



Shram Sadhana Bombay Trust's
COLLEGE OF ENGINEERING & TECHNOLOGY
BAMBHORI, POST BOX NO. 94, JALGAON- 425001. (M.S.)
Included Under Section 2(f) & 12(B) of the UGC Act, 1956
ISO 9001:2015 Certified



November 2021

STRATEGIC / PERSPECTIVE PLAN

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6.2.1 The Institutional Strategic / Perspective Plan is effectively deployed

Describe one activity successfully implemented based on the strategic plan within 500 words

Response:

Renewable Energy

On Grid PV Solar Rooftop Power Plant

In present times, the world has been adopting renewable power at a rapid rate. India is also emerging in the global arena as a leading generator of renewable energy. In its efforts to move further towards sustainable development. The primary objective for deploying renewable energy is to advance economic development, improve energy security, improve access to energy, and mitigate climate change. One of the biggest advantages of rooftop solar panels is that they can be installed on any type of roof. So, it doesn't need to vacate a land or invest in buying additional land to set up rooftop solar panels. Furthermore, the panels offer protection to the roof of the building in which they are installed.

As an effort towards sustainable development, the institute has decided to install PV Solar on Grid Rooftop Power Plant in the campus. All necessary permissions and approvals were obtained from government and distribution licensee (MSEDCL) to connect grid interactive PV Solar plant.

The institute installed 295kWpPV Solar on Grid Rooftop Power Plant at campus in three stages.

1. Stage –I 100 kWp PV Solar On Grid Rooftop Power Plant.
2. Stage –II 95 kWp PV Solar On Grid Rooftop Power Plant.
3. Stage –III 100 kWp PV Solar On Grid Rooftop Power Plant.

Sr · N o	Power Plant Capacity	Purchase order	Bills	Permission and approval	Commis- sioned	Cost of Plant in Rs
1	100 kWp Under SECI Scheme	COET/1090 /07/17 dated 25/07/2017	250817100 012 dated 29/12/2017	SE/ JLG/T-III/ Rooftop Solar/1412 dated 15/03/2018	25 th March 2018	35,00,000/-
2	95kWp	COET/SE/1 681/11/18 dated 28/09/2018	2019/103 dated 29/03/2019	SE/ JLG/T-III/ Rooftop Solar/4729 dated 7/08/2018	24th Aug 2019	43,70,000/-
3	100kWp	COET/SE/6 25/10/20		SE/ JLG/T-III/ Rooftop		40,00,000/-

		dated 23/10/2020		Solar/01347 dated 2/03/2021		
Project Cost in Rs						1,18,70000/-
Revenue Generation (Saving in Electricity Bill) per annum per 100kWp plant						16,00,000/-
Estimated Payback period in year						2.5 to 3
Total Energy Generated by Solar Plant till March 2021						638146 kWh
Revenue Generation by Solar Plant till March 2021						Rs 77,21,566/-

Energy generation by PV Solar on Grid Rooftop Power Plant is shown with help of charts. Energy demand is partially fulfilled by Renewable Energy Plant. The share of solar energy is increasing from year 2018-19 with respect to addition of Solar Plant Capacity.

- Energy Generation by On Grid PV Solar Rooftop Power Plant.
- Photo Graphs of On Grid PV Solar Rooftop Power Plant.
- Documents of On Grid PV Solar Rooftop Power Plant.

