7.1.2 The Institution has facilities for alternate sources of energy and energy conservation measures.

1. Solar Energy
2. Wheeling to the Grid
3. Sensor-based energy conservation
4. Use of LED bulbs/power efficient equipment.

1. **<u>Solar Energy</u>**

   BIT, Durg consists of Grid connected Solar Power Plant of capacity 200 MW (2 × 100MW).

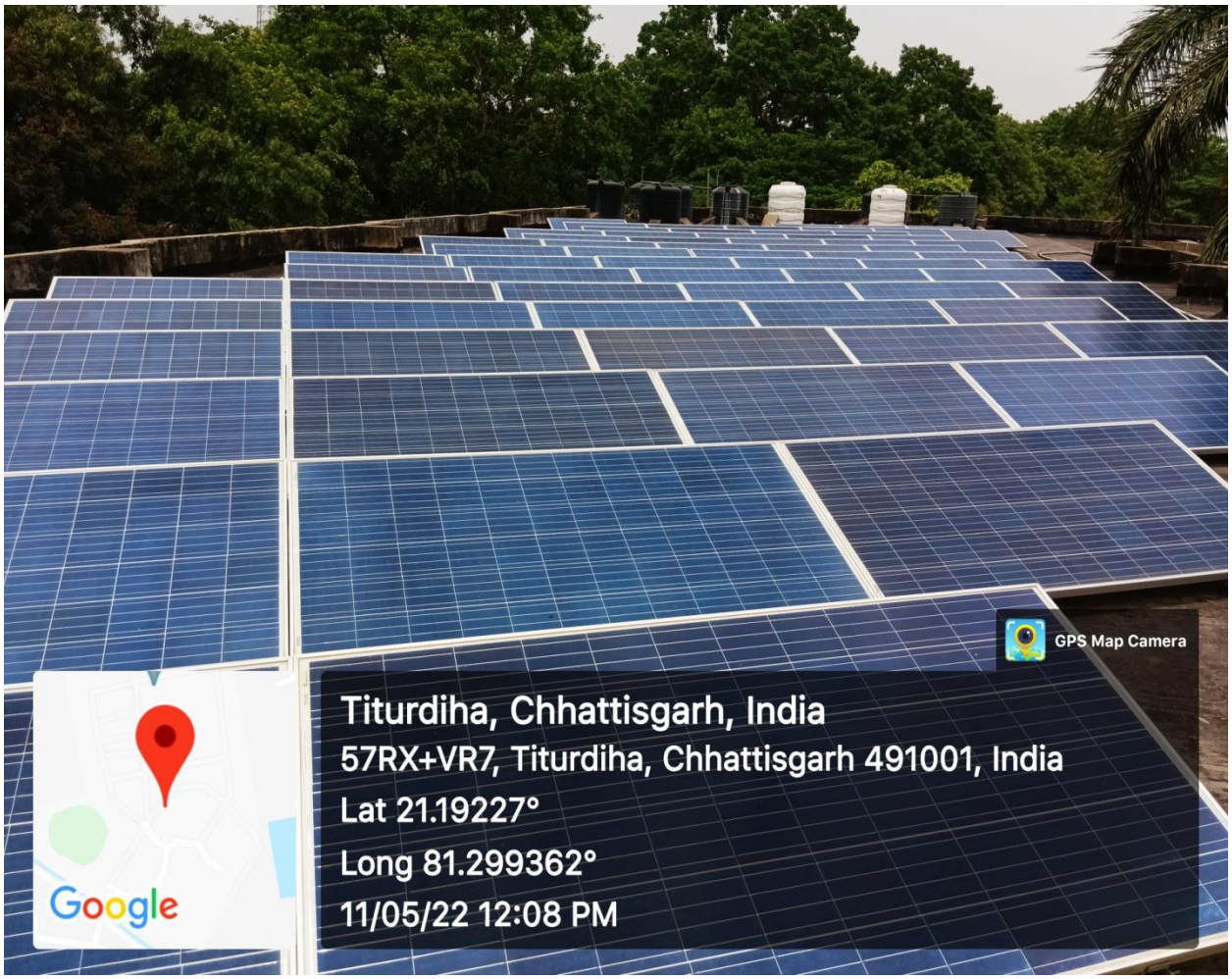

Fig. 1 Solar Panels installed at the roof of Electronics & Science Block.

