SBI

Reference No.	CTM4698961
Debit Account Number	00000035844571113
Debit Branch	PATTAMUNDAI
Remarks	Solar Installation
Transaction Date	01-Feb-2021
Amount	INR 2,95,000.00
Status	Success
Reason	Completed Successfully

Attested

7.3.4

Principal
Pattamundai College

PATTAMUNDAI COLLEGE ★ OFFICE OF THE PRINCIPAL ★ ESTD-1970 No..... Date.....

GSTIN : 21AMNPM1518J1Z5

Original Copy

TAX INVOICE

SWARNA TYRES***

SWARNA TYRES, BUS STAND,JAGATSINGHPUR
PH NO-9437666395

Invoice No.	: GST-2299-20/21	Transport	:
Date of Invoice	: 24-01-2021	Vehicle No.	:
Place of Supply	: Odisha (21)	Station	:
Reverse Charge	: N	E-Way Bill No.	:
GR/RR No.	:		

Billed to :
PRINICIPAL PATTAMUNDAI COLLEGE
PATTAMUNDAI
KENDRAPARA

GSTIN / UIN :

Shipped to :
PRINICIPAL PATTAMUNDAI COLLEGE
PATTAMUNDAI
KENDRAPARA

GSTIN / UIN :

S.N.	Description of Goods	HSN/SAC Code	Qty.	Unit	Price	CGST Rate	CGST Amount	SGST Rate	SGST Amount	Amount(₹)
1.	LUMINOUS SOLAR PCU RKT+ 7.5 KVA 96V	85044010	1.00	Pcs.	49,067.80	9.00 %	4,416.10	9.00 %	4,416.10	57,900.00
2.	SOLAR PV MODULE 330W/24V 72C POLY	85414012	20.00	PCS	7,323.81	2.50 %	3,661.90	2.50 %	3,661.90	1,53,800.00

Passed for Rs. 283700/-
(Rupees Two lakh eighty three thousand seven hundred) only

Principal
Pattamundai Jr. College
30/01/21

30.1.21

	2,11,700.00
Add : INSTALATION CHARGES	72,000.00
Grand Total 21.00 Units	₹ 2,83,700.00

Tax Rate	Taxable Amt.	CGST Amt.	SGST Amt.	Total Tax
18%	49,067.80	4,416.10	4,416.10	8,832.20
5%	1,46,476.20	3,661.90	3,661.90	7,323.80
Totals	**1,95,544.00**	**8,078.00**	**8,078.00**	**16,156.00**

7.3.21

Rupees Two Lakh Eighty Three Thousand Seven Hundred Only
Party - 2,83,700.00

Principal
Pattamundai College

Terms & Conditions

E.& O.E.

1. Goods once sold will not be taken back.
2. Interest @ 18% p.a. will be charged if the payment is not made with in the stipulated time.
3. Subject to 'Odisha' Jurisdiction only.

Receiver's Signature :

for SWARNA TYRES*

Authorised Signatory

GSTIN : 21AMNPM1518J1Z5

Original Copy

TAX INVOICE

SWARNA TYRES***

SWARNA TYRES, BUS STAND,JAGATSINGHPUR
PH NO-9437666395

Invoice No.	: GST-2300-20/21	Transport	:
Date of Invoice	: 24-01-2021	Vehicle No.	:
Place of Supply	: Odisha (21)	Station	:
Reverse Charge	: N	E-Way Bill No.	:
GR/RR No.	:		

Billed to :
PRINICIPAL PATTAMUNDAI COLLEGE
PATTAMUNDAI
KENDRAPARA

GSTIN / UIN :

Shipped to :
PRINICIPAL PATTAMUNDAI COLLEGE
PATTAMUNDAI
KENDRAPARA

GSTIN / UIN :

S.N.	Description of Goods	HSN/SAC Code	Qty.	Unit	Price	CGST Rate	CGST Amount	SGST Rate	SGST Amount	Amount(₹)
1	LUM 150AH 12V ILTT18000N BATTERY	8507	1.00	Pcs.	8,828.12	14.00 %	1,235.94	14.00 %	1,235.94	11,300.00

Passed for Rs. 11300/-
(Rupees Eleven thousand three hundred .....)only

Principal
Pattamundai Jr. College
30.1.21

Grand Total 1.00 Pcs. ₹ 11,300.00

Tax Rate	Taxable Amt.	CGST Amt.	SGST Amt.	Total Tax
28%	8,828.12	1,235.94	1,235.94	2,471.88

Rupees Eleven Thousand Three Hundred Only
Party - 11,300.00

Attested
30.1.21
Principal
Pattamundai College

Terms & Conditions

E.& O.E

1. Goods once sold will not be taken back.
2. Interest @ 18% p.a. will be charged if the payment is not made with in the stipulated time.
3. Subject to 'Odisha' Jurisdiction only

Receiver's Signature :

for SWARNA TYRES***

Authorised Signatory

Government of India

Form GST REG-06

[See Rule 10(1)]

Principal
Pattamundai College

29.12.20

Registration Certificate

Registration Number : 21AMNPM1518J1Z5

1.	**Legal Name**	JITENDRA MALLICK			
2.	**Trade Name, If any**	M/S. SWARNA TYRES			
3.	**Constitution of Business**	Proprietorship			
4.	**Address of Principal Place of Business**	DEULIGRAMESWAR, DEULIGRAMESWAR, JAGATSINGHPUR, SANABAZAR, Jagatsinghapur, Odisha, 754103			
5.	**Date of Liability**	01/07/2017			
6.	**Period of Validity**	From	01/07/2017	To	NA
7.	**Type of Registration**	Regular			
8.	**Particulars of Approving Authority**				

Signature

Signature Not Verified
Digitally signed by GS GOODS AND SERVICES TAX NETWORK 1
Date: 2018.07.28 14:55:06 IST

Name	
Designation	
Jurisdictional Office	
9. Date of issue of Certificate	28/07/2018

Note: The registration certificate is required to be prominently displayed at all places of business in the State.

This is a system generated digitally signed Registration Certificate issued based on the deemed approval of application on 01/07/2

7.3.4
Principal
Pattamundai College

Jitendra Mallick

SWARNA TYRES

GANDHI CHHAK, JAGATSINGHPUR,
ODISHA - 754103
MOB.: 9437666395

MRF TYRES EXCLUSIVE DEALER

MOB.9437666395

REF:12/SW/2020

DATE:16.12.2020

To
The Prinicipal
Pattamundai college
Pattamundai ,kendrapada

	QNT	AMOUNT
LUMINOUS PCU7.5KVA-96V1N-B150 H8N-P330W-20N (PCU7.5KVA-1PCS,B150H-8PCS, 330W PANNEL-20NOS)	1SET	300500

LUMINOUS PCU 7.5 KVA	1PCS	57900
LUMINOUS Poly 330W/24V 72 Cells	20NOS	153800

TOTAL AMOUNT		512200

INSTALATION 12RUPEES PER WATT INCLUDING EARTHING	72000*2	144000

100% Advance in payment
DELIVERY:-Within 15 days from date of your confirmed order.
Delivery against cash of DD Hope the above price terms and condition with suit you will be pleased to place your valued order with us at an early date.

Thanking you

yours faithfully
Swarna tyres

Attested

7.3.21

Principal
Pattamundai College

OFFICE OF THE PRINCIPAL
PATTAMUNDAI COLLEGE, PATTAMUNDAI

No. 666 /Dt. 10/07/2020

NOTICE

The online classes of +3 2nd year (3rd Semester) and +3 3rd year (5th Semester) Arts, Science, Commerce shall be commencing from 13th July 2020 through Google Meet, Zoom, Skype etc. The Students are advised to download these apps in their mobile in order to attend the classes. The timetable of different departments are available with their respective HOD, it is also uploaded in their WhatsApp group. Students are to remain present in the classes as attendance will be taken by the teacher.

If they have any query / complain /suggestion etc. they can contact with the following staff members who are assigned to monitor these classes.

1. Science Stream :-Mr. Sanjib Kumar Dash, Mob-9938493379
2. Commerce Stream :-Dr. Nilamani Lenka , Mob-9438329950
3. Arts (English, Odia, Sociology & Philosophy) :-Mr. Dillip Kumar Bhuyan,Mob-9437383989
4. Arts (Economics, Education, Pol.Sc & History):- Capt. Manoj Parida, Mob-9861329944

Principal 10.7.2020
Pattamundai College

Copy to:- Noticeboard /Website/Staff Common Room / Guard file.

PATTAMUNDAI CLLEGE

PATTAMUNDAI

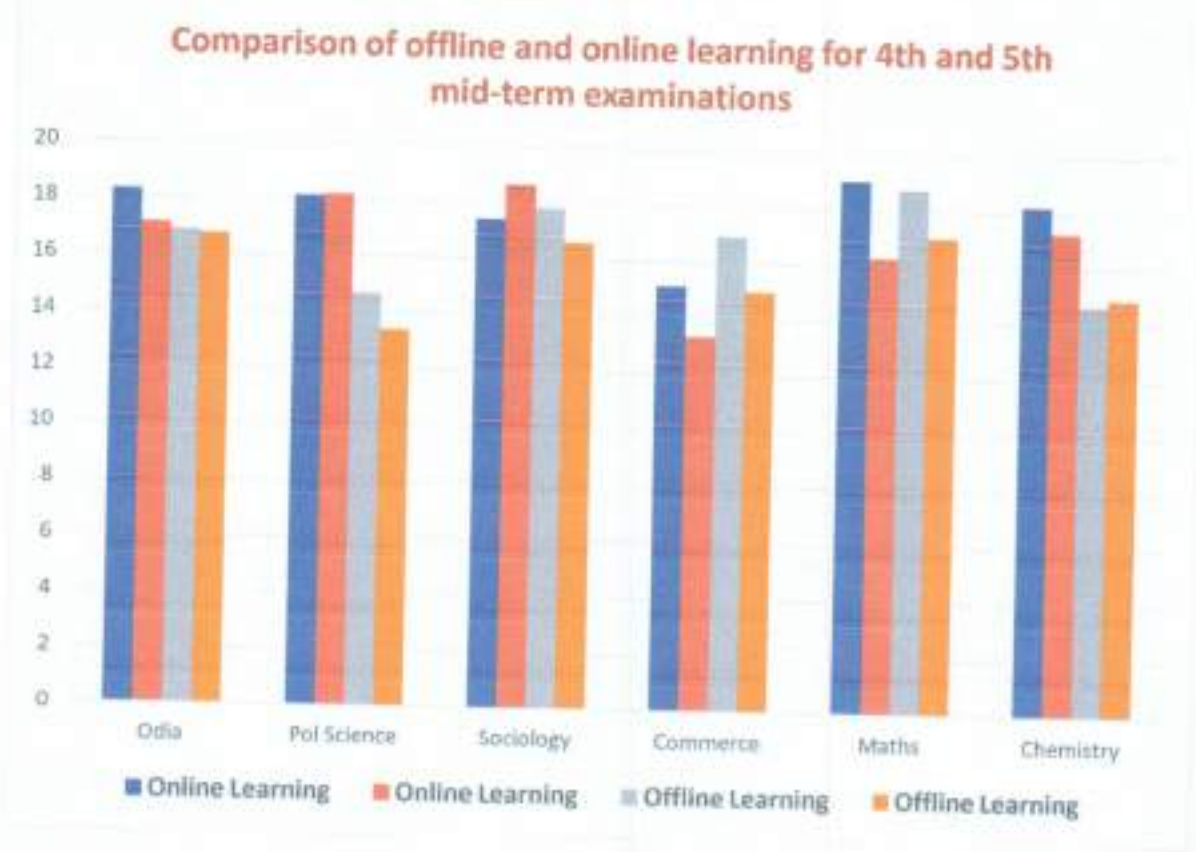
Comparison between 4th and 5th Mid-Term Examinations Result

Table showing the average marks scored by students of 4th mid-term examination of offline classes in Core 8 and Core 9 in different subjects. The full marks for all the streams are 20.

Subject	Core-8 average marks	Core-9 average marks
Odia	16.87	16.74
Pol Science	14.70	13.40
Sociology	17.82	16.61
Commerce	16.96	14.98
Mathematics	18.73	17
Chemistry	14.67	14.89

Table showing the average marks scored by students of 5th mid-term examination of online classes in Core 11 and Core 12 in different subjects. The full marks for all the streams are 20.