2] Energy Generation by On Grid PV Solar Rooftop Power Plant

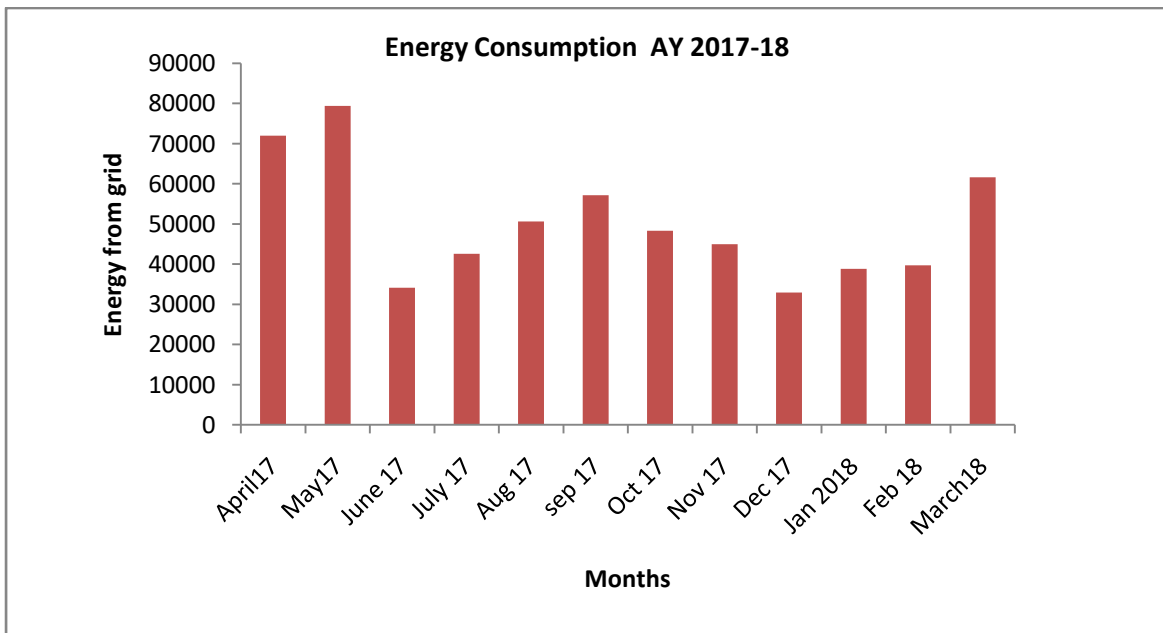


Fig. No.1 Energy Consumption and energy purchase from grid (MSEDCL) in year 2017-18, Before Renewable Energy Generation Facility

Year 2017-18	
Total Energy Consumption	602248 kWh

Electricity Bill

Rs 6012778/-

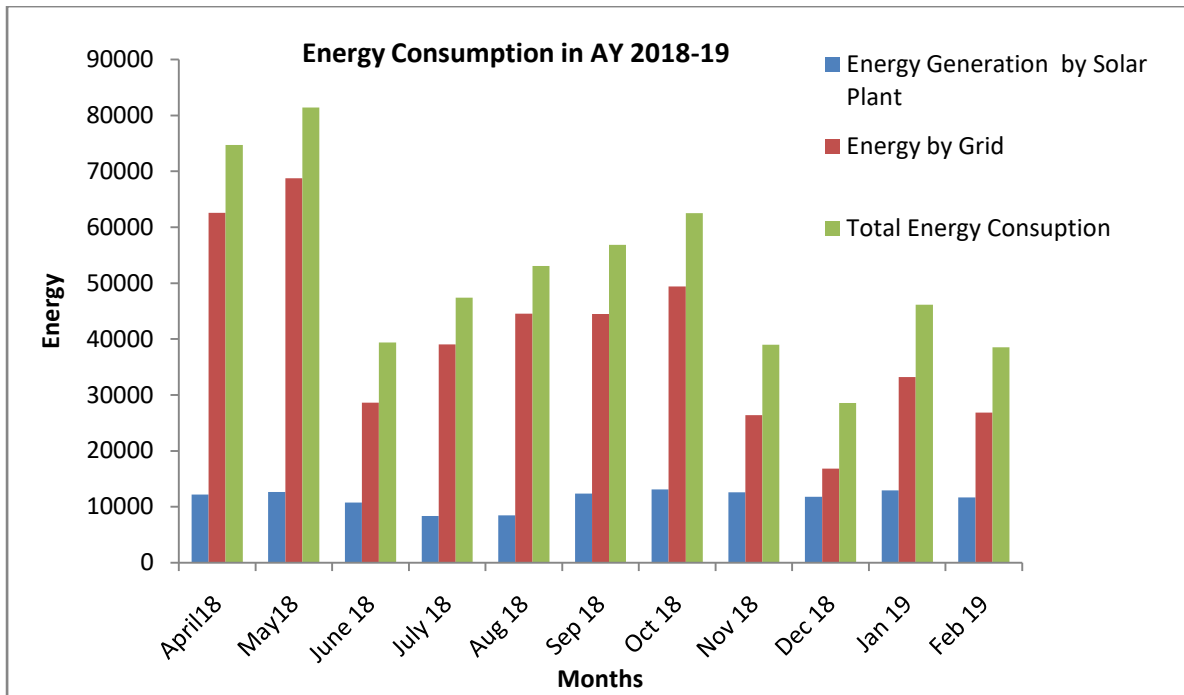


Fig. No.2 Energy Consumption and energy purchase from grid (MSEDCL) in year 2018-19, After Renewable Energy Generation Facility

