EXCITED TO ATTEND THE SONGKRAN FEST AT SERT.



REACHED SERT CANTEEN AND HAD OUR 1ST BREAKFAST OF THAILAND. THE WAY THEY USE TO PREPARE THE DINNING TABLE ALWAYS MAKES US FEEL GREAT.

9.00AM: SONGKRAN FEST IS ONE OF THE MAJOR FEST OF THAILAND. THEY USED TO FEED THE MONKS AND WORSHIP BUDDHA. IT NEEDS A SPECIAL ARRANGEMENT SUCH AS MONEY PLANT, FLOWER DECORATION ETC. WE CO-OPERATED THEM FOR THE DECORATION AND TO FEED THE MONKS WHICH REALLY MADE US FEEL BLESSED.



WE MET WITH DIFFERENT MASTER AND PHD STUDENTS FROM DIFFERENT COUNTRIES AND FROM INDIA TOO. THEY MADE THE ENVIRONMENT HOMELY.WE HAD SPOKE TO THEM OVER OUR AMBITIONS OUR FUTURE PLANS AND MANY MORE.

12.00PM: IT WAS LUNCH TIME.

SOME OF US WERE REALLY EXCITED FOR THE LUNCH AS THE COOK WAS AN INTERNATIONAL COOK DR.SHEELA. SHE WAS THE COOK OF THE DAY. APART FROM ALL THIS WE HAD A GRAND LUNCH. THIS LUNCH WAS GRAND BECAUSE THE PEOPLES OH HERE HAD MADE THE ENVIRONMENT HOMELY. WE WERE INTRODUCED BY SOME MORE OF OUR HOSTS.



2.00PM: THE SURROUNDING WAS LOOKING COLOURFUL AS THE PEOPLES THERE WERE WEARING COLOURFUL SHIRTS.IT WAS ALMOST THE SONGKRAN DRESS CODE.IT'S A TRADITIONAL GAME THEY USED TO PLAY WITH WATER AFTER WORSHIP GOD. IN THIS FEST THE YOUNG PEOPLES GET BLESSED FROM THE ELDERS. AS THERE OUR DEAN WAS THE ELDEST ONE SHE BLESSED EACH AND EVERY PEOPLE PRESENT THERE.



BESIDES A SMALL ARTIFICIAL SWIMMINGPOOL WAS MADE WHERE SOME GAMES WERE ARRANGED TO MAKE THE SONGKRANM FEST MEMORABLE FOR US.

5.00PM: WE GOT FRESH AFTER HAVING SO MUCH FUN AT THE MANMADE SWIMMING POOL. WE HAD A SNACK TIME AND WE WENT FOR SHOPPING TO THE NEAREST MARKET(20 &99 BAHTS CENTRE).

7.00PM: THE DINNER WAS GOING TO BE SPECIAL AS WE HAD SOME FAMILIAR INDIAN DISHES BUT IN A THAI MANNER. IT WAS A GREAT COMBINATION.

8.00PM:WE HAVE BEEN DROPPED TO OUR RESPECTIVE DORMS.

DATED:23-04-16

DAY 3

8.00AM: WE WAKED UP AND GOT FRESH BY 8.00 OF THE MORNING AS WE WERE READY FOR THE UPCOMING SURPRISES BY THE THAI PEOPLES.

HAD OUR BREAKFAST.

9.00PM: WE HAVE BEEN CALLED IN A ROOM FOR THE LECTURE AND WE MET WITH OUR LECTURER AND HE WAS NONE OTHER THAN THE GUY WHO WAS ANKERING IN THE SONGKRAN FEST. HE WAS A BIT HUMOROUS GUY DR. YODTONG MENSIN.

WE HAD A LECTURE ON PV APPLICATION AND SMART GRID. THE TOPIC INCLUDED

- INTRODUCTION TO PV - PV ADVANTAGES AND DISADVANTAGES
- SMART GRIDS -OUTLOOK AF THE SERT GRID



12.00PM: LUNCH TIME.