Subject	Core-11 marks	Core-12 marks
Odia	18.29	17.13
Pol Science	18.14	18.19
Sociology	17.42	18.64
Commerce	15.15	13.35
Mathematics	19	16.26
Chemistry	18.18	17.26



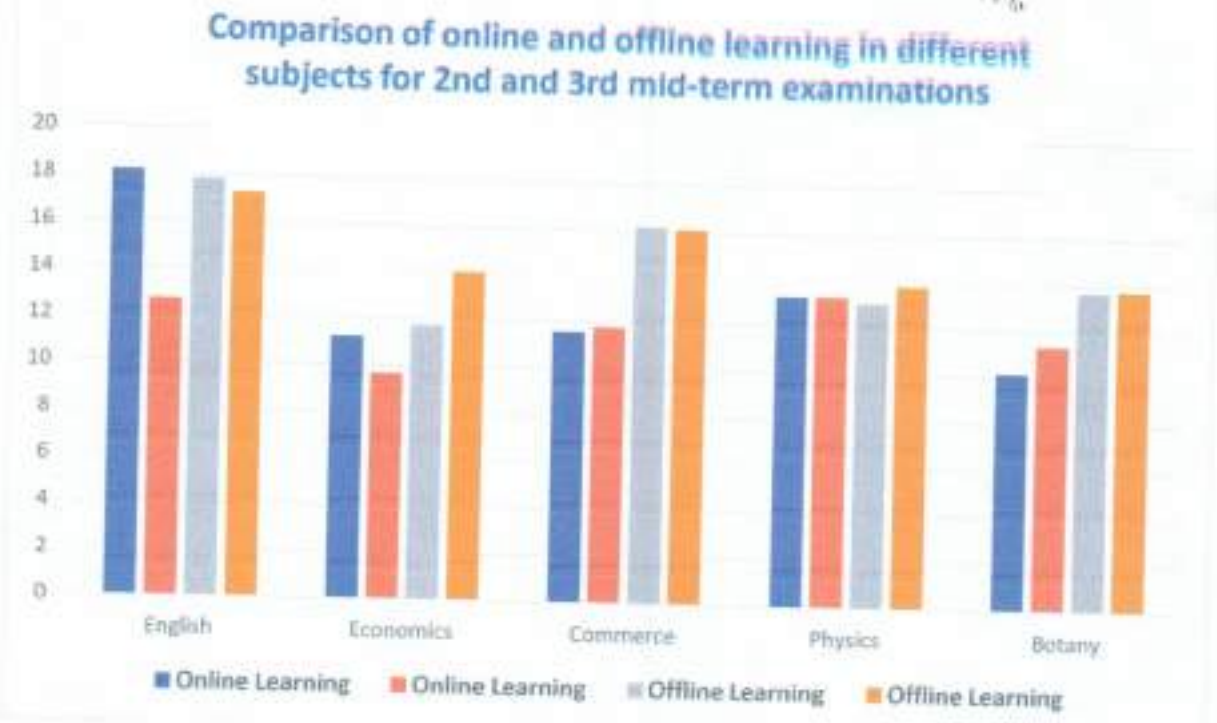
Comparison between 2nd and 3rd Mid-Term Examinations Result

Table showing the average marks scored by students of 2nd mid-term examination of offline Classes in Core 3 and core-4 of different subjects. The full marks for arts and commerce subjects are 20 while for science its 15.

Subject	Core-3 average marks	Core-4 average marks
English	17.83	17.25
Economics	11.70	14.04
Commerce	16.14	16.05
Physics	13.04	13.79
Botany	13.66	13.73

Table showing the average marks scored of 3rd mid-term examination of online classes in Core 5 and Core 6 in different subjects by same students. The full marks for arts and commerce subjects are 20 while for science subject its 15.

Subject	Core-5 marks	Core-6 marks
English	18.17	12.66
Economics	11.21	9.61
Commerce	11.56	11.78
Physics	13.29	13.29
Botany	10.13	11.33



Prof. in charge of Examinations

Principal

Pattamundai College

Principal
Pattamundai College

INVOICE

Zoom Communications Inc.
[illegible] Blvd, 6th Floor
[illegible], CA 95113
zoom.us

Invoice Date:	02/13/2021
Invoice #:	INV68503371
Payment Terms:	Due Upon Receipt
Due Date:	02/13/2021
Account Number:	3005092184
Currency:	USD
Account Information:	Pattamundai College Pattamundai, Kendrapara, Odisha 754215 India

pattamundaicollege@gmail.com

Remittance Details should be sent to
finance@zoom.us

Purchase Order Number:

Customer VAT/Tax Number:

Zoom W-9

CHARGE DETAILS

Charge Description	Service Period	Subtotal	Tax	TOTAL
Charge Name: Standard Pro Monthly Quantity: 1 Unit Price: $14.99	02/13/2021-03/12/2021	$14.99	$0.00	$14.99

INVOICE TOTALS

Subtotal:	$14.99
Total (Including Tax):	$14.99
Invoice Balance:	$0.00

TAX DETAILS

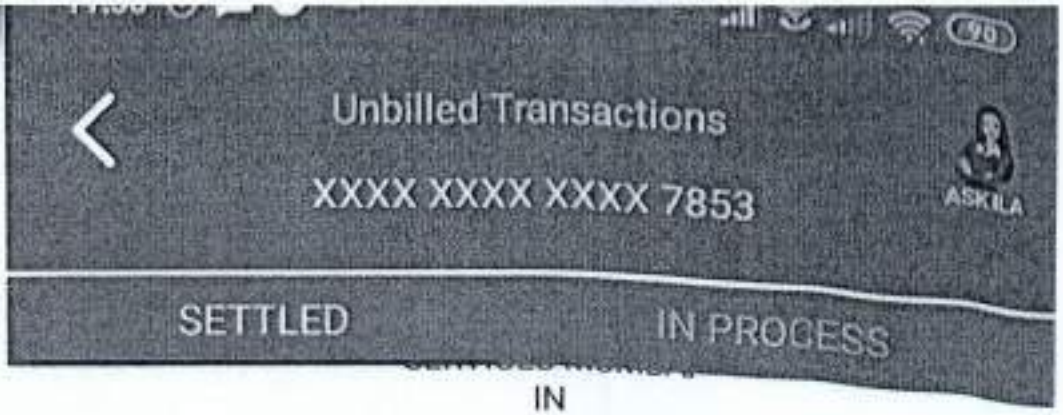
Charge Name	Tax Name	Jurisdiction	Charge Amount	Tax Amount
			Total Tax	**$0.00**

TRANSACTIONS

Invoice Total	**$14.99**

Principal
Pattamundai College

Paid by me
Manas Kumar Nayak



	IN	
11-02-2021	AMAZON SELLER SERVICES MUMBAI IN	₹ 279.00 DR
13-02-2021	AMAZON SELLER SERVICES MUMBAI IN	₹ 549.00 DR
13-02-2021	ZOOM.US 8887999666 CA	₹ 1092.40 DR
13-02-2021	02/13/21 14.99 USD	₹ 0.00 CR
13-02-2021	CURRENCY CONVER-SION FE(EXCL TAX 6.88)	₹ 38.23 DR
13-02-2021	IGST INCLUDING CESSES DR (ORI)	₹ 6.88 DR
15-02-2021	AMAZON SELLER SERVICES MUMBAI IN	₹ 599.00 DR
15-02-2021	AMAZON SELLER SERVICES MUMBAI IN	₹ 279.00 CR
16-02-2021	AMAZON SELLER SERVICES MUMBAI	₹ 359.00 DR

INVOICE

Invoice Date:	11/13/2020
Invoice #:	INV51791754
Payment Terms:	Due Upon Receipt
Due Date:	11/13/2020
Account Number	3005092184
Currency:	USD
Account Information:	Pattamundai College Pattamundai, Kendrapara, Odisha 754215 India pattamundaicollege@gmail.com

CHARGE DETAILS

Charge Description	Service Period	Subtotal	Tax	TOTAL
Charge Name: Standard Pro Monthly Quantity: 1 Unit Price: $14.99	11/13/2020-12/12/2020	$14.99	$0.00	$14.99

INVOICE TOTALS

Subtotal:	$14.99
Total (Including Tax):	$14.99
Invoice Balance:	$0.00

TAX DETAILS

Charge Name	Tax Name	Jurisdiction	Charge Amount	Tax Amount
			Total Tax	$0.00

TRANSACTIONS

Invoice Total	$14.99

2020

A RANJAN NAYAK

XXXXXXXXXXXXX@GMAIL.COM
le XXXXXX1333

My Card XXXX-XXXX-XXXX-5193

Unbilled Transactions

Account status as of 17 Nov 2020 since last statement

Settled Transactions

Date	Description	Type	Amount Spent (*Rs.*)
14/11/2020	IGST INCLUDING CESSES DR (ORI)	Debit	7
14/11/2020	CURRENCY CONVERSION FE(EXCL TAX 7.06)	Debit	39
14/11/2020	ZOOM.US 8887999666 CA	Debit	1,120
13/11/2020	Accelyst Solutions Pvt MUMBAI IND	Debit	29
13/11/2020	SHIVA SANKAR STORE KENDRAPARA ODI	Debit	2,680
09/11/2020	SHIVA SANKAR STORE KENDRAPARA ODI	Debit	3,120
06/11/2020	EASY TRIP PLANNERS LTD BANGALORE KAR	Debit	26,016

1166.00

Transactions under Settlement

Date	Description	Type	Amount Spent (*Rs.*)

There are no transactions linked with this Card.

Passed Cr Rs 1166.00 (Rupees One thousand one hundred sixty six only)

Principal
Pattamundai College

18/11/2020

oom

INVOICE

...action Date	Transaction Number	Transaction Type	Description	Applied Amount
.../13/2020	P-43894649	Payment		($14.99)
			Invoice Balance	**$0.00**

...om Phone services provided by Zoom Voice Communications, Inc. Rates, terms and conditions for Zoom Phone services are set by Zoom ...ice Communications, Inc.

020

RANJAN NAYAK
XXXXXXXXXXXX@GMAIL.COM
XXXXXX1333

My Card XXXX-XXXX-XXXX-5193

ansactions History

ount status for the period from 14-Aug-2020 to 14-Aug-2020.

Transaction History

Date	Description	Type	Amount Spent (Rs.)
14/08/2020	IGST INCLUDING CESSES DR (ORI)	Debit	7.07
14/08/2020	CURRENCY CONVERSION FE(EXCL TAX 7.07)	Debit	39.28
14/08/2020	08/14/20 14.99 USD	Monthly Installments	0.00
14/08/2020	ZOOM.US 8887999666 CA	Debit	1122.38
		Total-	1168.73

Passed for Rs 1169-00
(Rupees One thousand one hundred sixty-nine only)

Principal
Pattamundai College

18.8.20

Paid by MR
Jyotiranjan Nayak

INVOICE

ideo Communications Inc.
aden Blvd, 6th Floor
ose, CA 95113
@zoom.us

Invoice Date:	10/13/2020
Invoice #:	INV46427225
Payment Terms:	Due Upon Receipt
Due Date:	10/13/2020
Account Number	3005092184
Currency:	USD
Account Information:	Pattamundai College Pattamundai, Kendrapara, Odisha 754215 India

pattamundaicollege@gmail.com

Remittance Details should be sent to
Finance@zoom.us

Purchase Order Number:

Customer VAT/Tax Number:

Zoom W-9

CHARGE DETAILS

Charge Description	Service Period	Subtotal	Tax	TOTAL
Charge Name: Standard Pro Monthly Quantity: 1 Unit Price: $14.99	*10/13/2020-11/12/2020*	*$14.99*	*$0.00*	*$14.99*

INVOICE TOTALS

Subtotal:	$14.99
Total (Including Tax):	$14.99
Invoice Balance:	$0.00

TAX DETAILS

Charge Name	Tax Name	Jurisdiction	Charge Amount	Tax Amount
			Total Tax	**$0.00**

TRANSACTIONS

Invoice Total	**$14.99**

JYANA RANJAN NAYAK
Email:
NAXXXXXXXXXXXXXXXXX@GMAIL.COM
Mobile: XXXXXXX1333

My Card XXXX-XXXX-XXXX-5193

Unbilled Transactions

Account status as of 15 Oct 2020 since last statement

Settled Transactions

Date	Description	Type	Amount Spent (*Rs.*)
13/10/2020	IGST INCLUDING CESSES DR (ORI)	Debit	6
13/10/2020	CURRENCY CONVERSION FE(EXCL TAX 6.94)	Debit	38
13/10/2020	ZOOM US 8887999666 CA	Debit	1,101
	Total –		1145.00

Transactions under Settlement

Date	Description	Type	Amount Spent (*Rs.*)

There are no transactions linked with this Card

paid by me
Jyana Ranjan Nayak

Passed for Rs 1145.00 – (Rupees One thousand one hundred forty-five only)
17.10.20
Principal
College

15 Sep 2020

JYANA RANJAN NAYAK
Email:
NAXXXXXXXXXXXXXX@GMAIL.COM
Mobile: XXXXXX1333

My Card XXXX-XXXX-XXXX-5193

Unbilled Transactions

Account status as of 15 Sep 2020 since last statement.

Settled Transactions

Date	Description	Type	Amount Spent (Rs.)
13/09/2020	IGST INCLUDING CESSES DR (ORI)	Debit	6
13/09/2020	CURRENCY CONVERSION FE(EXCL TAX 6.94)	Debit	38
13/09/2020	ZOOM.US 8887999666 CA	Debit	1,101

Rs. 1145

Passed for Rs 1145/-
(Rupees One thousand one hundred forty-five ..... only

Principal
Pattamundai College
16.9.20

bom

INVOICE

Video Communications Inc.
naden Blvd, 6th Floor
Jose, CA 95113
@zoom.us

Invoice Date:	09/13/2020
Invoice #:	INV41147323
Payment Terms:	Due Upon Receipt
Due Date:	09/13/2020
Account Number:	3005092184
Currency:	USD
Account Information:	Pattamundai College Pattamundai, Kendrapara, Odisha 754215 India

pattamundaicollege@gmail.com

Remittance Details should be sent to:
finance@zoom.us

Purchase Order Number:

Customer VAT/Tax Number:

Zoom W-9

CHARGE DETAILS

Charge Description	Service Period	Subtotal	Tax	TOTAL
Charge Name: Standard Pro Monthly Quantity: 1 Unit Price: $14.99	09/13/2020-10/12/2020	$14.99	$0.00	$14.99

INVOICE TOTALS

Subtotal:	$14.99
Total (Including Tax):	$14.99
Invoice Balance:	$0.00

TAX DETAILS

Charge Name	Tax Name	Jurisdiction	Charge Amount	Tax Amount
			Total Tax	$0.00

TRANSACTIONS

Invoice Total	$14.99

om

INVOICE

ideo Communications Inc.
den Blvd, 6th Floor
se, CA 95113
@zoom.us

Invoice Date:	08/13/2020
Invoice #:	INV35988736
Payment Terms:	Due Upon Receipt
Due Date:	08/13/2020
Account Number	3005092184
Currency:	USD
Account Information:	Pattamundai College Pattamundai, Kendrapara, Odisha 754215 India

pattamundaicollege@gmail.com

Invittance Details should be sent to:
hance@zoom.us

Purchase Order Number:

Customer VAT/Tax Number:

Zoom W-9

CHARGE DETAILS

Charge Description	Service Period	Subtotal	Tax	TOTAL
Charge Name: Standard Pro Monthly Quantity: 1 Unit Price: $14.99	08/13/2020-09/12/2020	$14.99	$0.00	$14.99

INVOICE TOTALS

Subtotal:	$14.99
Total (Including Tax):	$14.99
Invoice Balance:	$0.00

TAX DETAILS

Charge Name	Tax Name	Jurisdiction	Charge Amount	Tax Amount
			Total Tax	$0.00

TRANSACTIONS

Invoice Total $14.99

Transaction Date	Transaction Number	Transaction Type	Description	Applied Amount
08/13/2020	P-38305990	Payment		($14.99)

paid by ME
Jyoti Ranjan Nayak
14.08.20

zoom

Transaction Date	Transaction Number	Transaction Type	Description
01/28/2021	P-70759814	Payment	
01/28/2021	P-70759938	Payment	

Invoice Balance

Zoom Phone services provided by Zoom Voice Communications, Inc. Rates, terms and conditions for Zoom Phone services are set by Zoom Voice Communications, Inc.