Year 2018-19	
Total Energy Consumption	627458 kWh
Energy from Grid (MSEDCL)	440722 kWh
Energy Generation by Solar plant (100kWp)	141990 kWh
Percentage Energy fulfilment by Solar Plant	22.62%
Electricity Bill	Rs 6587300/-

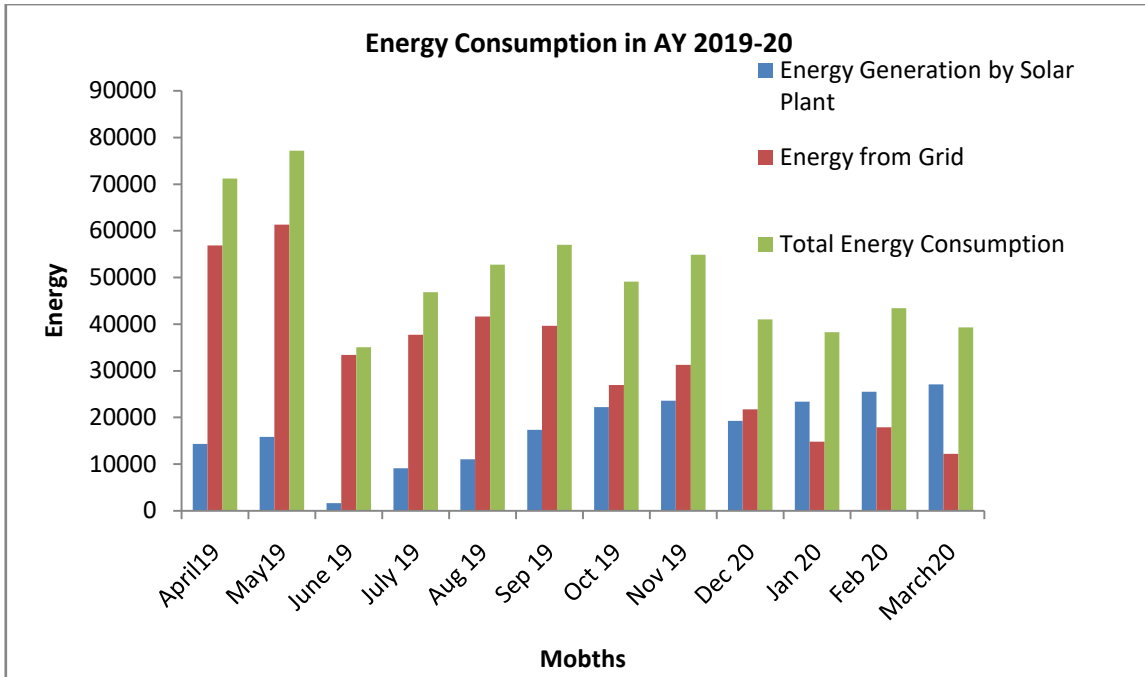


Fig. No 3 Energy Consumption and energy purchase from grid (MSEDCL) in year 2019-20, After Renewable Energy Generation Facility

Year 2019-20	
Total Energy Consumption	606063 kWh
Energy from Grid (MSEDCL)	383325 kWh
Energy Generation by Solar plant (195kWp)	210538 kWh
Percentage Energy fulfilment by Solar Plant	34.7%
Electricity Bill	Rs 5997114

