



**AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
(Approved by AICTE, Permanently Affiliated to JNT University Kakinada,  
ACCREDITED BY NAAC and Recognized under 2(f) & 12 (b) by UGC, New Delhi)  
Tamaram(Village), Makavarapalem(Mandal), Visakhapatnam-531113

**COLLABORATIVE INDUSTRIAL VISITS OF AIET  
ACADEMIC YEAR  
2017-18**


**DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**

| S No | Name Of The Industry Visited                   | Batch/Class                | Date       | No of Students Visited |
|------|--|----------------------------|------------|------------------------|
| 1    | 33/11KV SUB STATION,<br>MAKAVARAPALEM          | II B.TECH-EEE<br>STUDENTS  | 01/02/2018 | 43                     |
| 2    | HYDRO ELECTRIC<br>POWER PLANT, UPPER<br>SILERU | III B.TECH-EEE<br>STUDENTS | 06/01/2018 | 55                     |

  
Coordinator

  
Principal

**Avanthi Institute of Engg. & Technology**  
**Tamaram, Makavarapalem Md.,**  
**Visakhapatnam District, Pin-531113**

  
Head of the Department  
Department of Electrical & Electronics Engg.  
Avanthi Institute of Engg & Tech.  
Makavarapalem, Visakhapatnam - 531113.



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**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**REPORT ON INDUSTRIAL VISIT**

**33/11 KV SUBSTATION, MAKAVARAPALEM**

**DATE:** 01-02-2018

**SECTION:** II YEAR –EEE

**TOTAL STUDENTS:** 43

**EVENT:** Industrial Visit

**Faculty Coordinators:**

- 1) P Anil Kumar, Asst.Prof.
- 2) P Varahala Dora, Asst.Prof.

**EVENT DESCRIPTION:** An industrial visit has been organized by department of Electrical and Electronics Engineering for II-year students on 01st February 2018.


The main objective of the visit was to provide a technical exposure to the students about the manufacturing process and technology. Total 43 students of II-year EEE visited 33/11 KV Substation Makavarapalem.

**SESSION ACTIVITIES:** The students were accompanied by 2 faculty members. The buses with students have started from our college at 10.30 AM on 01st February 2018 and reached the 33/11 KV Substation Makavarapalem by 10:45 AM.

**ABOUT 33/11 KV SUBSTATION, MAKAVARAPALEM**

33/11 KV Substation Makavarapalem A substation is a part of an electrical generation transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions. Between the generating station and consumer, electric power may flow through several substations at different voltage levels. 33/11 KV SUBSTATION is located at Makavarapalem, Visakhapatnam-531113

  
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Tamaram, Makavarapalem Mandal, Visakhapatnam Dist-531113

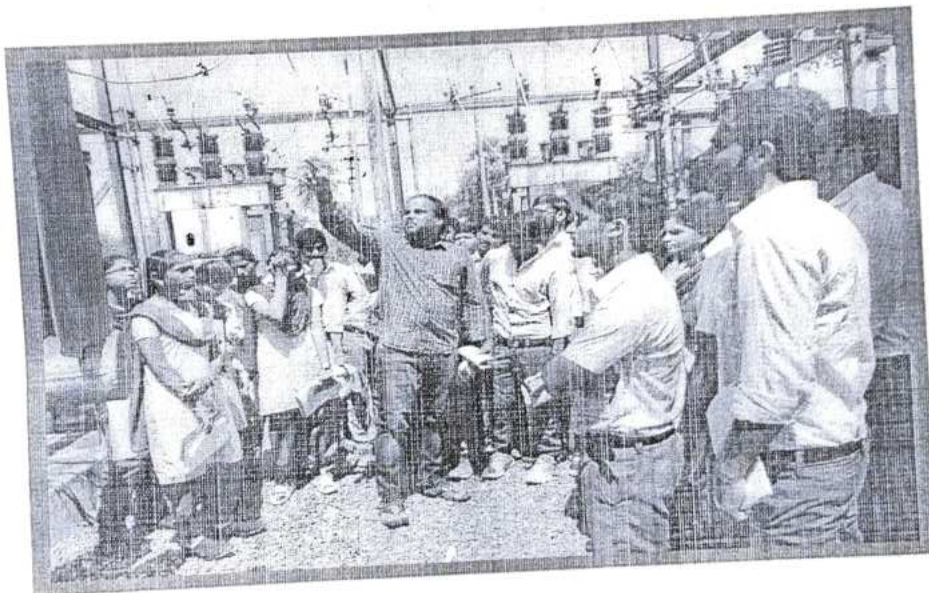
## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Year: II B Tech EEE

Date: 01-02-2018

Name of the Industry: 33/11 KV SUB-STATION, MAKAVARAPALEM

Name of the Faculty: 1. P ANIL KUMAR, Assistant Professor  
2. P VARAHALA DORA, Assistant Professor



Head of the Department  
Department of Electrical & Electronics Engg.  
Avanthi Institute of Engg & Tech.  
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## UPPER SILERU HYDRO ELECTRIC SCHEME (4×60MW)

### Preamble:

Upper Sileru Project is situated in the midst of Chintapalli agency in Visakhapatnam District. It is about 130 KM from Narsipatnam and 200 KM from Visakhapatnam. Water is drawn from a weir constructed across Sileru River at Guntawada 9 miles of Balimela Reservoir.