Change Date Range

DATE	DESCRIPTION	AMOUNT
28-01-2021	01/28/21 14.99 USD	₹0.00
28-01-2021	ZOOM.US 8887999666 CA	₹1097.15Dr
28-01-2021	01/28/21 14.99 USD	₹0.00
28-01-2021	ZOOM.US 8887999666 CA	₹1097.15Dr
28-01-2021	IGST INCLUDING CESSES DR (ORI)	₹6.91Dr
28-01-2021	CURRENCY CONVERSION FE(EXCL TAX 6.91)	₹38.40Dr
28-01-2021	IGST INCLUDING CESSES DR (ORI)	₹6.91Dr
28-01-2021	CURRENCY CONVERSION FE(EXCL TAX 6.91)	₹38.40Dr
26-01-2021	DIRECT DEBIT	₹646.04Cr

Online

RESULT

+3 ARTS / ~~SCIENCE / COMMERCE~~

5th Semester Mid-Term (Internal) Exam, 2020

ıbject : Dept : SDIA Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSE-1	DSE-2	Remarks
	BA-18-010	2018	19	18	18	18	
	" 013	"	19	18	18	17	
	015	"	18	18	18	18	
	021	"	18	17	17	18	
	025	"	19	17	18	18	
	030	"	18	17	17	17	
	039	"	19	18	18	17	
	041	"	19	18	18	18	
	042	"	18	17	18	17	
	045	"	19	17	17	16	
	052	"	18	18	17	17	
	057	"	19	18	18	18	
	058	"	19	17	18	18	
	062	"	18	18	18	18	
	065	"	18	17	18	18	
	068	"	17	17	18	17	
	069	"	18	17	17	17	
	072	"	17	17	17	17	
	074	"	19	18	18	18	
	080	"	18	17	18	17	
	082	"	17	17	17	17	
	087	"	18	17	17	17	
	088	"	17	17	17	18	
	091	"	18	17	17	17	
	106	"	19	12	18	16	
	110	"	18	17	17	17	
	134	"	17	15	16	16	
	137	"	19	16	17	16	
	138	"	19	18	18	18	
	140	"	19	17	18	18	
	150	"	19	18	17	18	
	151	"	18	17	17	17	
	160	"	18	17	17	17	
	190	"	17	17	17	18	
	216	"	19	18	18	18	

17.12.20

xam-Asst
xam-Cell

Prof. In-Charge
Exam-Cell

A.O.D

Principal
Pattamundai College

Principal
Pattamundai College

RESULT

+3 ARTS / ~~SCIENCE / COMMERCE~~

Page 2

5th Semester Mid-Term (Internal) Exam, 2020

ıbject : Dept : ODIA Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSE-1	DSE-2	Remarks
	BA-18-217	2018	19	17	17	16	
	244	"	18	17	18	17	
	263	"	19	18	17	18	

Exam-Asstt.
Exam-Cell

Prof. In-Charge
Exam-Cell

H.O.D

17.12.20

Principal
Pattamundai College

RESULT

+3 ARTS / ~~SCIENCE / COMMERCE~~

5th Semester Mid-Term (Internal) Exam, 2020

ıbject : Dept : Political Science Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1)	BA-18-003	2018	19	18	17	18	
2)	007	2018	18	19	17	18	
3)	008	2018	18	18	18	18	
4)	025	2018	18	19	18	18	
5)	046	2018	18	18	17	18	
6)	050	2018	17	18	12	15	
7)	063	2018	19	19	18	16	
8)	078	2018	19	19	17	18	
9)	083	2018	18	18	18	18	
10)	089	2018	19	19	19	19	
11)	097	2018	19	19	19	19	
12)	099	2018	18	18	17	18	
13)	101	2018	18	18	15	18	
14)	102	2018	18	18	19	18	
15)	104	2018	18	19	17	19	
16)	107	2018	18	18	17	18	
17)	113	2018	18	19	19	18	
18)	116	2018	18	18	17	18	
19)	125	2018	18	18	18	18	
20)	127	2018	18	18	18	18	
21)	141	2018	18	18	15	18	
22)	146	2018	19	18	18	18	
23)	148	2018	19	19	16	18	
24)	156	2018	18	18	15	18	
25)	157	2018	18	18	17	18	
26)	158	2018	18	18	16	18	
27)	162	2018	18	18	15	18	
28)	176	2018	19	18	18	18	
29)	182	2018	18	18	15	18	
30)	208	2018	18	18	18	18	
31)	211	2018	18	18	16	18	
32)	221	2018	19	19	18	19	
33)	242	2018	18	18	18	18	
34)	245	2018	18	18	17	17	
35)	266	2018	19	18	16	18	

Exam-Asst.
Exam-Cell

Prof. In-Charge
Exam-Cell

N Pradhan
H.O.D 27-11-2020

Principal
Pattamundai College

Principal
Pattamundai College

RESULT

+3 ARTS / ~~SCIENCE / COMMERCE~~

page 2

5th Semester Mid-Term (Internal) Exam, 2020

bject : Dept : Political Science Full Mark-20

No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
29	BA-B-267	2018	19	18	14	18	
30	268	2018	17	17	13	17	

Exam-Asst.
Exam-Cell

Prof. In-Charge
Exam-Cell

N. Pradhan
H.O.D 27-11-2020

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Pattamundai College

Principal
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+3 ARTS / ~~SCIENCE / COMMERCE~~

5th Semester Mid-Term (Internal) Exam, 2020

bject : Dept : SOCIOLOGY Full Mark-20

No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1.	BSO-18-001	2018	18	19	18	19	
1.	005	〃	19	19	18	19	
2.	014	〃	18	19	19	19	
4.	016	〃	17	19	17	19	
5.	017	〃	18	19	18	19	
6.	026	〃	19	19	18	19	
7.	044	〃	17	18	17	19	
8.	060	〃	18	19	18	19	
9.	066	〃	17	19	18	19	
10.	067	〃	18	17	18	19	
11.	075	〃	17	18	17	18	
12.	095	〃	18	19	18	18	
13.	115	〃	18	18	19	19	
14.	123	〃	16	17	17	16	
15.	126	〃	18	19	18	17	
16.	129	〃	17	19	18	19	
17.	132	〃	17	18	18	19	
18.	133	〃	17	19	17	19	
19.	142	〃	16	17	16	17	
20.	149	〃	17	19	17	19	
21.	174	〃	18	19	18	19	
22.	184	〃	15	19	16	18	
23.	185	〃	17	18	16	18	
24.	186	〃	17	19	16	18	
25.	187	〃	18	19	15	18	
26.	192	〃	17	19	15	18	
27.	194	〃	18	18	18	19	
28.	201	〃	17	19	18	19	
29.	207	〃	17	19	18	19	
30.	228	〃	18	19	18	19	
31.	241	〃	18	19	19	19	
32.	264	〃	17	19	18	19	
33.	265	〃	18	19	18	19	

am-Asst.
am-Cell

Prof. In-Charge
Exam-Cell

H.O.D 10.12.20

Principal
Pattamundai College

12.12.20

Principal
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+3 ARTS / ~~SCIENCE / COMMERCE~~

5th Semester Mid-Term (Internal) Exam, 2020

bject : CORE AND DSC PAPERS (HONS) Dept : HISTORY Full Mark-20

No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1	BA18 - 112	2018-2019	19	19	19	19	
2	114	〃	16	12	08	19	
3	124	〃	19	18	18	19	
4	152	〃	19	19	19	19	
5	159	〃	16	09	10	18	
6	161	〃	17	19	14	17	
7	164	〃	19	17	19	18	
8	165	〃	17	09	17	17	
9	166	〃	18	13	16	17	
10	168	〃	18	11	16	17	
11	180	〃	18	19	15	16	
12	191	〃	17	13	14	17	
13	200	〃	14	17	08	17	
14	219	〃	18	10	14	16	
15	220	〃	18	19	18	19	
16	224	〃	18	12	15	17	
17	226	〃	18	19	15	17	
18	230	〃	18	14	14	19	
19	231	〃	15	12	08	16	
20	232	〃	16	09	10	15	
21	233	〃	18	18	13	17	
22	234	〃	18	17	10	19	
23	236	〃	17	18	16	19	
24	237	〃	16	13	12	19	
25	247	〃	18	19	13	19	
26	248	〃	14	10	06	01	
27	253	〃	16	19	17	18	

Exam Asst.
Exam-Cell

Prof. In-Charge
Exam-Cell

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Pattamundai College

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5th Semester Mid-Term (Internal) Exam, 2020

Subject : Dept : Philosophy Full Mark-20

Sl No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1	BA18-70	2018	18	19	20	14	
2	- 90	2018	19	17	17	19	
3	96	2018	17	18	18	17	
4	109	2018	18	16	18	14	
5	121	2018	18	07	15	11	
6	170	2018	10	15	05	10	
7	173	2018	16	18	18	17	
8	175	2018	11	05	17	15	
9	183	2018	10	05	16	12	
10	205	2018	10	07	17	10	
11	225	2018	11	15	20	12	
12	239	2018	17	20	20	15	
13	251	2018	09	00	10	10	
14	252	2018	10	14	14	14	
15	254	2018	10	10	18	15	
16	256	2018	15	20	20	15	
17	257	2018	12	12	16	14	
18	258	2018	10	12	16	13	
19	260	2018	13	14	19	14	
20	261	2018	15	15	20	15	

Exam-Asst.
Exam-Cell

Prof. In-Charge
Exam-Cell

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5th Semester Mid-Term (Internal) Exam, 2020

Subject : Education (CC-11, 12, DSE-1, 2) Dept : Education. Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1	BA-18-011	2018	19	19	17	19	
2	19	"	20	19	19	19	
3	22	"	17	17	18	19	
4	23	"	18	18	18	17	
5	27	"	15	17	16	18	
6	28	"	14	15	15	15	
7	29	"	17	18	18	18	
8	32	"	18	17	19	18	
9	33	"	20	19	20	19	
10	34	"	18	19	18	17	
11	36	"	19	19	20	19	
12	40	"	19	18	19	19	
13	47	"	14	15	14	17	
14	61	"	15	18	15	19	
15	64	"	15	18	16	18	
16	73	"	19	19	16	16	
17	77	"	17	19	15	18	
18	79	"	16	16	12	18	
19	111	"	17	17	18	17	
20	117	"	16	18	16	18	
21	149	"	18	18	18	18	
22	177	"	16	15	16	17	
23	197	"	17	18	17	19	
24	219	"	19	18	17	18	
25	270	"	15	15	15	15	

Asst. Exam-Cell

Prof. In-Charge Exam-Cell

N. Nayak H.O.D

Principal Pattamundai College

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RESULT

+3 ARTS / ~~SCIENCE / COMMERCE~~

5th Semester Mid-Term (Internal) Exam, 2020

ıbject : Economics Dept : Economics Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1.	BA18 - 004	2018	19	19	18	19	
2.	006		19	18	19	17	
3.	009		19	20	19	19	
4	018		18	19	18	18	
5.	031		18	19	19	19	
6	038		18	19	19	18	
7	048		17	15	14	17	
8	053		19	19	18	19	
9	056		16	12	09	15	
10	093		19	18	18	19	
11	094		19	16	17	18	
12	098		10	11	14	10	
13	118		19	17	18	18	
14	128		17	17	19	12	
15	145		14	14	14	17	
16	154		12	16	13	14	
17	169		12	15	10	14	
18	172		12	11	09	17	
19	184		18	19	11	18	
20	193		16	10	15	14	
21	195		18	11	15	13	
22	202		18	14	13	13	
23	203		17	14	17	06	
24	204		12	11	12	11	
25	223		17	16	13	14	
26	229		16	12	15	17	
27	235		12	17	15	16	
28	238		19	16	15	18	
29	249		19	19	19	19	
30	252		18	19	19	18	

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Exam-Cell

H.O.D
27.11.2020

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5th Semester Mid-Term (Internal) Exam, 2020

bject : Zoology Hons. Dept : Zoology Full Mark-20

No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1.	BS-18-002	2018	19	20	19	19	
2.	003	2018	13	19	18	13	
3.	009	2018	19	20	19	17	
4.	010	2018	17	20	19	15	
5.	012	2018	17	17	16	15	
6.	017	2018	16	17	16	09	
7.	024	2018	13	18	17	15	
8.	032	2018	09	17	16	16	
9.	035	2018	14	15	16	13	
10.	045	2018	14	15	16	13	
11.	049	2018	19	19	18	11	
12.	060	2018	18	20	19	17	
13.	069	2018	15	16	16	13	
14.	094	2018	19	20	19	17	
15.	105	2018	19	19	18	18	
16.	117	2018	17	16	16	16	
17.	130	2018	19	18	17	18	