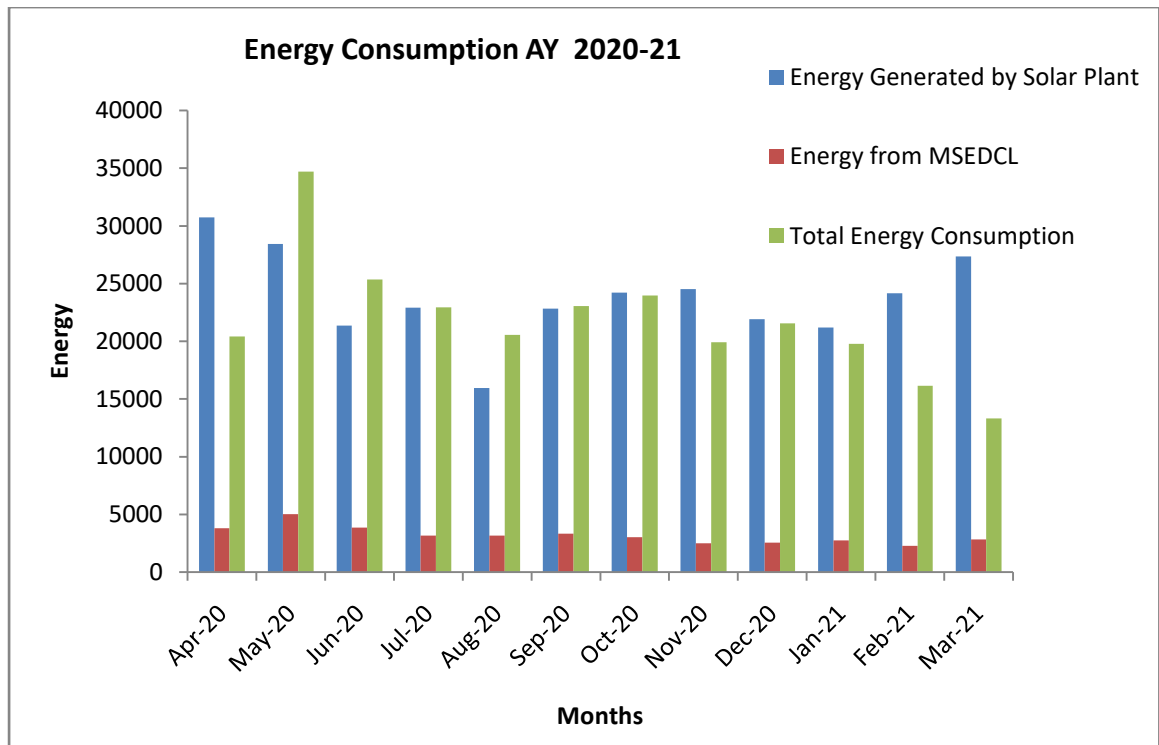


Fig. No 4 Energy Consumption and energy purchase from grid (MSEDCL) in year 2020-21, After Renewable Energy Generation Facility

Year 2020-21	
Total Energy Consumption	261704 kWh
Energy from Grid (MSEDCL)	38254 kWh
Energy Generation by Solar plant (295kWp)	285618 kWh
Percentage Energy fulfilment by Solar Plant	100%
Electricity Bill	Rs 1600124/-