WE ASSEMBLED IN THE RESTAURANT AND WE WERE SERVED WITH DIFFERENT DISHES, AGAIN UNKNOWN DISHES BUT DELICIOUS.

1.00PM: WE HAVE BEEN CALLED BY DR. YODTONG FOR THE LAB SESSION.

IT WAS DR. K WHO WAS OUR LAB CO-ORDINATOR.WE HAD A LAB SESSION OVER-

- IV CHARACTERISTICS OF PV MODULES
- CONNECTION OF DIFFERENT PV MODULES IN SERIES AND PARALLEL CONNECTION
- SHADING EFFECTS

BEING HONEST , IT WAS ONE OF THE BEST LAB SESSION WE EVER HAD. WE HAD THEORETICAL KNOWLEDGE OVER PV MODULES BUT PRACTICALLY IT SEEMS AS IT HAS A LOT TO DO.



5.00PM: BREAK TIME. FINALLY AFTER SUCH A TIGHT SCHEDULE WE FOUND SOME LEISURE PERIOD.AND NOW IT WAS SHEELA MAM, WHO WAS AGAIN THE COOK OF THE NIGHT.

7.00PM: IT'S DINNER TIME.WE WERE EAGER TO HAVE DINNER AS SHEELA MAM COOKED FISH. SHE MADE ALL THAI PEOPLE OVER THERE TO HAVE A TASTE OF SOUTH INDIA'S FISH CURRY.

8.00PM: AS USUAL IT WAS THE TIME TO GET SOME SLEEP.

DATED:24-04-16

DAY 4

8.00AM: TODAY WE GOT READY BEFORE 15 MINUTES ITSELF AS IT WAS A BLAST THAI SUNDAY.

TODAY WE HAD OUR BREAKFAST WITH ONE OF THE FUNNY GUY NAMED TURN.HE WAS ONE OF THE STUDENTS WHO VISITED OUR COLLEGE LAST YEAR.

9.00AM: IT WAS THE STUDY TOUR. WE DEPARTED FOR THE SUKHOTHAI PROVINCE, THE ANCIENT CITY.

10.00AM: WE VISITED RAMKHAMHAENG NATIONAL MUSEUM.

RAMKHAMHAENG ONE OF THE GREAT KINGS OF SUKHOTHAI. VISITED HIS MEMORIAL MUSEUM. SAW DIFFERENT STATUES OF BUDDHA , ROCK SCULPTURES ETC.



12.00PM: REACHED RAMKHAMHAENG PALACE. SAW THE BUILDING ARCHITECTURES, BUDDHA STATUES ETC.

1.00PM: WENT TO THE NEAREST SHOPPING MARKET ON LADIES DEMAND.

2.00PM: LUNCH TIME.

VISITED TO THE NEAREST AND ONE OF THE FAMOUS RESTAURANTS OF SUKHOTHAI "CAFÉ-DA-TREE".



3.00PM: NOW WE DEPARTED FOR THE BIO MASS PLANT. THEY HAD REAL TIME APPLIED BIOMASS PLANT WHICH ARE USED BY 31 HOUSEHOLDS NEARBY. THEY HAD 4 TYPE OF BIOMASS SYSTEM.THEY WERE –TANK TYPE -PLASTIC TYPE -TUBE TYPE



5.00PM: WENT FOR SHOPPING. THE BEST WAY TO SPARE THE LEISURE TIME SPECIALLY IN A HOLIDAY.

6.30PM: RETURNED TO SERT CANTEEN.

7.00PM: DINNER TIME. TODAY'S SPECIAL WAS THE BONELESS FISH.

8.00PM: AS USUAL IT'S TIME TO GET SOME SLEEP.

DATED: 25-04-16

DAY 5

8.00AM: IT WAS A WARM WELCOME BY DR. SUKRATI. AND WE ALMOST LEARNED HOW TO WELCOME SOMEONE IN THAI, AND FINALLY HAD OUR BREAKFAST.