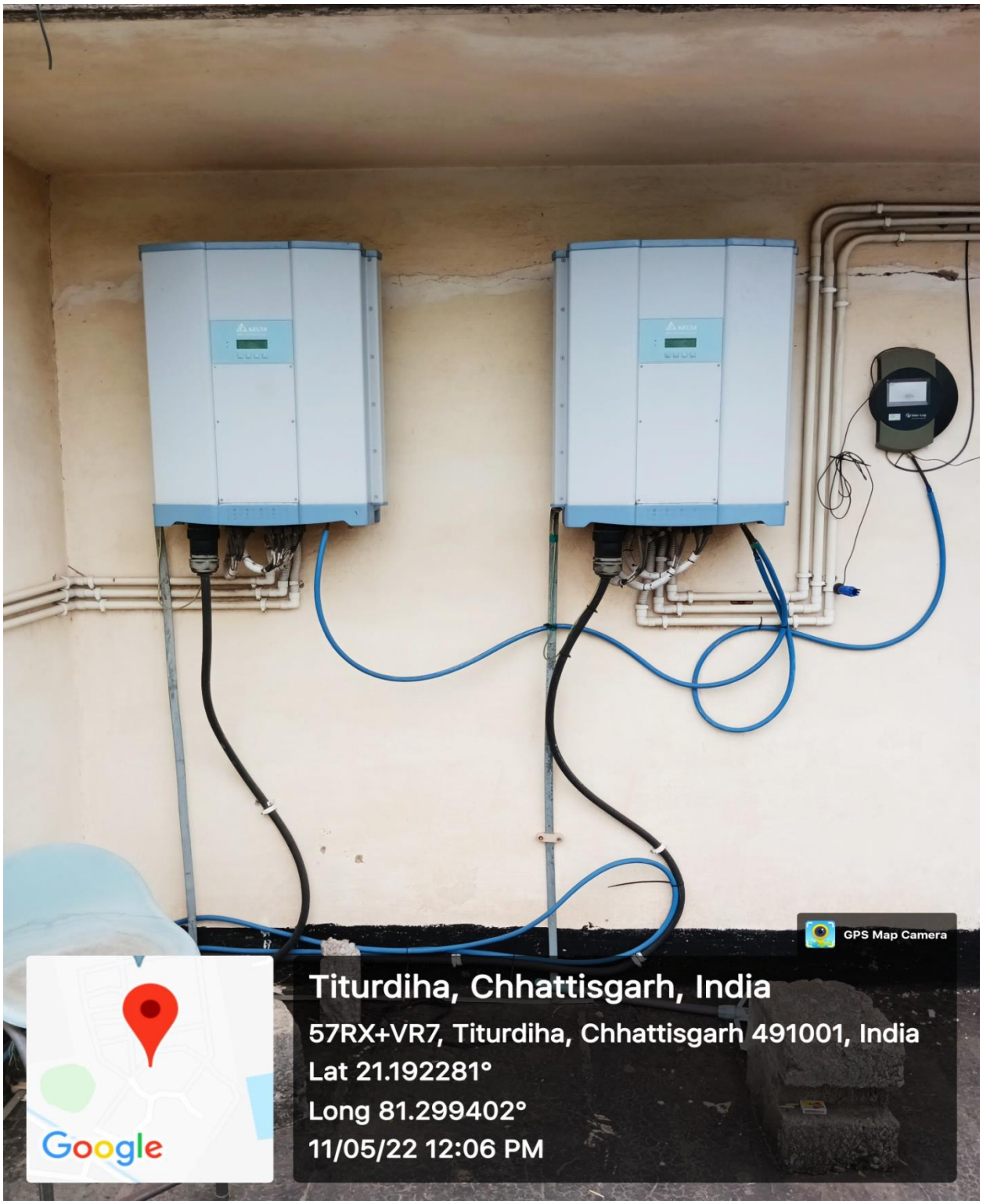

Fig. 2 Solar Inverter

2. Wheeling to the Grid

AuthorizedDealer

TATA POWER SOLAR

ENABLING SOLAR EVERYWHERE

EDMC/18-19/S/088 Date : 29.10.2018

To,
The Principal
Bhilai Institute of Technology
DURG

Sir,

Ref : Letter No 0100/HT/Re/3189 dtd 06.10.2018 of CSPDCL for connectivity

With respect to above letter received by you from the CSPDCL office regarding Grid Synchronization of Solar Power Plant wherein terms of Grid connectivity and Connectivity fees is mentioned payable.