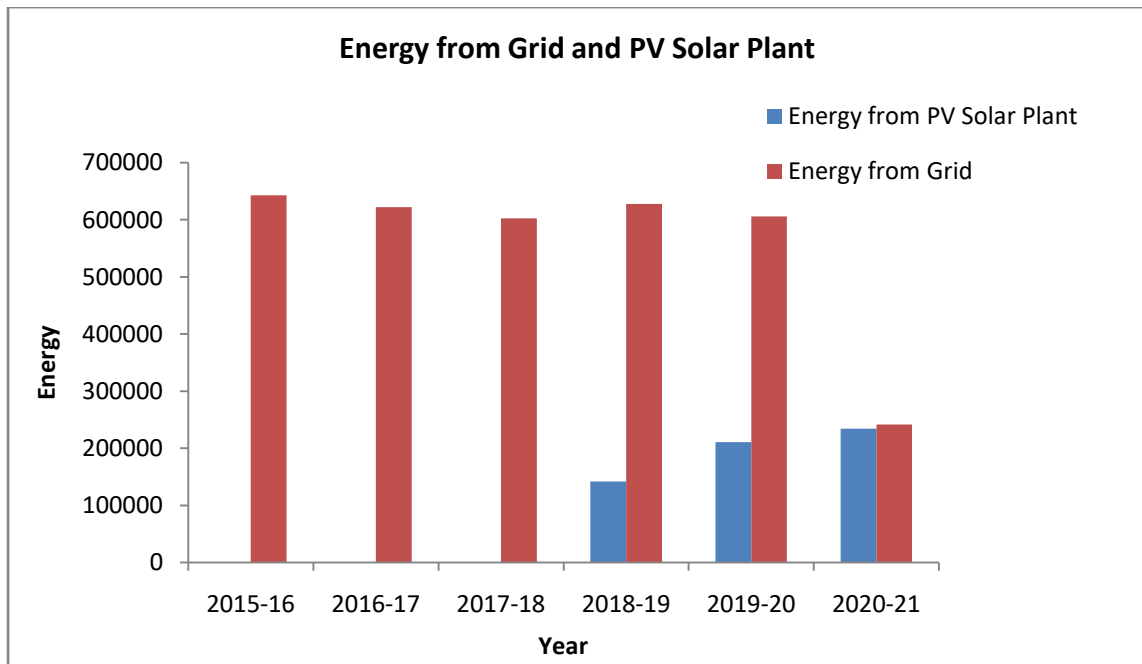


Fig. No 5 Energy Consumption and energy purchase from grid (MSEDCL) in five year

3] Photos of PV Solar On Grid Rooftop Power Plant



Fig. No. 1 Successful testing of 100kWp PV Solar Rooftop Plant

Fig. No. 2 On Grid PV Solar Rooftop Plant



Fig. No. 3 On Grid PV Solar Rooftop Plant

4] Perspective / Strategic Plan


S.S.B.T's College of Engineering & Technology,

Bambhori, Jalgaon.

Perspective Plan 2017-18



- To start Research Labs
- To approve the students Innovation Project Funding Scheme
- To approve the design of 100 KWP Solar Power Plant to be installed on the Roof Top of front building
- To install Lift
- To organize Training on Work Culture for Non Teaching Staff
- To sponsor Robocon 2018 (National Level Robotic Competition)




Registrar
Registrar
SSBT's College of Engineering & Technology
Bambhori, Jalgaon-425001(M.S.)

5] Renewable Energy System Documents

1. Purchase Order: Phase-I 100kWp PV Solar On Grid Rooftop Power Plant

 <p>SSBT BAMBHORI, JALGAON ISO 9001:2008</p>	<p><i>Shrama Sadhana Bombay Trust's</i> COLLEGE OF ENGINEERING AND TECHNOLOGY BAMBHORI, POST BOX NO. 94, JALGAON - 425001 (M.S.) <u>Included under section 2 (f) & 12 (B) of the UGC Act, 1956</u> Grade B ++ (2.91) NAAC Accredited</p>																						
Website- www.sscetjalgaon.ac.in Email: sscetjal@gmail.com Principal: Dr. K.S.Wani M. Tech., DBM, Ph.D.	BY HAND	Phone No: (0257) 2258393 Fax No. (0257) 2258392																					
Ref. No.COET/1090/07/17		Date: 25 JUL 2017																					
	Purchase Order																						
To,																							
Shri Arun Jalan Vice President, Jakson Engineers Limited, 302, Sai Samarth, Deonar Village Road, Govandi(E) Mumbai 400088 Tel: 02225564454,25565666																							
Subject : Supply and installation of 100 kWp Solar Rooftop On-Grid Power Plant. Reference : Your Techno-commercial Proposal (JEL/SPV/COET/P_02A) submitted on 21/07/2017 through E-mail.																							
Dear Sir,																							
With reference to the subject cited above and proposal submitted by you, we are pleased to inform that your said proposal has been sanctioned. The details of the Purchase Order for the supply, installation, testing, commissioning and other terms and conditions of the 100kWp Solar Rooftop On-Grid Power Plant is as follows.																							
Product Description: The solar power Generating System consists of Solar Photovoltaic Modules to generate DC Electricity. The inverter would convert the DC power. This AC power is fed into the grid and or supplied to the load.																							
Design of Solar System:																							
<table border="1"><thead><tr><th>S. No.</th><th>Description</th><th>Values</th></tr></thead><tbody><tr><td>1</td><td>Site</td><td>SSBT's College of Engineering and Technology, Bambhori, Jalgaon 425001(MS)</td></tr><tr><td>2</td><td>Number of PV Plates</td><td>322+2% Modules of 310Wp or equivalent combination</td></tr><tr><td>3</td><td>Generating Voltage</td><td>415 Volt at AC Side (LT)</td></tr><tr><td>4</td><td>Module Orientation</td><td>South Facing</td></tr><tr><td>5</td><td>Power Warranty</td><td>Min 90% of rated (STC) power at the end of 10th year and 80% of rated (STC) power at the end of 25th year</td></tr><tr><td>6</td><td>Type of Inverter</td><td>String type pure sine wave.</td></tr></tbody></table>	S. No.	Description	Values	1	Site	SSBT's College of Engineering and Technology, Bambhori, Jalgaon 425001(MS)	2	Number of PV Plates	322+2% Modules of 310Wp or equivalent combination	3	Generating Voltage	415 Volt at AC Side (LT)	4	Module Orientation	South Facing	5	Power Warranty	Min 90% of rated (STC) power at the end of 10 th year and 80% of rated (STC) power at the end of 25 th year	6	Type of Inverter	String type pure sine wave.		
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SSBT Programs - Engineering: Bio-Technology, Chemical, Civil, Computer, Electrical, Electronics & Telecommunication, Information Technology, Mechanical PG Programs - Engineering: Civil, Computer, Electrical, Electronics & Telecommunication, Mechanical - Management: MBA																							