9.00AM: IT WAS THE LECTURE SESSION BY DR. SADKA ON MODERN ENERGY RELATED TO THE HYDROGEN FUEL AND ITS APPLICATION. AND OUR DEAN ADDRESSED A SPECIAL LECTURE IN A NEARBY RAJPUT UNIVERSITY AND SEMINARS WERE TAKEN BY DR. SHEELA AND PROF. RAJASEKARAN IN SERT.



11.00AM: IT WAS B SNACKS BREAK. AFTER HAVING SNACKS WE HAD A LAB SESSION ON HYDROGEN FUEL APPLICATION. WE DETERMINED THE POWER CHARACTERISTICS OF A HYDROGEN FUEL SYSTEM.



12.00PM: IT WAS SOMETHING FAMILIAR LUNCH FOR US. ALL DISHES LOOKED AS WE HAVE IN OUR INDIA.

1.00PM: WE HAD A LAB SESSION ON SOLAR RADIATING TEST. WE HAD MEASURED THE SOLAR RADIATION AND THE SENSITIVITY OF DIFFERENT REFERENCE CELLS.

4.00PM:WE COMPLETED OUR LAB SESSION A BIT EARLIER SO WE GOT A LEISURE PERIOD AND WE THE PEOPLE KNOWS HOW AND WHERE TO INVEST OUR LEISURE PERIOD. IT'S SHOPPING.SO TODAY WE WENT TO THE NEARBY MALL "THE CITY CENTRE".

7.00PM: THE THAI PEOPLES WHO REALLY GAVE THEIR BEST TO MAKE US FEEL COMFORTABLE HAD DONE AGAIN SOMETHING WHICH MADE US FEEL HOMELY. IT WAS CHICKEN BIRYANI OR THEY CALLED AS YELLOW RICE WITH CHICKEN. EVERYONE WAS QUITE HAPPY AFTER SEEING THE DISH.

8.30PM: TODAY A LITTLE BIT OF MODIFICATION IN THE SCHEDULE, EVERYONE WENT FOR A WALK IN THE CAMPUS MARKET WITH ONE OF OUR HOST OR GUIDE PROF. RAO AND HAD SHOPPING.

9.30PM: GOOD NIGHT

DATED: 26-04-16

DAY 6

8.00AM: WE HAD OUR BREAKFAST AS USUAL.AND IT SEEMS THAT ITS OUR 1ST DAY BREAKFAST AS NOTHING HAS CHANGED.IT SEEMS AS WE HAVE REACHED THAILAND JUST A FEW HOURS AGO.

9.00AM: DEAN HAS ADRESSED THE MASTERS AND PHD STUDENTS OF SERT AND THE STUDENTS HAD ATTENDED A LECTURE ON ENERGY MATERIALS i.e THERMOCOUPLES, AND HAD A LAB SESSION ON ENERGY MATERIALS WHERE WE DETERMINED THE CHARACTERISTICS OF POWER AND TEMPERATURE OF THERMOCOUPLES. AND THE LECTURE WAS GIVEN BY DR. TAWAT.

12.00PM: WE HAD OUR LUNCH

1.00PM: DEPARTED FOR THE PHITSANULOK WASTE MANAGEMENT SYSTEM MANAGED BY THE MUNICIPALITY OF PHITSANULOK. WE HAD A SESSION OF WASTE MANAGEMENT AND HAD VISITED EVERY SECTION OF WASTE MANAGEMENT AND SEGGREGATION SECTION.

4.30PM: WE WERE DROPPED TO OUR RESPECTIVE DORMS TO TAKE REST AND AGAIN IT WAS DR. SHEELA , THE COOK OF THE NIGHT WHO WAS IN SERT CANTEEN AND WAS PREPARING DINNER FOR ALL OF US.

7.00PM: WE ASSEMBLED IN THE SERT DINNING HALL AND HAD SOME SOUTH INDIAN FOODS .

AND IT WAS AGAIN MR. TURN WHO MADE THE EVENING CHEERFUL .

8.00PM: WE CAME TO OUR DOMS ...GOOD NIGHT