Please note that the Solar Plant installed by us of 100 KWp plus the Old Solar plant converted from Off grid to On grid plant of 100 KWp, Total 200 KWp is generating energy and feeding to your grid satisfactorily.

However on holidays and when the load demand is less than the Solar generation, the excess electricity is feeded to the Grid, but since grid connectivity is not done, the institute is not getting the benefits of the excess generation.

Kindly make the Demand Draft for Rs.20000/- as demanded by CSPDCL towards grid connectivity processing charges at earliest and then the process of synchronization shall begin.

The release of Subsidy by MNRE and CREDA is done only after Grid Synchronization, so an earliest action is recommended to account for both the benefits.

Kindly do the needful at the earliest and Oblige.

Thanks & Regards

For, Electromech Devices Mfg Co.

ELECTROMECH DEVICES MFG. CO. RAIPUR

Partner

ELECTROMECH DEVICES MFG CO.
Br. : A-09, Mahavir Goushala Complex, K.K.Road, RAIPUR
Ph 0771-2888895,4066095(R) Fax 0771-2888895

Fig. 3 Grid Synchronization between BIT Solar System and CSPDCL.

B.I.T. GENERATION REPORT(OLD+NEW)

Name of Site: NEW B.I.T. DURG GENERATION

Capacity of Installed System 200Kw

Daily Energy Yield Reading for the Month of March-2022

S.NO.	Date	Inv-1NEW	Inv-2 NEW	Inv-1OLD	Inv-2OLD	TOTAL	Remark	Cleaning of Solar module
1	01-03-2022	209	186	183	183	761		
2	02-03-2022	210	195	184	188	777		
3	03-03-2022	156	145	144	147	592		
4	04-03-2022	183	168	165	169	685		
5	05-03-2022	181	165	160	165	671		
6	06-03-2022	232	212	207	213	864		Module Cleaning
7	07-03-2022	219	200	203	201	823		
8	08-03-2022	226	198	206	202	832		
9	09-03-2022	225	203	202	198	828		
10	10-03-2022	213	195	189	186	783		
11	11-03-2022	194	179	178	180	731		
12	12-03-2022	224	208	209	213	854		
13	13-03-2022	241	222	222	226	911		Module Cleaning
14	14-03-2022	228	211	218	217	874		
15	15-03-2022	202	188	113	117	620		
16	16-03-2022	210	202	195	194	801		
17	17-03-2022	224	215	214	216	869		
18	18-03-2022	190	183	183	186	742		
19	19-03-2022	188	181	181	184	734		
20	20-03-2022	181	174	174	176	705		Module Cleaning
21	21-03-2022	185	177	175	177	714		
22	22-03-2022	223	201	200	203	827		
23	23-03-2022	216	190	195	199	800		
24	24-03-2022	187	172	167	171	697		
25	25-03-2022	171	162	157	160	650		
26	26-03-2022	166	152	151	153	622		
27	27-03-2022	212	195	192	194	793		Module Cleaning
28	28-03-2022	212	195	192	194	793		
29	29-03-2022	214	189	185	187	775		
30	30-03-2022	211	195	190	192	788		
31	31-03-2022	210	195	190	192	787		
	TOTAL	**6343**	**5853**	**5724**	**5783**	**23703**		

System integrator
Name:-
Date:-

ELECTROMECH DEVICES MFG. CO. RAIPUR

Beneficiary Signature
Name
Date

Fig. 4 Generation Report by BIT Solar System.

Service Number : 1000320 / 374700-1000320
Bill Month : JAN/2022 Bill Date : 01.02.2022
Name and Address :
M/S DIRECTOR (BIT)
BHILAI INSTITUTE OF TECHNOLOGY
AT BHILAI HOUSE GE ROAD
RAIPURNAKA; DURG (CG)
Telephone : 07882359371
Meter Sl.No.: S1418919
Cont.Demand : 250.00KVA Suppl Voltage : 33 KV