Prof. In-Charge
Exam-Cell

Dilip Kumar Bhagat 23.12.20
H.O.D

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5th Semester Mid-Term (Internal) Exam, 2020

Subject : BOTANY Dept : BOTANY Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1	BSI8 - 007	2018	18	19	17	18	—
2	008	"	18	19	18	18	—
3	025	"	19	18	20	18	—
4	028	"	19	19	19	20	—
5	038	"	19	19	19	19	—
6	046	"	09	14	09	20	—
7	077	"	16	15	11	20	—
8	101	"	18	20	18	20	—
9	112	"	20	19	19	15	—
10	113	"	12	10	09	12	—
11	118	"	13	09	10	16	—
12	123	"	20	20	17	20	—
13	124	"	11	19	17	18	—
14	129	"	16	18	17	19	—
15	134	"	13	13	16	17	—
16	135	"	11	18	09	13	—
17	137	"	12	11	18	11	—

Asst. Exam-Cell

Prof. In-Charge Exam-Cell

22-11-2020 H.O.D

Principal Pattamundai College

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+3 ARTS / SCIENCE / COMMERCE
5th Semester Mid-Term (Internal) Exam, 2020

Subject : PHYSICS Dept : PHYSICS Full Mark-20

Sl No	Roll No	Admission Year	Core -11	Core-12	DSC-1 DSE-1	DSC-2 DSE-2	Remarks
1	BS18 - 016	2018-19	20	20	20	20	
2	- 021		20	20	19	20	
3	030		20	20	20	20	
4	034		20	20	20	19	
5	050		20	20	20	20	
6	055		20	20	18	19	
7	058		20	20	20	20	
8	062		19	19	18	18	
9	066		13	19	14	15	
10	072		15	20	20	20	
11	076		19	19	18	20	
12	084		19	20	20	20	
13	085		19	19	20	20	
14	088		20	19	20	20	
15	090		20	20	18	20	
16	102		20	20	20	20	
17	109		20	20	20	20	
18	115		20	18	20	20	
19	119		14	19	18	17	
20	120		20	20	19	18	
21	131		20	20	20	20	
22	132		20	19	18	19	
23	133		19	19	18	18	
24	136		18	19	18	16	
25	141		06	07	14	12	

Prof. In-Charge
Exam-Cell

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+3 ARTS / SCIENCE / COMMERCE

5th Semester Mid-Term (Internal) Exam, 2020

ubject : Dept : Mathematics Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1	BS18 - 004	2018	20	18	20	19	
2	BS18 - 026	2018	19	18	17	19	
3	BS18 - 045	2018	19	18	20	18	
4	BS18 - 064	2018	20	17	18	18	
5	BS18 - 065	2018	19	15	15	14	
6	BS18 - 070	2018	19	12	17	12	
7	BS18 - 074	2018	19	10	17	14	
8	BS18 - 075	2018	15	10	15	10	
9	BS18 - 080	2018	20	17	20	19	
10	BS18 - 091	2018	17	18	20	17	
11	BS18 - 105	2018	19	15	16	15	
12	BS18 - 128	2018	20	19	19	20	
13	BS18 - 138	2018	20	18	19	18	
14	BS18 - 139	2018	19	19	20	15	
15	BS18 - 140	2018	20	20	20	18	

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RESULT
+3 ARTS / SCIENCE / COMMERCE
5th Semester Mid-Term (Internal) Exam, 2020

ıbject : CHEMISTRY Dept : CHEMISTRY Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSE-1	DSE-2	Remarks
1	BS-18 - 003	2018	20	18	18	19	
2	011		16	19	18	19	
3	019		19	17	20	16	
4	039		20	18	20	20	
5	071		14	16	18	17	
6	079		19	16	17	17	
7	083		18	17	16	17	
8	095		18	16	17	17	
9	099		19	20	17	19	
10	103		18	16	19	17	
11	106		18	18	18	18	
12	110		16	17	20	16	
13	111		20	18	20	19	
14	116		20	17	20	18	
15	122		16	17	15	18	
16	126		20	19	20	17	
17	127		15	14	13	17	

ım-Asst.
ım-Cell

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Exam-Cell

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02/12/2020

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+3 ~~ARTS / SCIENCE~~ / COMMERCE

5th Semester Mid-Term (internal) Exam, 2020

ubject : Dept : Commerce Full Mark-20

l No	Roll No	Admission Year	Core -11	Core-12	DSE-1	DSE-2	Remarks
1	Bc 18 - 01	2018	16	18	18	14	
2	02	〃	19	17	19	17	
3	03	〃	14	17	18	17	
4	04	〃	15	14	19	17	
5	05	〃	14	14	18	13	
6	06	〃	14	14	18	17	
7	07	〃	15	14	18	17	
8	08	〃	12	14	18	16	
9	10	〃	15	14	18	16	
10	11	〃	19	15	18	14	
11	12	〃	19	17	19	17	
12	13	〃	15	16	18	15	
13	14	〃	16	14	19	14	
14	15	〃	15	19	18	17	
15	16	〃	15	15	18	17	
16	17	〃	16	15	18	14	
17	18	〃	15	16	16	17	
18	19	〃	15	17	18	14	
19	20	〃	14	17	16	16	
20	21	〃	15	17	18	15	
21	22	〃	16	17	18	17	
22	23	〃	16	16	19	16	
23	24	〃	14	15	18	15	
24	25	〃	14	14	18	17	
25	26	〃	14	14	18	16	
26	27	〃	15	19	19	17	
27	28	〃	17	16	18	17	
28	29	〃	18	15	19	17	
29	30	〃	18	18	18	17	
30	31	〃	18	14	18	17	
31	32	〃	14	17	18	16	
32	33	〃	17	15	18	17	
33	34	〃	16	18	18	17	
34	35	〃	16	17	18	17	
35	36	〃	15	15	18	15	

am Asst.
am-Cell

Prof. In-Charge
Exam-Cell

H.O.D 10-12-20

Principal
Pattamundai College

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RESULT

+3 ~~ARTS / SCIENCE~~ / COMMERCE

5th Semester Mid-Term (Internal) Exam, 2020

bject : Dept : Commerce Full Mark-20

No	Roll No	Admission Year	Core -11	Core-12	DSE-1	DSE-2	Remarks
36	37	2018	18	19	19	15	
37	39	1	14	15	18	15	
38	40	4	14	15	18	16	
39	41	1	15	17	18	16	
40	42	4	15	14	19	17	
41	43	4	15	16	18	14	
42	44	4	15	15	16	16	
43	45	4	15	16	18	17	
44	46	4	15	15	16	16	
45	47	4	15	16	16	17	
46	48	4	14	15	18	16	
47	49	4	15	16	16	17	
48	50	4	16	16	16	17	
49	51	4	14	16	19	17	
50	52	4	15	20	19	17	
51	53	4	12	13	18	17	
52	56	4	14	19	18	17	
53	57	4	14	16	19	17	
54	58	4	17	11	18	16	
55	60	4	15	13	18	16	
56	61	4	15	13	18	14	
57	62	4	15	11	18	15	
58	63	4	15	16	18	17	
59	64	4	14	12	10	17	
60	65	4	12	19	18	17	
61	66	4	16	12	18	17	
62	68	4	16	14	18	16	
63	69	4	16	14	18	16	
64	70	4	15	06	10	13	
65	71	4	15	12	18	14	
66	72	4	15	09	16	17	
67	73	4	16	16	18	17	
68	74	4	15	15	18	17	
69	75	4	14	10	18	17	
70	76	4	14	11	16	16	

Exam-Cell

Prof. In-Charge 7/12/2020
Exam-Cell

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5th Semester Mid-Term (Internal) Exam, 2020

ject : Dept : Comm Full Mark-20

No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1	77	2016	14	08	18	16	
2	78	〃	16	11	18	17	
3	79	〃	15	13	18	16	
4	80	〃	15	13	18	15	
5	81	〃	12	08	18	15	
6	82	〃	14	11	18	16	
7	84	〃	13	09	18	15	
8	85	〃	14	08	18	15	
9	86	〃	14	12	16	16	
10	87	〃	16	11	18	17	
11	88	〃	15	10	18	17	
12	89	〃	15	12	18	16	
13	90	〃	14	11	16	17	
14	91	〃	14	12	18	17	
15	92	〃	14	11	16	16	
16	96	〃	14	12	18	15	
17	97	〃	14	11	18	17	
18	98	〃	15	17	18	17	
19	99	〃	19	11	18	17	
20	100	〃	16	07	16	16	
21	101	〃	14	08	16	12	
22	102	〃	14	08	18	16	
23	103	〃	14	07	16	16	
24	105	〃	15	14	18	17	
25	107	〃	18	12	18	17	
26	109	〃	14	10	18	15	
27	111	〃	16	14	18	16	
28	113	〃	17	09	18	16	
29	115	〃	16	07	17	15	
30	121	〃	15	15	19	18	
31	125	〃	14	07	19	17	
32	126	〃	15	14	18	16	
33	127	〃	15	14	18	17	
34	129	〃	14	09	18	15	
35	132	〃	15	12	18	17	

Asst. I-Cell

Prof. In-Charge 17/12/20 Exam-Cell

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5th Semester Mid-Term (Internal) Exam, 2020

ject : Dept : Commerce Full Mark-20

lo	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
6	133	2018	15	14	18	14	
7	134	〃	13	12	18	16	
8	135	〃	13	17	14	16	
9	137	〃	14	10	18	16	
0	138	〃	14	17	18	16	

Prof. In-Charge
Exam-Cell

H.O.D 10.12.20

Principal
Pattamundai College

Asstt.
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Pass. 20

RESULT

+3 ~~ARTS / SCIENCE~~ / COMMERCE

5th Semester Mid-Term (Internal) Exam, 2020

ject : Dept : Commerce Full Mark-20

No	Roll No	Admission Year	Core -11	Core-12	DSC-1	DSC-2	Remarks
1	106	2019	15	10	17	15	
2	109	〃	15	12	17	15	
3	116	〃	15	12	17	16	
4	117	〃	14	07	17	12	
5	118	〃	14	12	17	14	
6	129	〃	15	08	17	16	
7	130	〃	14	07	17	12	

Asst. Prof. In-Charge 17/12/20 H.O.D Principal 17/12/20

Exam-Cell Exam-Cell Pattamundai College Pattamundai College

OFF LINE

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RESULT ..

(1)

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- English Hons-

Sl No	Roll No	Admission Year	SEC-2 MOM	GE-B-2 Edn, Pol Sc & Soc	Core-8	Core-9	Core-10
1	BA-18-49	2018	19	19	18	18	18
2	055		18	19	17	16	17
3	092		A	A	A	A	A
4	122		14	18	17	17	16
5	131		11	18	13	17	13
6	167		07	12	13	16	15
7	179		10	13	10	A	A
8	212		19	18	19	16	18
9	214		11	14	07	13	11
10	215		11	16	15	16	13
11	246		16	17	16	18	17
12	271		A	A	A	A	A
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Exam-Asstt. Exam. Cell 7.7.20

Prof. -In-Charege Exam. Cell 7.7.2020

Principal Pattamundai College 7.7.2020

(7)

RESULT

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Philosophy Honours

(7)

Sl No	Roll No	Admission Year	SEC-11 MOM	GE B-2 Edn, Pol-Sc & Soc	Core-8	Core-9	REMARKS Core-10
1	BA-18-70	2018	08	14	18	17	18
2	090		12	14	19	18	19
3	096		07	16	18	17	20
4	109		07	16	18	16	19
5	121		07	14	16	15	18
6	170		07	12	15	12	20
7	173		12	17	17	15	18
8	175		04	09	14	15	10
9	183		08	16	12	10	15
10	205		07	15	15	13	18
11	225		10	18	16	16	20
12	227		A	A	A	A	A
13	239		12	18	17	18	18
14	250		A	A	A	A	A
15	*251		07	12	11	08	10
16	252		10	16	10	09	15
17	254		10	15	14	12	13
18	256		09	17	16	17	20
19	257		09	16	16	13	10
20	258		08	14	16	15	16
21	*259		10	15	15	13	20
22	260		10	17	16	15	18
23	261		12	17	18	16	19
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Exam-Asst
Exam. Cell

Prof.-In-Charege
Exam. Cell

Principal
Pattamundai College

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(3)

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- History Hons.

Sl No	Roll No	Admission Year	SEC-II MOM	GE-B-2 Edn, Pol-Sc & Soc	Core-8	Core-9	~~REMARKS~~ Core-10
1	BA-18-112	2018	10	15	17	18	19
2	114		12	15	18	11	19
3	124		15	19	19	18	19
4	152		15	19	19	17	20
5	159		08	16	18	10	20
6	161		10	16	18	10	19
7	164		12	13	17	16	18
8	165		10	18	17	12	19
9	166		10	13	16	12	17
10	168		13	18	19	17	19
11	180		11	15	18	12	19
12	191		10	18	18	13	18
13	196		11	18	18	15	18
14	198		A	A	A	A	A
15	200		11	13	13	05	19
16	219		08	15	17	10	18
17	220		14	17	19	19	18
18	222		A	A	A	A	A
19	224		12	16	17	19	18
20	226		12	17	17	13	19
21	230		08	18	19	15	19
22	231		10	15	17	09	18
23	232		14	14	15	03	18
24	233		10	18	18	11	18
25	234		11	18	18	19	18
26	236		10	16	18	16	19
27	237		07	15	17	14	18
28	243		A	A	A	A	A

Exam. Asst
Exam. Cell

Prof. -In-Charege
Exam. Cell

Principal
Pattamundai College

7.7.2020

Cont- 2

Cont. (3)

RESULT ..