Bill of Quantity:

S. No	Description	Make	Quantity
1	Solar PV Modules(Solar panels)	Jakson	322 +2% Modules of 310 Wp
2	Module Mounting Structure (GI Metal Roof)	Jakson/Jakson Approved	1Set
3	AC &DC Cable	KEI/Havells/Jakson Approved	1Set
4	String Combiner Boxes	Jakson/Jakson Approved	1Set
5	Solar AC String Inverters	Delta/Kaco/ Jakson Approved	1Set
6	Earthing Pits	Jakson/Jakson Approved	1Set
7	Module Clearing System (Pressure pump with Base Moving Arrangement)	Jakson/Jakson Approved	1Set
8	Remote Monitoring System (Pyranometer Class II, Module Temp. Sensor, Ambient Temp. Sensor etc)	Jakson/Jakson Approved	1Set

Cost:

S. No.	Description	Price(INR)
1	Turnkey On-Grid Rooftop Solar Power Plant 100kWp: Design, Supply , Installation and Commissioning Jakson Make	Rs 35,00,000/-
2	Total Project Cost	Rs 35,00,000/-
		Rupees Thirty five lakh only
3	Net Metering Hardware-Net meter CTs and PTs etc	At Actual

Terms and condition:

1. Payment terms

- 25% of Project value advance against Purchase Order Rs 875000/- by RTGS on 24/07/17 Ref No UTR MAHBH17205372233
- 5% on submission of technical drawings
- 60% before dispatch of material(Pro-rated)
- 10% on installation
- All the payment within 5 days from the date of submission of bills/Invoice.
- Late payment will be subject to interest of 1.5% per month

2. Taxes and Duties

- Above Prices are exclusive of GST
- Any change /modification/addition except below structure shall be paid extra
 - Supply (90% of Project cost): GST @ 5% on Solar Power Generating System
 - Installation & Commissioning (10% of Project Cost) : GST @ 18 %

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JG Programs - Engineering: Bio-Technology, Chemical, Civil, Computer, Electrical, Electronics & Telecommunication, Information Technology, Mechanical
 PG Programs - Engineering: Civil, Computer, Electrical, Electronics & Telecommunication, Mechanical
 - Management: MBA

3. Delivery and Execution Period: 4 Months from the date of technically and commercially clear order
4. System Warranty: All Equipment shall carry original equipment warranty from manufacturer
 - a. SPV Modules shall have 10years Mechanical and 25 years Power Performance Warranty (Back to Back)
 - b. Inverter shall have 5 Year comprehensive warranty (Back to Back)
 - c. Balance of System will be covered for 1 year by Jakson Engineers Ltd.
5. Annual Maintenance Contract (AMC) will be free of cost for 2 years after Commissioning of Plant
6. Maintenance & Educational Training will be provided to staff and students in context with Solar Power Plant
7. Scope of Work Matrix

Sr. No	Work Description	Jakson	SSBT's COET, Jalgaon
1	SPV Module Supply ,installation, Testing and Commissioning	✓	
2	Module Mounting Structure (MMS) with required Hardware and Accessories Supply ,installation, Testing and Commissioning	✓	
3	DC Solar and Power Cable with required Hardware and Accessories like Conduit, Glands, Cable Tie, Ferrules etc. Supply ,laying , installation, Trench work, Testing and Commissioning	✓	
4	Solar Inverters (String Inverters) Supply ,installation, Testing and Commissioning	✓	
5	AC Solar Cable with required Hardware and Accessories like Conduit, Glands, Cable Tie, Ferrules etc. Supply ,laying , installation, Trench work, Testing and Commissioning	✓	
6	Module Cleaning – Plumbing System Supply ,installation, Testing and Commissioning	✓	
7	Remote Monitoring System Supply ,installation, Testing and Commissioning	✓	
8	LT/Control/Communication Cable with required Accessories Supply ,installation, Testing and Commissioning	✓	
9	Complete Earthing System and LA Protection Supply ,Civil work installation, Testing and Commissioning	✓	
10	Solar Simulation Report Base on Radiation Data , Plant Design and Soil Condition	✓	
11	Approvals/ Liasoning work Liasoning works and paper work documentation for approval from 1. CEIG approval 2. Grid Synchronization 3. Net Metering	✓	✓
12	Access to the Roof(Ladder or Stair Case)		✓
13	Transportation	✓	
14	Unloading and Shifting of Material on Site	✓	