Bill Sl.No.: 702052688051
GSTIN: Please submit
NEFT/RTGS Due Date
16.02.2022

Elec.Duty	DLF ED%	NDLF ED%
20.00	0.00	0.00

PAN No.AAATB6755D/Pw Of Hr: 30.00
HV3 GEN. PUR. NON IND. 33 KV 2017

Parameters	Reading-I	Reading-II
MD(Normal)	0.246	
MD(On-Peak)	0.166	
MD(Off-Peak)	0.134	
Multiplying Factor	300.000	
MD to be billed	73.920	
Transformer Loss	0.000	
Demand Adj.	0.000	
Wheeled Units(-)	0.000	
Total Max.Demand	73.920	
Net Max.Demand		73.920
MD for Penal Unit	0.000	
KWH - Reading		
(CURR.)01.02.2022	67.380	
(PREV.)01.01.2022	20.365	
Difference	47.015	
Multiplying Factor	300.000	
Diff. x MF	14,104.500	
Transformer losses	0.000	
Adjustments	0.000	
Total Units	14,104.500	
Net Units		14,104.500
Max.Demand Rec.		73.920
75% of CD		187.500
M.D.for Tariff		60.000
Billing Demand		188.000
KVAH Readings		
(CURR.):01.02.2022	70.470	
(PREV.):01.01.2022	21.090	
Difference	49.380	
Multiplying Factor	300.000	

Minimum Charge	47,500.00
Energy Charge(On-Peak)	40,712.76
Energy Charge(Off-Peak)	22,173.84
Energy Charge(Normal)	34,175.70
Demand Charge	35,720.00
Basic bill for the month	132,782.30
Demand Charge 188.00 X 190.0000	35,720.00
Energy Charge(On-Peak) 4,917.00 X 8.2800	40,712.76
Energy Charge(Off-Peak) 4,944.00 X 4.4850	22,173.84
Energy Charge(Normal) 4,953.00 X 6.9000	34,175.70
VCA 14,105.00 X 0.2200	3,103.10
Electricity Duty	20,033.00
Cess 14,814.00 X 0.1000	1,481.40
Meter Rent	1,140.00
Solar Export P.P. Adjus 7,714.50 X 1.4500	11,186.03-
Current Surcharge	0.00
Current Month Bill	147,353.77
Arrears Excluding Surcharge	0.12-
Other Charges	0.15
ASD Refund	3.80-
Bill by due date	147,350.00

(In Words):Rupees One Lakh Forty Seven Thousand Three Hundred Fifty Only

Fig. 5 Solar export to Grid

3. **Sensor-based energy conservation**

Data logger installed with solar system to record real time data for better energy management.