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- History Hons

Sl No	Roll No	Admission Year	SEC-11 MDM	GE-B-2 Edn, Pol Sc & Soc	Core-8	Core-9	REMARKS Core-10
1	BA-18-247	2018	10	18	18	14	18
2	248		06	12	16	08	17
3	253		12	18	17	16	18
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Exam-Asst
Exam. Cell

Prof. -In-Charege
Exam. Cell

Principal
Pattamundai College

(4) (4) (1)

RESULT ..

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam. ~~2019~~ 2020

Subject- Economics Hons

Sl No	Roll No	Admission Year	SEC-II MOM	GE B-2 Edn, Pol. Sc & Soc	Core-8	Core-9	REMARKS Core-10
1	BA-18-004	2018	18	17	19	19	17
2	006		19	18	19	19	16
3	009		19	19	19	20	20
4	018		12	19	17	18	20
5	031		18	18	19	19	18
6	038		18	16	17	18	17
7	048		12	14	14	13	12
8	053		10	19	15	17	13
9	056		10	16	14	11	11
10	093		10	16	17	14	14
11	094		13	14	15	15	17
12	098		07	12	08	08	09
13	118		15	19	19	15	12
14	128		12	19	17	14	15
15	145		09	18	15	08	14
16	154		10	18	12	08	11
17	169		10	16	12	16	15
18	172		12	18	17	18	13
19	189		10	16	18	16	12
20	193		10	16	12	14	08
21	195		12	14	12	13	10
22	202		12	16	11	15	13
23	203		08	13	12	12	10
24	204		08	15	10	08	13
25	223		12	17	17	14	12
26	229		12	15	10	10	13
27	235		10	16	11	13	12
28	238		19	18	19	19	13

Exam-Asst.
Exam. Cell

Prof. -In-Charege
Exam. Cell

Principal
Pattamundai College

Cont-2

RESULT

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-2019 2020

Subject- Economics Hons

Sl No	Roll No	Admission Year	SEC-11 MDM	GE B-2 Econ, Pol-Sc & Soc	Core-8	Core-9	REMARKS Core-10
1	BA-18-249	2018	19	19	19	20	15
2	262		13	19	19	18	16
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Exam. Asst
Exam. Cell

Prof. -In-Charege
Exam. Cell

Principal
Pattamundai College

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RESULT ..

(6)

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Education Hons

Sl No	Roll No	Admission Year	SEC-11 MOM	GE-B2 Edn, Pol.Sc & Soc	Core-8	Core-9	REMARKS Core-10
1	BA-18-011 Edn	2018	14	19	18	19	18
2	019		15	19	19	20	17
3	022		18	19	17	19	16
4	023		17	19	17	18	17
5	027		15	19	18	17	16
6	028		15	12	14	17	14
7	029		10	18	17	19	16
8	032		18	18	19	19	17
9	033		17	19	20	19	18
10	034		15	19	16	17	19
11	036		14	18	20	20	19
12	040		12	19	19	19	19
13	047		10	19	15	15	10
14	061		11	17	16	14	13
15	064		09	16	18	19	16
16	073		12	18	18	19	17
17	077		12	17	14	15	16
18	079		11	18	19	14	15
19	111		13	19	17	17	18
20	117		15	18	15	19	17
21	149		13	18	18	17	17
22	177		12	19	18	15	16
23	197		10	19	18	16	17
24	213		13	19	17	18	16
25	270		09	16	13	14	14
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Exam-Asst
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Prof. In-Charege
Exam. Cell

Principal
Pattamundai College

(2)

RESULT

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Odia Hons

Sl No	Roll No	Admission Year	SEC-2 MOM	GE-B-2 Edn. Prof. Sc	Core-8	Core-9	MARKS Core-10
1	BA-18-010	2018	12	18	19	18	18
2	013		17	19	18	17	18
3	015		13	18	19	18	18
4	021		10	17	17	17	18
5	025		10	17	17	18	18
6	030		15	16	16	17	18
7	039		10	16	16	17	18
8	041		12	17	17	18	18
9	042		10	16	16	16	18
10	045		12	17	19	18	17
11	052		10	15	15	18	18
12	054		A	A	A	A	A
13	057		11	17	18	18	18
14	058		10	16	17	18	19
15	062		10	18	18	18	18
16	065		10	18	17	18	18
17	068		14	18	17	17	18
18	069		10	15	15	17	18
19	072		12	13	16	16	18
20	074		10	17	17	17	18
21	080		10	16	18	15	18
22	082		12	18	16	18	18
23	084		07	12	06	09	18
24	087		10	18	16	18	18
25	088		14	18	18	18	18
26	091		10	16	15	17	18
27	106		10	17	16	18	18
28	110		10	19	16	18	18

Exam-Asst
Exam. Cell

Prof. -In-Charege
Exam. Cell

Principal
Pattamundai College

(2)

RESULT

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Odia Hons.

Sl No	Roll No	Admission Year	SEC-2 MOM	GE-2 Ed/Eco/Hs	C-8	C-9	C-10	REMARKS
1	BA-18-134	2018	10	15	19	11	17	
2	137		11	18	18	16	14	
3	138		10	18	17	09	16	
4	140		10	16	18	18	18	
5	150		10	18	16	18	18	
6	151		12	19	16	18	18	
7	160		10	18	18	15	16	
8	190		10	15	18	17	17	
9	216		17	19	19	18	18	
10	217		12	15	17	15	17	
11	244		10	18	19	18	18	
12	263		10	17	18	18	18	
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Exam-Asst. Exam. Cell 7.7.20

Prof. -In-Charege Exam. Cell 7/7/2020

Principal 7.7.20 Pattamundai College

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RESULT

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Pol. Sc. Hons

Sl No	Roll No	Admission Year	SEC-II MOM	GE B-2 Edn, Pol-Sc & Soc	Core-8	Core-9	REMARKS Core-10
1	BA-18-003	2018	10	19	17	15	17
2	007		11	19	14	14	16
3	008		11	19	18	16	17
4	035		19	19	19	19	18
5	046		10	17	11	12	12
6	050		11	15	10	10	11
7	063		11	17	18	16	15
8	078		11	17	14	11	13
9	083		10	16	13	10	12
10	085		A	A	A	A	A
11	089		19	19	19	19	19
12	097		16	18	16	19	18
13	099		11	17	08	10	11
14	101		10	18	14	14	16
15	102		11	18	18	16	16
16	104		13	18	14	14	14
17	107		10	18	14	16	16
18	113		17	18	17	18	18
19	116		12	18	18	11	14
20	125		12	18	18	15	15
21	127		12	17	15	14	15
22	141		12	17	11	10	15
23	146		12	19	14	12	14
24	148		11	19	12	11	13
25	156		11	18	12	10	10
26	157		13	19	14	11	10
27	158		12	16	12	11	10
28	162		12	16	12	10	10

Exam. Asstt. 13.7.20
Exam. Cell

Prof. -In-Charege 13/7/2020
Exam. Cell

14.7.20

18.7.20

Principal
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RESULT ..

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Pol. Sc. Hons

	Sl No	Roll No	Admission Year	SEC-II MDM	GE B-2 Edn, Pol. Sc & Soc	Core-8	Core-9	REMARKS Core-10
29	1	BA-18-176	2018	14	17	19	13	15
30	2	182		18	16	18	14	17
31	3	208		12	17	17	12	12
32	4	211		10	17	13	12	10
33	5	221		14	19	17	18	18
34	6	242		13	19	16	13	15
35	7	245		12	19	14	12	16
36	8	266		12	16	16	15	14
37	9	267		13	15	16	15	17
38	10	268		10	13	12	08	A
39	11	269		A	A	A	A	A
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Exam-Asst. 7.7.20
Exam. Cell

Prof. -In-Charege
Exam. Cell

Principal
Pattamundai College
7.7.2020

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RESULT --

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Sociology Hons.

Sl No	Roll No	Admission Year	SEC-II MDM	GE B2 Edn, Bio & Soc	Core-8	Core-9	REMARKS Core-10
1	BA-18-001	2018	19	17	19	19	18
2	005		13	19	19	18	18
3	014		15	18	18	18	18
4	016		10	13	16	15	17
5	017		16	18	19	18	18
6	026		15	19	19	19	18
7	044		12	19	17	17	16
8	060		10	18	19	18	18
9	066		13	19	18	18	18
10	067		10	18	18	18	17
11	075		11	19	18	17	17
12	095		13	18	18	17	18
13	100		08	10	14	14	14
14	103		A	A	A	A	A
15	115		14	19	18	18	17
16	120		A	A	A	A	A
17	123		10	14	17	10	17
18	126		15	19	19	18	17
19	129		15	19	17	17	18
20	132		14	18	18	15	17
21	133		13	19	18	17	17
22	139		A	A	A	A	A
23	142		11	17	17	17	16
24	143		12	18	18	17	16
25	171		A	A	A	A	A
26	174		14	16	18	17	16
27	184		10	14	17	14	16
28	185		09	16	17	15	17

17.82 16.61

Exam-Asst
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Prof.-In-Charge
Exam. Cell

Principal
Pattamundai College

7.7.2020

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RESULT

+3 ARTS/SCIENCE/COMMERCE

4th Semister Mid-Term(Internal) Exam-~~2019~~ 2020

Subject- Sociology Hons

	Sl No	Roll No	Admission Year	SEC-1 MOM	GE B-2 Edn, Pol-Sc & Soc	Core-8	Core-9	REMARKS Core-10
29	1	BA-18-186	2018	12	19	17	17	17
30	2	187		10	18	18	16	18
31	3	192		12	16	19	10	17
32	4	194		12	18	18	18	18
33	5	199		A	A	A	A	A
34	6	201		13	16	18	18	16
35	7	207		10	16	17	16	18
36	8	228		14	19	18	18	18
37	9	241		11	18	8	17	18
38	10	264		12	15	18	17	17
39	11	265		12	19	19	17	18
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Exam. Cell

Prof.-In-Charege
Exam. Cell

A NATIONAL WEBINAR

ON

"BIODIVERSITY CONSERVATION: ITS CHALLENGES AND OPPORTUNITIES"

Resource Persons

Mr. Bikash Ranjan Dash

Divisional Forest Officer, Mangrove Forest Division, Rajnagar ·

Dr Nabin Kumar Dhal

Chief Scientist, IMMT, Bhubaneswar

Dr. Sudam Charan Sahu

Assistant Professor, Department of Botany,

North Orissa University, Baripada

On

19th November 2020

DEPARTMENT OF BOTANY

PATTAMUNDAI COLLEGE

PATTAMUNDAI

KENDRAPARA

754215

REPORT

A national webinar was organized by Department of Botany, Pattamundai College, Pattamundai on dated 19.11.2020 on the topic **"Biodiversity Conservation: its challenges and opportunities"**. Mr. Bikash Ranjan Dash, D.F.O, Mangrove Wildlife Division, Rajnagar, Dr. Nabin Kumar Dhal, Chief Scientist, IMMT, Bhubaneswar and Dr. Sudam Charan Sahu, Assistant Professor, Department of Botany, North Orissa University, Baripada graced the webinar as resource persons.

The webinar was started at 10.30 am with the welcome address by our esteemed Principal Prof. Adhikari Laxminarayan Dash which was followed by guest introduction by Dr. Anjali Kumari Dash, Head of the Department of Botany. She also explained the aim and objectives of the webinar and the aim of the topics to be discussed by our resource persons. 160 participants were participated in this webinar all over India including faculties, academicians, researchers and students. The resource persons gave keynote address on their respective topics with question-answer session at the end.

The webinar was ended with a vote of thanks by Mrs. Suchismita Biswal, Lecturer in Botany at 2.00 pm.

OFFICE OF THE PRINCIPAL
Mobile : 9437376724

PATTAMUNDAI COLLEGE

NAAC ACCREDITED B+ GRADE

PATTAMUNDAI, KENDRAPARA, ODISHA - 754215

Ref No. : 1108 Date 17/11/2020

To

Dr. Nabin Kumar Dhal
Chief Scientist
IMMT, Bhubaneswar

Sub – Request to act as resource person in national webinar to be conducted on the topic "BIODIVERSITY CONSERVATION: ITS CHALLENGES AND OPPORTUNITIES"

Sir,

I am pleased to request you to kindly act as resource person in national webinar on the topic ***"Biodiversity Conservation: its challenges and opportunities"*** to be organized by the department of Botany of this college at 10.30 am on 19th November 2020.

Your kind consent in this regard is highly solicited.

Yours Faithfully,

17.11.20

Principal
Pattamundai College

Principal
Pattamundai College

OFFICE OF THE PRINCIPAL

Mobile : 9437376724

PATTAMUNDAI COLLEGE

NAAC ACCREDITED B+ GRADE

PATTAMUNDAI, KENDRAPARA, ODISHA - 754215

Ref No. : 1106 Date 17/11/2020

To

Mr. Bikash Ranjan Dash, D.F.O
Mangrove Forest Division (Wild Life)
Rajnagar, Kendrapara

Sub – Request to act as resource person in national webinar to be conducted on the topic "BIODIVERSITY CONSERVATION: ITS CHALLENGES AND OPPORTUNITIES"

Sir,

I am pleased to request you to kindly act as resource person in national webinar on the topic ***"Biodiversity Conservation: its challenges and opportunities"*** to be organized by the department of Botany of this college at 10.30 am on 19th November 2020.

Your kind consent in this regard is highly solicited.