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Programs - Engineering: Bio-Technology, Chemical, Civil, Computer, Electrical, Electronics & Telecommunication, Information Technology, Mechanical
 - Management: MBA

8. Jakson Engineers Ltd will assist in getting approvals from various government departments for this project. However, the college will bear all statutory charges, fees and incidental expenses related to CEIG/ any other required approval
9. The College will Provide:
- Clear, shadow free, south facing area for SPV Module
 - Site Access, Physical space and utility for installation and commissioning of Solar Project
 - Access to rooftop via staircase for installation and maintenance solar power plant.
 - Spare Feeder of requisite capacity
 - Power evacuation is considered to be supplied LT Panel/Spare Feeder only. Cabling from supplier's feeder to existing LT Panel
 - Lockable storage space, water and electricity during the time of construction
 - Structure cost, if incurred extra, due to site condition shall be charged extra at actual
10. Dispute Resolution: Arbitration court of Jalgaon
11. Both parties, Jakson Engineers Ltd and College will sign MOU before commencement of project

Please supply the 100kWp Solar Power Plant within stipulated time frame along with warranty and bill in triplicate for needful.

Thanking you.



Yours faithfully,

K S Wani
25.7.17

Dr. K S Wani

Principal
PRINCIPAL

SSBT's College of Engg. & Technology
Bambhori, Jalgaon-425001 (M.S.)

Copy to:

1. Account Registrar
2. Deputy Registrar
3. Store
4. Site Engineer (Civil)
5. Site Engineer (Electrical)

Accepted
Arun Jalan
02 Aug 2017

Arun Jalan



6] Minutes of Meeting

4

SSBT'S COLLEGE OF ENGINEERING AND TECHNOLOGY, BAMBHORI, JALGAON

The First meeting of College Development Committee was held on 30/08/2017 in Conference Hall of SSBT's COET, Bambhori, Jalgaon. The following members are present in the meeting.

The following members are present:-

- 1) Shri Raosaheb alias Rajendrasingh D. Shekhawat, Chairman
- 2) Shri. Y.K. Chitte, Member
- 3) Dr. G.K. Patnaik, Member
- 4) Dr. S.B. Pawar, Member
- 5) Shri. S.R. Girase, Member
- 6) Dr. K.N. Patil, Member
- 7) Shri. B.L. Ahirrao, Member
- 8) Dr. S.P. Shekhawat, Member
- 9) Dr. K.S. Wani, Principal & Ex officio Member Secretary

The following members were unable to attend the meeting

- 1) Shri. M.M. Ansari, Member
- 2) Mrs. Meera Deshpande, Member
- 3) Shri. V.S. Mahajan, Member
- 4) Dr. K.B. Patil, Member

The following are the minutes of the meeting:

1) To apprise the Admission Status for the A.Y.2017-18

The admission status for the A.Y. 2017-18 as given below is apprised.

First Year Engg./M.E./M.B.A. Admission Position : 2017-18

Sr. No.	Branch	Intake	CAP Admitted	Institute Admitted	Total Admission	Vacancy	Admissions Over and above Sanction Intake	
							J&K Quota	TFWS
1	BIOTECH	30	18	6	24	6	0	2



7) **To discuss and grant the permission for Research Labs. (Recognition for Post Graduate Research Lab.)**

After discussion the permission for renewal of Research Labs. (Recognition for Post Graduate Research Lab.) of E&TC & Mechanical Departments and to submit proposal for starting of Research Labs. (Recognition for Post Graduate Research Lab.) in Computer Engg. & Electrical Engg. is granted. It is decided to submit the proposal of the same to the university as and when required.

8) **To approve the Students' Innovation Project Funding Scheme**

The proposal for implementation of Shram Sadhana Innovation & Entrepreneurship Development Centre was read. After discussion it is decided to allocate the budget of Rs.4 Lakhs for this project funding scheme. However, the funding should be given only to the Innovative Projects of the students mentored by the faculty members.