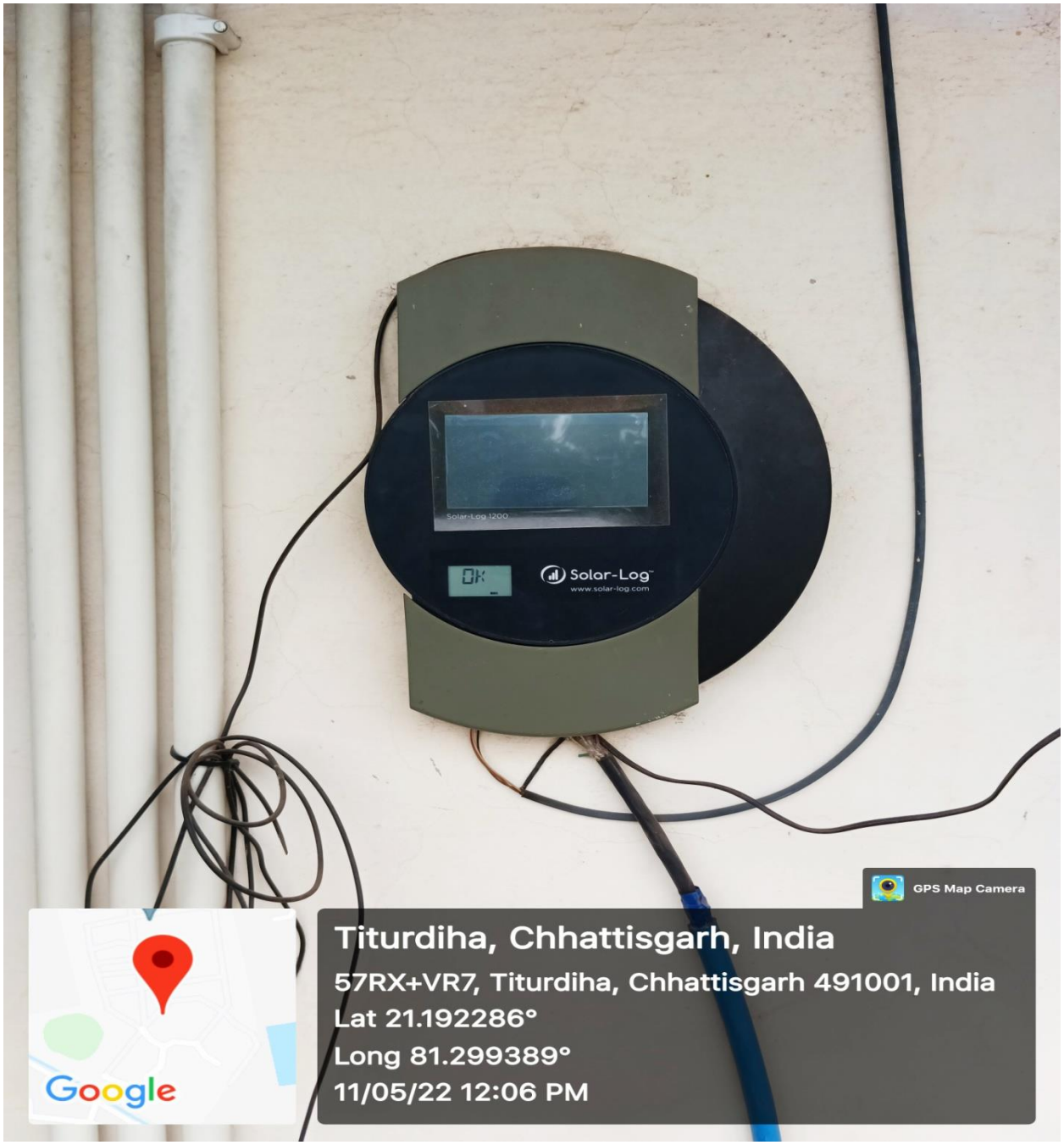

Fig. 6 Solar Logger

Abhijeet Lal <abhijeet.lal@bitdurg.ac.in>

Fwd: Your Daily Energy Notification of Bit Durg

1 message

Soorya prakash Shukla <sp.shukla@bitdurg.ac.in> Wed, Apr 20, 2022 at 4:18 PM
To: abhijeet.lal@bitdurg.ac.in

Dr. S.P. Shukla
Professor,Department of Electrical Engineering
Bhilai Institute of Technology,Bhilai House
Durg, Chhattisgarh, 491001
Mobile :- 98261 85150

---------- Forwarded message ---------
From: **TrackSo Alerts** <alerts@trackso.in>
Date: Fri, Mar 13, 2020 at 8:04 PM
Subject: Your Daily Energy Notification of Bit Durg
To: <sp.shukla@bitdurg.ac.in>, <principal@bitdurg.ac.in>
Cc: <edmc.rpr@gmail.com>

TrackSo

Watch the following videos to learn more about using TrackSo IoT platform.

TrackSo Demo	Create Charts	Download Reports

Notification Email

Dear Customer,

This is a notification email generated from your account on TrackSo.

Site Name: Bit Durg

Inverter Name	Daily Energy (kWh)	Lifetime Energy (MWh)
Delta 1 50 kw	170.5	113.079
Delta 2 50 kw	169.3	94.995
Summary Bit Durg	339.8	208.07

Fig. 7 Daily energy notification of BIT Durg

4. **Use of LED bulbs / power efficient equipment.**

Campus Lightning				
Sr. No.	**Fitting**	**Rating (W)**	**Number of Fittings**	**Total watt (kW)**
1	High Mast LED - 160W	160	20	3.2
2	High Mast LED - 200W	200	10	2
3	High Mast MH - 250W	250	10	2.5
4	MH - 400W for Sports ground	400	39	15.6
5	MH - 250W for Sports ground	250	68	17
6	MH - 150W	150	3	0.45
7	HPSV-250W	250	2	0.5
8	HPMV-125W	125	21	2.625
9	Flood Lights - 165W	165	8	1.32
10	LED Street Lights - 100W	100	5	0.5
11	LED Street Lights - 50 W	50	19	0.98
Total			205	46.675

***Source – Energy Audit Report, BIT, Durg**