Yours Faithfully,

17.11.20

Principal
Pattamundai College

Principal
Pattamundai College

www.pattamundaicollege.ac.in,
E-mail : pattamundaicollege@gmail.com, pattamundaicollege@yahoo.com

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Mobile : 9437376724

PATTAMUNDAI COLLEGE

NAAC ACCREDITED B+ GRADE
PATTAMUNDAI, KENDRAPARA, ODISHA - 754215

Ref No. : 1107 Date 17/11/2020

To

Dr. Sudam Charan Sahu
Assistant Professor
Department of Botany
North Orissa University, Baripada

Sub – Request to act as resource person in national webinar to be conducted on the topic "BIODIVERSITY CONSERVATION: ITS CHALLENGES AND OPPORTUNITIES"

Sir,

I am pleased to request you to kindly act as resource person in national webinar on the topic "***Biodiversity Conservation: its challenges and opportunities***" to be organized by the department of Botany of this college at 10.30 am on 19th November 2020.

Your kind consent in this regard is highly solicited.

Yours Faithfully,

17.11.20

Principal
Pattamundai College
Principal
Pattamundai College

Bikash Ranjan Dash

Working as Divisional Forest Officer, Mangrove Forest Division (Wildlife), Rajnagar

PG in Botany from UU, working in State Forest Service

Diploma in Forestry from State Forest Service College, Burnihat, Assam

Advance PG Diploma in Wildlife Management from Wildlife Institute of India, Dehradun

Training from International Lake Environment Committee Institute, Japan on Integrated Lake, River and Coastal Basin Management.

Worked previously in Chilika Wildlife Division and Similipal Tiger reserve

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DEPARTMENT OF BOTANY

PATTAMUNDAI COLLEGE, PATTAMUNDAI

(A NON-GOVT AIDED COLLEGE AFFILIATED TO UTKAL UNIVERSITY, ODISHA)

ORGANISES

A NATIONAL WEBINAR ON

BIODIVERSITY CONSERVATION : ITS CHALLENGES AND OPPORTUNITIES

DATE: 19.11.2020 , TIME : 10.30 A.M

RESOURCE PERSON
DR. NABIN KUMAR DHAL
CHIEF SCIENTIST
IMM', BHUBANESWAR

RESOURCE PERSON
MR. BIKASH RANJAN DASH, D.F.O
MANGROVE FOREST DIVISION
(WILD LIFE) RAJNAGAR, KENDRAPARA

RESOURCE PERSON
DR. SUDAM CHARAN SAHU
ASSISTANT PROFESSOR
DEPT. OF BOTANY
NORTH ORISSA UNIVERSITY
BARIPADA

PROF. A.L.N. DASH
PRINCIPAL
PATTAMUNDAI COLLEGE,
PATTAMUNDAI

DR. ANJALI DASH
H.O.D BOTANY,CONVENER

MRS. SUCHISMITA BISWAL
CO-CONVENER

NO REGISTRATION FEES

E- CERTIFICATE TO ALL PARTICIPANTS

Regd. Link : https://forms.gle/jCcvACBwLUgkEtJAA

WHY SHOULD WE PROTECT BIODIVERSITY?

Dr. N. K. Dhal, Chief Scientist

IMMT, BBSR

Biodiversity is the foundation of ecosystem services to which human well-being is intimately linked. No feature of Earth is more complex, dynamic, and varied than the layer of living organisms that occupy its surfaces and its seas, and no feature is experiencing more dramatic change at the hands of humans than this extraordinary, singularly unique feature of Earth. This layer of living organisms—the biosphere—through the collective metabolic activities of its innumerable plants, animals, and microbes physically and chemically unites the atmosphere, geosphere, and hydrosphere into one environmental system within which millions of species, including humans, have thrived. Breathable air, potable water, fertile soils, productive lands, bountiful seas, the equitable climate of Earth's recent history, and other ecosystem services are manifestations of the workings of life. It follows that large-scale human influences over this biota have tremendous impacts on human well-being. It also follows that the nature of these impacts, good or bad, is within the power of humans to influence.

Defining Biodiversity

Biodiversity is defined as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species,

between species and of ecosystems." The importance of this definition is that it draws attention to the many dimensions of biodiversity. It explicitly recognizes that every biota can be characterized by its taxonomic, ecological, and genetic diversity and that the way these dimensions of diversity vary over space and time is a key feature of biodiversity. Thus only a multidimensional assessment of biodiversity can provide insights into the relationship between changes in biodiversity and changes in ecosystem functioning and ecosystem services.

Biodiversity includes all ecosystems—managed or unmanaged. Sometimes biodiversity is presumed to be a relevant feature of only unmanaged ecosystems, such as wildlands, nature preserves, or national parks. This is incorrect. Managed systems like plantations, farms, croplands, aquaculture sites, rangelands, or even urban parks and urban ecosystems—have their own biodiversity. Given that cultivated systems alone now account for more than 24% of Earth's terrestrial surface.

Measuring Biodiversity: Species Richness and Indicators

In spite of many tools and data sources, biodiversity remains difficult to quantify precisely. But precise answers are seldom needed to devise an effective understanding of where biodiversity is, how it is changing over space and time, the drivers responsible for such change, the consequences of such change for ecosystem services and human well-being, and the response options available. Ideally, to assess the conditions and trends of biodiversity either globally or sub-globally, it is necessary to measure the abundance of all organisms over space and time, using taxonomy (such as the number of species), functional

traits (for example, the ecological type such as nitrogen-fixing plants like legumes versus non-nitrogen-fixing plants), and the interactions among species that affect their dynamics and function (predation, parasitism, competition, and facilitation such as pollination, for instance, and how strongly such interactions affect ecosystems). Even more important would be to estimate turnover of biodiversity, not just point estimates in space or time.

Ecological indicators are scientific constructs that use quantitative data to measure aspects of biodiversity, ecosystem condition, services, or drivers of change, but no single ecological indicator captures all the dimensions of biodiversity. Ecological indicators form a critical component of monitoring, assessment, and decision-making and are designed to communicate information quickly and easily to policy-makers. In a similar manner, economic indicators such as GDP are highly influential and well understood by decision-makers. Some environmental indicators, such as global mean temperature and atmospheric CO_2 concentrations, are becoming widely accepted as measures of anthropogenic effects on global climate.

While the data to hand are often insufficient to provide accurate pictures of the extent and distribution of all components of biodiversity, there are, nevertheless, many patterns and tools that decision-makers can use to derive useful approximations for both terrestrial and marine ecosystems. North-temperate regions often have usable data on spatial distributions of many taxa, and some groups (such as birds, mammals, reptiles, plants, butterflies, and dragonflies) are reasonably well documented globally. Biogeographic principles (such as gradients

in species richness associated with latitude, temperature, salinity, and water depth) or the use of indicators can supplement available biotic inventories. Global and sub-global maps of species richness, several of which are provided in the MA reports Current State and Trends and Scenarios, provide valuable pictures of the distribution of biodiversity.

Most macroscopic organisms have small, often clustered geographical ranges, leading to centers of both high diversity and endemism, frequently concentrated in isolated or topographically variable regions (islands, mountains, peninsulas). A large proportion of the world's terrestrial biodiversity at the species level is concentrated in a small part of the world, mostly in the tropics. Even among the larger and more mobile species, such as terrestrial vertebrates, more than one third of all species have ranges of less than 1,000 square kilometers. In contrast, local and regional diversity of microorganisms tends to be more similar to large-scale and global diversity because of their large population size, greater dispersal, larger range sizes, and lower levels of regional species clustering.

Various threats to biodiversity

Biodiversity has been continually under threat since the dawn of man. As we expand we remove, change, and use land to serve our purposes. The changes we make often damage natural habitats and reduce their biodiversity. One of the primary threats to biodiversity is habitat loss. This can be through clear cutting forests, polluting oceans, or anything that alters the natural habitat. We

harvest large amounts of natural resources and when this is not done sustainably it has disastrous consequences.

One of the largest causes of habitat destruction is land development. As urbanization has increased over the last 100 years more and more land has been repurposed, destroying the natural habitat, increasing noise, and pollution. When habitats change animals flee the area or die, dramatically reducing the area's biodiversity. Climate change goes hand in hand with urbanization and habitat loss. As urbanization has increased, human development has increased, and this has increased consumption of many natural resources. Climate change alters regional climates, making many species specifically adapted to those regions struggle to survive. Additionally, as the climate changes species will move into new areas, altering the ecosystems already present there.

Finally, with these changes some climates will completely disappear. Glaciers will melt and islands will be covered with water. A final threat to biodiversity are invasive species. Invasive species are plants or animals that are not naturally found in a region and often come from very far away. These organisms are moved intentionally and unintentionally by us.

How we can protect biodiversity

Even though the biodiversity of many habitats has become threatened there are many things we can do to help reduce this danger. These are some of the steps you can take to conserve biodiversity.

1. Government legislation

Governments have the power to control what is done to the habitats within their country. Legislation that protects natural habitats by outlawing development, harvesting of natural resources, or other human exploitation has a huge impact on maintaining natural biodiversity. Additionally, laws protecting specific species like the USA's Endangered Species Act helps protect animals that have already been impacted. Protecting habitats before they have been altered is the best form on biodiversity conservation and is most successfully implemented by government regulations.

2. Nature preserves

Nature preserves are a form of government regulation and are often known as National Parks. They protect a region and the organisms that live there from certain forms of development and provide access for people to visit them. This is excellent because it protects the natural habitat and is a place where people can view the ecosystem.The goal is that over time this helps people have more respect for the natural world and increases pressure on government to further protect other areas.

3. Reducing amount of invasive species

Invasive species are sometimes introduced to an area on purpose, but also sometimes by accident. To limit the number of invasive species moved by accident planes, ships, and cargo must be thoroughly checked before it is offloaded in a new country.

Additionally, people should not bring new species of animals or plants to an area without consulting ecologists knowledgeable on the region.

4. Habitat restoration

After an area is damaged by human impacts we can try to return it to its natural state. This means bringing back the plants and animals that are naturally found there. This has been shown to be a promising way of returning biodiversity to a region.One example of this is the reintroduction of wolves into Yellowstone National Park. When wolves returned to the region they ate more elk and coyote, which increased the prey species of the coyote and let riparian (river bank) areas trampled by elk recover.These restoration projects can be undertaken by governments, local organizations, or NGOs.

5. Captive breeding and seed banks

Captive breeding is when animals in captivity (often at zoos) are bred. This is seen as somewhat controversial, as it requires the capture of animals that are often near extinction. On the positive side it provides the opportunity to increase the population of the species, so they can be reintroduced into the wild.

Seed banks are areas where huge varieties of plant seeds are stored. This provides a failsafe if a species goes extinct in nature. The plant can be grown from a saved seed and reintroduced back into its habitat.

This is a very real issue and seed banks have been collecting samples for many years, with some seed banks having over 2 billion seeds stored at a time.

6. Research

Understanding how species interact within their environment is crucial to protecting them. As humans further understand species interaction we find new and more direct ways to help protect organisms and maintain biodiversity.

One example is the use of wildlife corridors in urbanized areas. By researching many different species we have found that this dramatically increase their populations [9]. It reduces the number of animals that come into direct contact with humans and provides areas for migratory animals to move long distances.

7. Reduce climate change

As we know, climate change has disastrous consequences for all living things on earth. We use huge amounts of fossil fuels, which directly cause climate change. We need to move away from fossil fuels and towards alternative energy sources and natural or sustainable products. Reducing the effects of climate change requires a worldwide effort.

8. Purchase sustainable products

Many protects are now labeled with ecolabels that state if they are environmentally friendly. Some of the most prominent ecolabels are Energy Star, USDA Organic, and Rainforest Alliance Certified.

Additionally, when we consume these goods it increases demand for environmentally conscious products pushing more producers to make them.

9. Sustainable living

Sustainable living is something that we can each choose to do on a daily basis. Whether it be by taking shorter showers, riding a bike to work, or buying ecolabeled products it helps reduce the amount of resources we use.

This is arguably the most important way of protecting biodiversity because everyone can do it, often with only small lifestyle changes. If everyone chose to live sustainably, biodiversity in a variety habitats would improve.

10. Education

As with most environmental topics, education is one of the keys to success. Educating people about the importance of biodiversity conservation increases public awareness of the issue. As public awareness increases people become more involved and eventually influence their government representatives, pushing for more environmental protection. Government legislation protecting our natural environments is one of the most effective ways of protecting biodiversity.

The role of science and technology in conserving biodiversity

As our society develops we continually use more resources, which stains natural biodiversity, but development also leads to improved science and technology. Currently science and technology are two of the most important tools in conservation biology. We use science, and specifically ecology, to understand the web of interactions in our biomes. By understanding these interactions

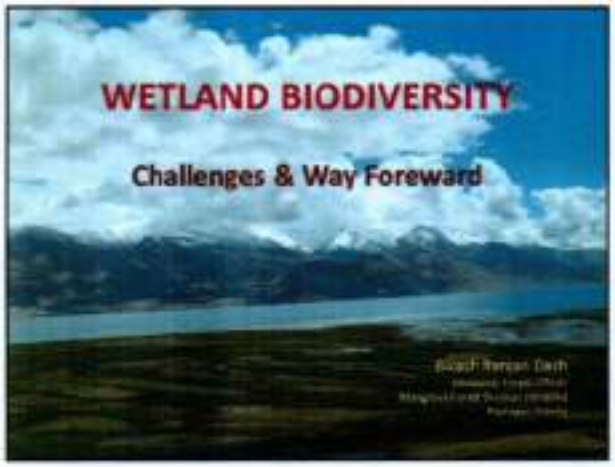
scientists are able to pinpoint the key species in ecosystems. This information is used to guide conservation efforts.