9) **To apprise the charge of HOD, Applied Science Dept.**

Since Dr. Vrishali Edlabadkar, HOD, Applied Science Dept. has resigned, the charge of HOD, Applied Science Dept. is given to Dr. K.S. Patil. The same has been appraised and approved.

10) **To apprise the completion of Ph.D by Shri. P.G. Damle**

The completion of Ph.D. by Shri. P.G. Damle is appraised.

11) **To apprise of the retirement of the Non-Teaching Staff**

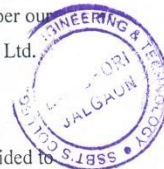
The retirement of Shri. A.D. Patil, Sr. Clerk & Shri. Adharsingh Patil, Helper respectively on 31/12/2017 & 20/01/2018 was appraised. It is decided to appoint contractual staff in their place after their retirement.

12) **To apprise and approve the design of 100 Kwp. Solar Power Plant to be installed on the roof top of front building**

The design and proposals of 100 Kwp. Solar Power Plant to be installed on the roof top of front building was appraised. The design and the proposal is approved. The changes in design as per our Site Engineer, Civil is to be informed to Mr. Arun Jalan, Vice President, Jackson Engineers Ltd.

13) **To discuss on the requirement of Lift for Differently Able Students**

The requirement of Lift for Differently Able Students was put up. After discussion it is decided to identify the place for the installation of Lift and the quotations are to be called.



14) Any other subject with the permission of Chair

1) To sanction the Annual Increment for the year 2017-18

The Annual Increment for the year 2017-18 w.e.f. July, 2017 is sanctioned for all the staff members except to the Teaching Staff of E&TC & IT Dept. as the admissions in these departments are very poor.

2) Meeting with HODs

The meeting with HODs was done. The committee congratulated the HODs for the efforts taken to fulfill the admissions. The admission position in E&TC & IT Branch is as follows:

Sr. No.	Branch	Year	Intake	Admitted	Vacant Seats
1	E&TC	1 st	60	33	27
2.	E&TC	2 nd	118	37	81
3.	IT	1 st	60	46	14
4.	IT	2 nd	49	23	26

The committee informed HODs of E&TC & IT Dept. to take more efforts to fulfill the admissions for next year failing which the salary of the staff members of E&TC & IT Depts. will be curtailed.

3) Requirement of Gym Trainer

The requirement of Gym Trainer was put up. Principal informed that one of our faculty Member Mr. Bhupendra Patil is willing to train the students. It is decided to give him the charge of Gym Trainer. He will be paid honorarium of Rs.3000/- per month and provided free Bachelor's accommodation in hostel for this work.

4) Re-appointment of Shri. B.C. Kachhava, Hostel Superintendent

Shri. B.C. Kachhava was appointed as a Rector on Temporary basis after his retirement. He was attacked by GBS Syndrome and was hospitalized. He has given distinguished services to the institute. Considering this, he is to be re-appointed as Hostel Superintendent. The Wheel Chair is to be purchased for him. He is to be provided college driver for Physiotherapy. The diesel expenses for this will be borne by the college.

5) Training on Work Culture for Non Teaching Staff

The proposal for Training on Work Culture for Non Teaching staff by Gokhale's Advanced Training Institute was put up. The proposal is accepted and the training for the same is to be conducted.



6) **Duties of Shri. U.B. Patil**

Shri. U.B. Patil will do his routine duties except the work of garden and assist Shri. B.C. Kachhava, Hostel Superintendent for maintaining the discipline in the hostel.

7) **Sponsorship of Robocon 2018 (National Level Robotic Competition)**

The application of Mechanical Engg. dept. to sanction an amount of Rs.1,76,680/- for sponsoring the manufacturing of Robot 2018 to be participated in the Annual National Level Robocon competition organized by Asia Pacific Broadcasting Union in MIT, Pune was put up. The same has been accepted.

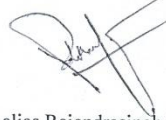
8) **To send the proposal for Continuation of Affiliation for the A.Y. 2018-19 to North Maharashtra University, Jalgaon.**

It is decided to send the proposal for Continuation of Affiliation for the A.Y. 2018-19 to North Maharashtra University, Jalgaon.

The meeting ended with vote of thanks to Chair.



Dr. K.S. Wani
Principal



Shri. Raosaheb alias Rajendrasingh D. Shekhawat
Chairman



Registrar
SSBT's College of Engineering & Technology
Bambhori, Jalgaon - 425001(M.S.)