The Project is constructed in two stages. Under first stage, 2 units of 60MW each were commissioned at a cost of Rs. 18.5 Crores and another 2 Units of 60 MW each were commissioned under second stage at a cost of Rs. 47.5 Crores.

### Salient Features:

- Location : Upper Sileru in Midst of Chintapalli Agency, 200 KM from VSP
- Category : Hydro Electric Project
- Capacity :  $4 \times 60 \text{ MW} = 240 \text{ MW}$
- River : Sileru
- Dam : Fore Bay Dam
- No. of Units : 4 Nos
- Annual Energy Potential : 575 MU

### Hydrology:

- Reservoir : Guntawada Reservoir
- Catchment Area : 1994 Sq. miles
- Max. flood discharge : 2,50,000 Cusecs
- Live Storage : 3.108 TMC Ft. (88 M.Cum)
- Gross Storage : 4.33 TMC
- Dead Storage : 0.712 TMC
- Generation Per TMC : 6.43 MU
- Design Head : 290 Ft.
- Net Head Max./Min : 310/290 Ft.
- Net Head Average : 304 Ft.
- Full Reservoir Level(FRL) : 1360.00 Ft.
- Min. Draw Down Level(MDDL) : 1333.50 Ft.
- Tail Race Water Level : 1045 Ft.
- Design Disch. Through Machine : 2592 Cusecs



**Financial:**

- Estimated Cost : Rs. 18.06 Cr.
- Actual Cost : Rs. 66.04 Cr.
- Assistance : APSEB
- Clearance by : CEA, MOE&F and PLG Commission GOI, 09/1973
- Cost of KW Installed : Rs. 15,417/- (Stage – I)  
Rs.,39,617/- (Stage-II)

**Commissioning Details:**

- Unit – I : 14<sup>th</sup> October, 1967
- Unit – II : 31<sup>st</sup> March, 1968
- Unit – III : 31<sup>st</sup> March, 1994
- Unit – IV : 21<sup>st</sup> March, 1995

**Technical:**

**Turbine**

- Type : Francis Vertical
- Make : Excherwyss, Charmilies Switzerland (Stage – I), BHEL(Stage – II)
- Net Head : 90M
- Rated Output : 95000 BHP
- Normal Speed : 187.5 RPM
- Runway Speed : 350 RPM

**Generator**

- Type : Synchronous
- Make : Oerlikon, Switzerland(Stage – I), BHEL (Stage – II)
- Rated Voltage : 11KV
- Rated Output : 60MW/ 66.67 MVA
- Current : 3500A
- Speed : 300 RPM
- Power Factor : 0.9 Lag

**Generator Transformer:**

- Make : TELK, Angamally, Kerala
- Capacity : 25MVA, Single Phase (Out Door Type)
- Voltage Ration : 11KV/ 220KV

**Transmission Line:**

- 220KV, 3 Nos. (Stage – I)
- 220KV, 2 Nos. (Stage – II)



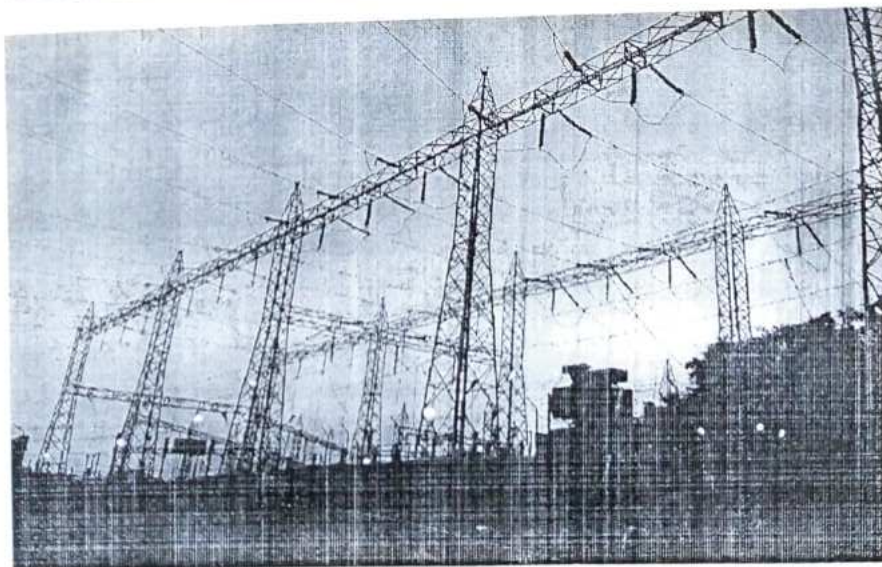
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

## INDUSTRY VISIT ON 06-01-2018 SILERU HYDRO POWER PLANT



  
Coordinator

  
HOD EEE Department

Head of the Department  
Department of Electrical & Electronics Engg.  
Avanathi Institute of Engg & Tech.  
Makavarapalem, Visakhapatnam - 531113.