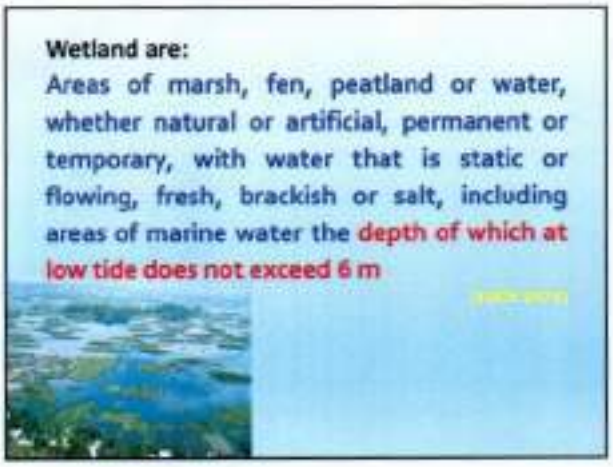
It is also used to understand pollution and its cascading effects within an ecosystem. Bio-magnification of toxins in a food chain can cause huge problems for top predators. This is an ever-adapting field of science and these two examples are just a few ways to implement the information it uncovers. Technology is becoming more and more important in conservation biology. Sustainable technologies, like renewable energies, biodegradable packaging, and recycling, help reduce our impact on the environment. Additionally, technologies like cloning give scientists the ability to bring back species that are already considered extinct. Biodiversity in natural ecosystems is of the outmost importance. It helps provide the resources and services that we rely on every day. The development and urbanization of humans poses a serious risk for natural biodiversity. If nothing is done to reduce these changes, there will be disastrous consequences. There are many things we can do in politics, science, and even in our daily lives to help fix these issues. As humans we need to understand the risks associated with our consuming lifestyles and work hard to fix what is already damaged and prevent future harm. The time has come for us to unite and save biodiversity.

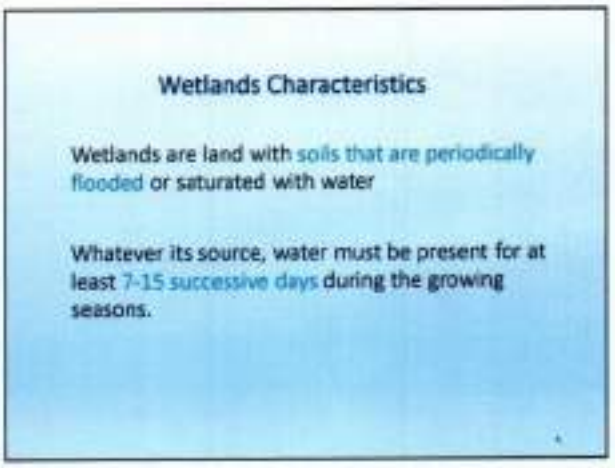
WETLAND BIODIVERSITY

12/11/2020

Mr. B. R. Dash
D.F.O, Rajnagar

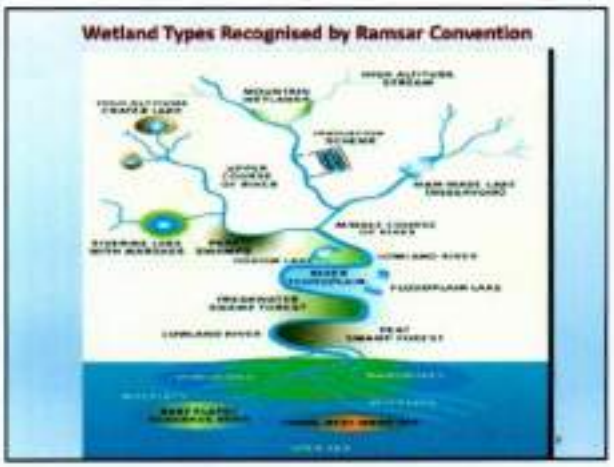






Predominant wetland types in India

1. Lakes and marshes of Trans-Himalayan and Himalayan regions
2. Oxbow lakes, swamps and seasonal marshes of Ganges and Brahamaputra flood plains
3. Mangroves, sand dunes, lagoons and coral reefs of east-coast deltaic regions
4. Mudflats, and seasonal marshes of Semi-arid Gujarat-Rajaputana and Kutchh
5. Tanks and bunds of Deccan Peninsula
6. Estuary and Backwaters of Malabar coast



Submerged: *Hydrilla, Potamogeton, Ceratophyllum*

Free Floating: *Eichhornia, Salvinia, Pistia, Azolla*

Rooted Floating Leaved: *Trapa, Nymphaea*

Emergents: *Typha, Scirpus, Eleocharis*

Ditch bank colonizers: *Polygonum, Paspalum*

General Types of Aquatic Macrophytes

Submergent – Plants that grow entirely under water. Most are rooted at the bottom and some may have flowers that extend above the water surface.

Floating-leaved – Plants rooted to the bottom with leaves that float on the water surface. Flowers are normally above water.

Free Floating – Plants not rooted to the bottom and float on the surface.

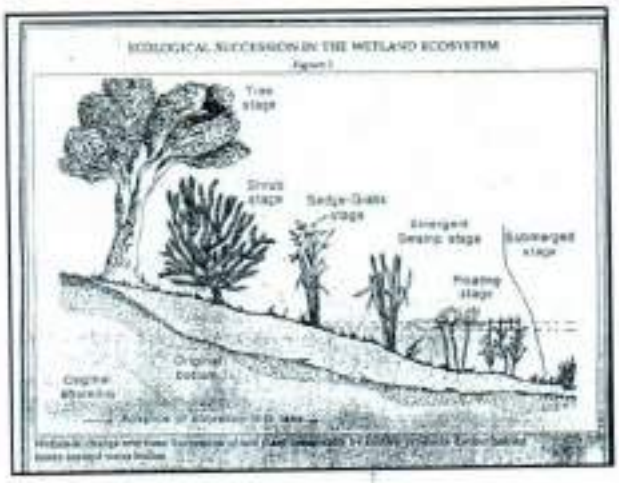
Emergent – herbaceous or woody plants that have the majority of their vegetative parts above the surface of the water.

Understanding the Wildlife and Waterfowl the Wetland Supports

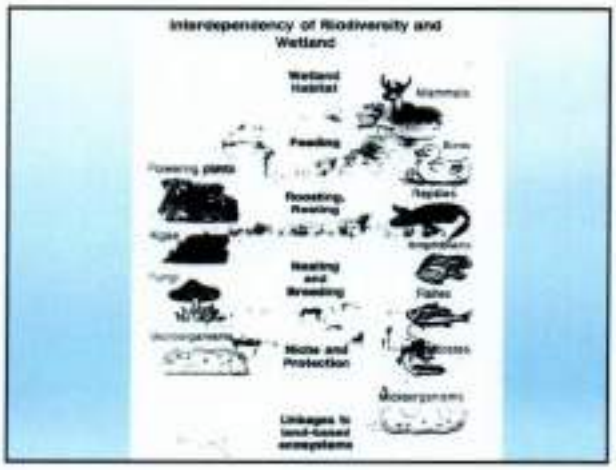
-25-30% of India's aquatic flora are in Wetlands.

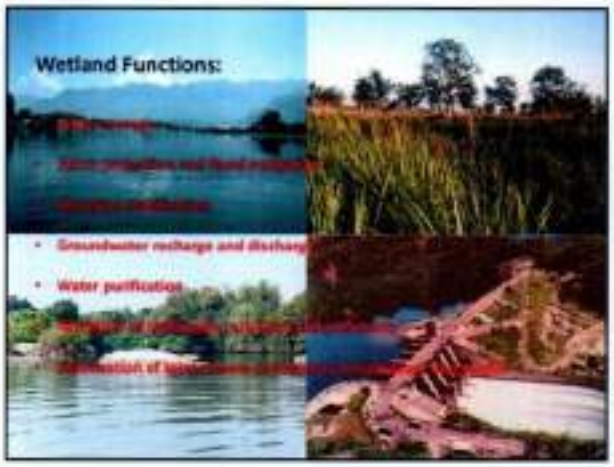
-40-45% of our vertebrate fauna are dependent on wetlands at some stages of their life cycle for their survival.

-Many of them are obligate to wetlands i.e. if wetlands are not available than one or more of their critical stages in their life cycle will not be completed. Eg. Larval stages of amphibians.



Wetland types	Major vegetation types	Obligate species
High altitude wetlands of Trans-Himalayan Region	*Carex, Equisetum*	Barheaded goose, Brahminy duck, Black necked cranes, waders
High altitude wetlands of Sikkim and Arunachal Pradesh	*Carex, Equisetum*	Barheaded goose, Brahminy duck, Black necked cranes and waders
Wetlands of southern Himalayan region (J & K)	*Phragmites, Typha, Saccharum*	16-20 species of ducks & geese, and waders.
Swamps of Terai	*Sytzygium, Phragmites, Arundo donax, Typha*	Swamp deer, hog deer, Hispid hare, Otter, Swamp Francolin
Swamps of Brahamaputra flood plains (beels)	*Sytzygium, Phragmites, Arundo donax, Typha, Saccharum*	Swamp deer, hog deer, Rhino, Wild Buffalo, Otter, Wintering waterfowl
Lacustrine wetlands of Manipur	*Phragmites, Saccharum, Typha, Zizania*	Sangai, hog deer
Ganges river systems and seasonally flooded wetlands and oxbow lakes	*Phragmites, Typha, Paspalum, Aymphea, Nilumbo*	Gharial, Gangetic dolphins, 10-12 species of turtles, Wintering waterfowl habitats, Fishing cat
Lakes and Reservoirs of north, central and south India	*Phragmites, Saccharum, Typha*	Herpetofauna, waterfowls, waders, marsh crocodile, otter, fishing cat
Inter-tidal wetlands of Gujarat (Gulf of Kutch)	*Mangrove scrub, Salvadora, Salic, Cyperi*	Waders, Flamingos, Common and Demoiselle Cranes, Wild ass
Sub-tidal wetlands of Gujarat (Gulf of Kutch)	*Coral reefs, Sea grass beds, Mangroves*	Dugong, Sharks n cluding whale sharks, Marine turtle
Inter-tidal wetlands of Tamil Nadu (Gulf of Mannar)	*Acacia, Prosopis, Salvadora*	Coral reefs, marine mammals, Dugongs, waders
Eastern coastal swamps	*Mangroves*	Marine turtles, Fishing cat, Otters, Salt water crocodiles, Water monitor



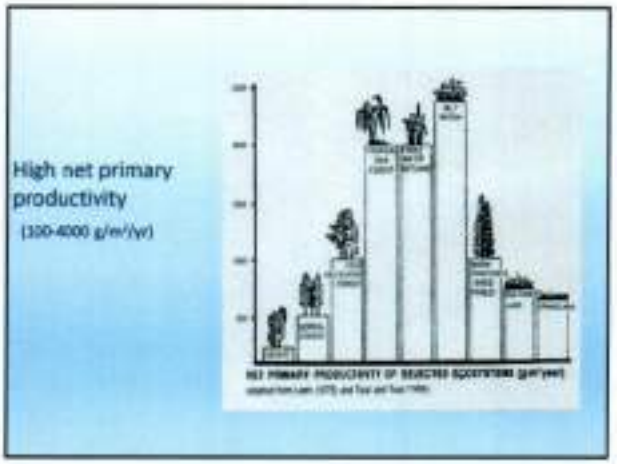

Wetland Functions:
• Groundwater recharge and discharge
• Water purification

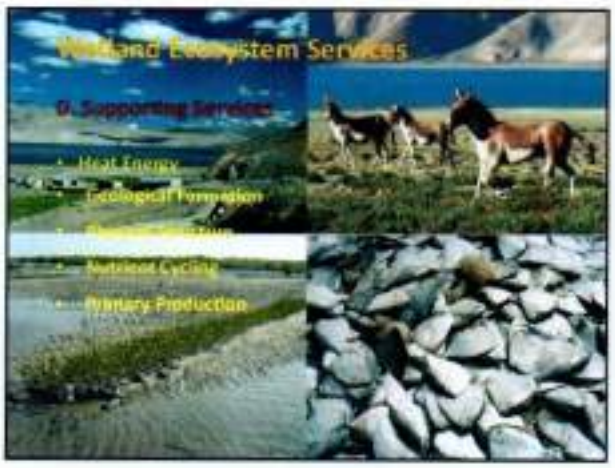

Wetland Ecosystem Services
A. Resource Provision Services
• Water supplies
• Fisheries & Irrigation Crops
• Wood and Fibre

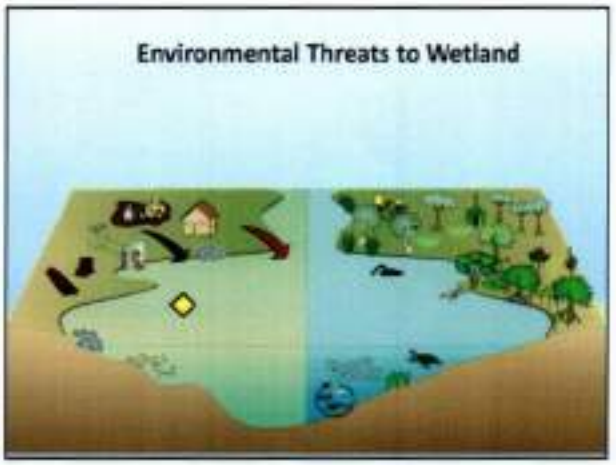

Wetland Values
• Timber production
• Energy sours such as peat and plant matters


Wetland Ecosystem Services
B. Regulating Services
• Flood and Drought Mitigation
• Self-purification Capacity
• Health Provisions
• Aquatic Habitats
• Coastal Ecotone Buffer Capacity
• Fertile Lands


Wetland Ecosystem Services
C. Cultural Services
• Aesthetic and Scenic Values
• Historic Sites


High net primary productivity
(100-4000 g/m²/yr)


Wetland Ecosystem Services
B. Supporting Services
• Heat Energy
• Nutrient Cycling
• Primary Production


Environmental Threats to Wetland

Encroachment – Treated as low value land or wasteland

Agriculture

Land reclamation

Urban Expansion

Pollution leading to eutrophication

From domestic sewerage

Fertilizer & pesticide runoff from agriculture land

Unsustainable and Unscientific Fishing Practice

Use of zero net

Fishing during ban period (breeding season)

Blockage of migratory routes

Aquaculture

Siltation

Natural process coupled with anthropogenic activities leading to alteration in biological composition

Weed Infestation

Eichornia/ Ipomea/ Phragmites

Decrease in biological diversity

Deterioration of water quality

Sedimentation and shrinkage in areas under wetlands

Decrease in migratory bird population

Decrease in fish productivity

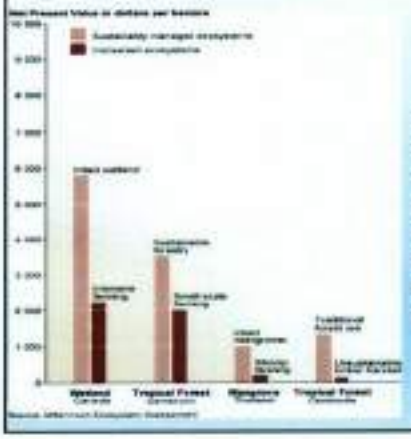
Prolific growth of unwanted aquatic biota

Status of Major Groups of Wetland-dependent Species

Species Group	Status and trend
Waterbirds	41% are in decline. Of the 964 bird species that are wetland-dependent, 203 (21%) are globally threatened.
Mammals	Over one third (37%) of the freshwater-dependent mammal species are globally threatened.
Freshwater Fish	±20% of the world's 10,000 described freshwater fish species have been listed as threatened or endangered.
Amphibians	1,856 sps of amphibian species are threatened, of which 964 sps are freshwater. 43% sps are declining
Turtles	> 75% of freshwater turtle species in Asia are globally threatened, 18 sps are critically endangered.
Crocodiles	Of the 23 species of 4 are critically endangered, 3 endangered, and 3 vulnerable.

Type of change in ecological character

Type of change	Cause	Response of wetland
Physical changes	Change in water regime	Altered vegetation communities
	Increased siltation	Loss of wetland area
	Land reclamation	Loss of wetland area
Chemical changes	Increased nutrient load	Degradation of water quality
	Increased water pollution	Loss of aesthetic value, loss of consumptive benefits
Biological change	Weed infestation	Decreased waterfowl abundance
	Loss of nesting trees	Decreased in breeding birds
	Excessive biomass removal	Decline in predatory species
	Introduced species	Change in composition of native species



Total economic value associated with managing ecosystems more sustainably is often higher than the value associated with conversion

Emergence of responses at International levels

- Ramsar Convention on Wetlands (1971)
- Convention on Biological Diversity (1992)
- Other international instruments (CMS, CITES)

Responses at National level

- National Wetland Authority
- Integrated Coastal Zone Management Plan (ICZMP)
- National Plan for Conservation of Aquatic Ecosystems (NPCA)

Ramsar Sites Status (Wetlands of International Importance)

Global: 2412 sites/ 254467869 Ha

India: 41/ 1071861 Ha

Odisha: 2/ 1815 Ha (Chilika & Bhitarkanika)

Legislations for Conservation of Environment and Wildlife

Legislations	Rules	Purpose
Forest (Conservation) Act, 1980		Prevention of loss of forests
Wildlife (Protection) Act, 1972		Conservation of species
	Coastal Regulation Zone rules Eco-sensitive Zone Rules EIA Rules Wetlands (Conservation & Management) Rules	
Environment (Protection) Act, 1986	Hazardous Substance Management Rules Prevention of Water Pollution Prevention of Air Pollution Prevention of Noise Pollution	Preservation of Environment
Water (Prevention and Control of pollution) Act, 1974		Control of water pollution
Air (Prevention and Control of Pollution) Act, 151		Control of Air Pollution

Responses at State level

- State Wetland Authorities
- Wetland Development Authorities (CDA, LDA, J&K –LWDA)

Major wetlands

Chilika (Ramsar site - 1981)

Bhitarkanika Mangrove (Ramsar site - 2002)

Anshupa Lake

Wetlands selected under NPCA

Chilika
Ranjia
Kuanria
Daha
Anshupa

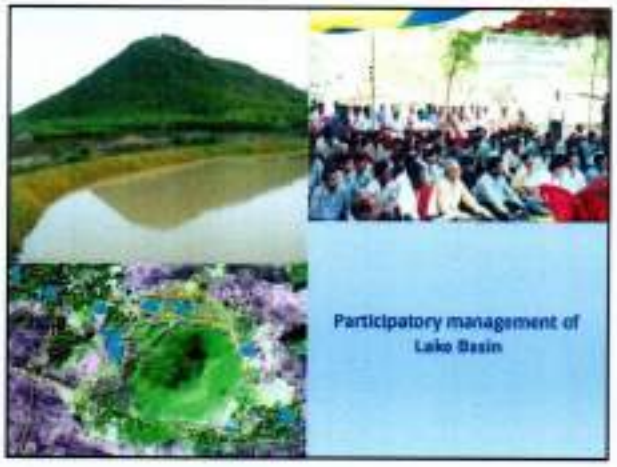
Odisha Wetland Status

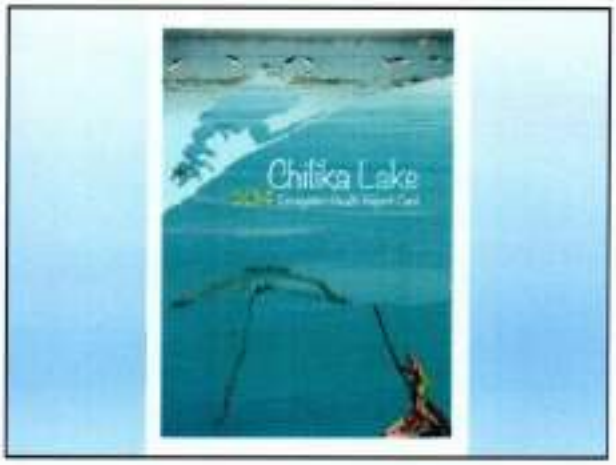
Category	Number	Total area in Sq. km	% of wetland area
Inland (Natural)	3111	2388	34.57
Inland (Man made)	7871	2202	31.87
Coastal (Natural)	560	1439	20.84
Coastal (Man made)	734	216	3.14
<2.25 Ha	66174	66174	9.58
Total	**78440**	**6909**	**100**

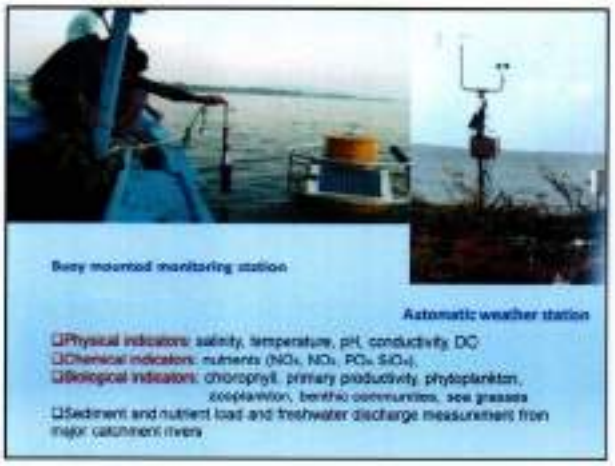
River/Streams: 2155 sq. km
Reservoirs/ Barrages: 1480 sq. km
Tank/Pond: 229 sq. km
Lagoon: 390 sq. km
Intertidal mudflat: 255 sq. km
Mangroves: 224 sq. km

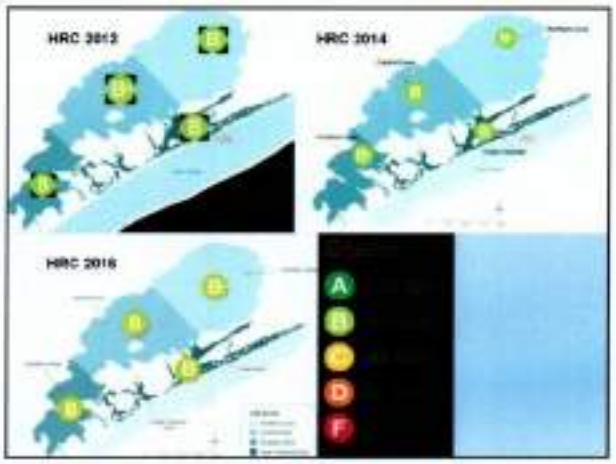
The Story of Chilika

- The first wetland of India declared as Ramsar Site (1981)
- Choking of sea mouth changed the salinity regime and anthropogenic activities changed bio-physical characteristics of the lake
- Included in Montreux Record in 1985 (as threatened wetland)
- Chilika Development Authority constituted in 1990 with Chief Minister heading the Governing Body
- Restoration of lake with dredging of sea mouth
- Removal of Chilika Lake from Montreaux Record
  - **Eviction of illegal shrimp culture**
  - **Supporting livelihood of fisherfolks**
  - **Supporting sustainable tourism**
  - **Restoration of catchment area with peoples participation**
  - **Monitoring lake health (water quality/biodiversity/habitat/water flow)**


Participatory management of
Lake Basin


Chilika Lake


Buoy mounted monitoring station
Automatic weather station
Physical indicators: salinity, temperature, pH, conductivity, DO
Chemical indicators: nutrients (NO2, NO3, PO4, SiO4),
Biological indicators: chlorophyll, primary productivity, phytoplankton,
zooplankton, benthic communities, sea grasses
Sediment and nutrient load and freshwater discharge measurement from
major catchment rivers


HRC 2013
HRC 2014
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Restoration of Bhojtal, Madhya Pradesh

- Oldest man-made lake in India
- Faced eutrophication due to excessive anthropogenic activities and urban development around lower lake including commercial cloth washing by about 250 washermen families
- Restoration programme done in 1989-92 under JICA assistance
- Major challenge was livelihood of 250 washermen families depending on lower lake for their livelihood
- All the 250 families were shifted to another place with all facilities and alternate livelihood

Lessons Learnt

- Strong political will
- Long term planning
- Inclusive management
- Capacity building
- Financial commitment

Womens' Soap Movement
Lake Biwa, Japan

- Emergence of Red Tide in 1977
- Caused due to golden algae (*Uroglena americana*)
- Attributed to phosphorus contamination from detergents
- Womens' movement to stop use of detergent containing phosphorus and use of powder soap with natural fat & oil
- Govt ordinance in 1980 to prevent eutrophication

CLIMATE CHANGE AND FORESTS: IMPACTS, MITIGATION AND ADAPTATION

Dr. Sudam Charan Sahu

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Climate change is a major global environmental issue of the 21st century that has threatened the world due to its adverse effects. The Intergovernmental Panel on Climate Change (IPCC 2007) concluded that the forest ecosystems would be affected by climate change. Forests are uniquely placed in the whole scenario of climate change as they are a sink as well as source of carbon dioxide. They store large quantities of carbon in vegetation and soil, exchange carbon with the atmosphere through photosynthesis and respiration, and act as sources of atmospheric carbon if they are disturbed by some human activities or natural causes. Forests contribute about 17.4% of the total GHG emissions (IPCC 2007). As a result, forests are at the Centre stage of global negotiations under United Nations Framework Convention on Climate Change (UNFCCC), and the Intergovernmental Panel on Climate Change (IPCC) has recognized the significant opportunity that forests provide as 'carbon sink'. In India, model based studies on assessment of climate impacts showed that about 45% of the forested grids are projected to undergo change. There is changing in the forest types and species composition. Some species may come under threatened category and some species may extinct from the earth for inability to adapt the rapid changes of the climate. Forests of Odisha state are likely to be among least vulnerable forests in

the country under A1 as well as B2 emission scenarios during the present century, and this is on account of high diversity, low fragmentation, high tree density and low rate of forest vegetation change. And also that, Odisha forests are likely to be benefited by increase in NPP from lower warming and increase in precipitation. Due to sea level rise, mangroves have been impacted adversely. Mitigation and adaptation should be followed at urgent basis. Green India Mission (GIM) and Carbon credit programme like REDD+ has to be implemented in India like developing country to conserve the forests and enhance carbon sequestration in forest sector.

Climate change refers to significant, long-term changes in the global climate.

The global climate is the connected system of sun, earth and oceans, wind, rain and snow, forests, deserts and savannas, and everything people do, too. The climate of a place, say New York, can be described as its rainfall, changing temperatures during the year and so on. But the global climate is more than the "average" of the climates of specific places. A description of the global climate includes how, for example, the rising temperature of the Pacific feeds typhoons which blow harder, drop more rain and cause more damage, but also shifts global ocean currents that melt Antarctica ice which slowly makes sea level rise until New York will be under water.

What is Global Warming?

Global warming is the slow increase in the average temperature of the earth's atmosphere because an increased amount of the energy (heat) striking the earth from the sun is being trapped in the atmosphere and not radiated out into space.

The earth's atmosphere has always acted like a greenhouse to capture the sun's heat, ensuring that the earth has enjoyed temperatures that permitted the emergence of life forms as we know them, including humans.

Without our atmospheric greenhouse the earth would be very cold. Global warming, however, is the equivalent of a greenhouse with high efficiency reflective glass installed the wrong way around. Ionically, the best evidence of this may come from a terrible cooling event that took place some 1,500 years ago. Two massive volcanic eruptions, one year after another placed so much black dust into the upper atmosphere that little sunlight could penetrate. Temperatures plummeted. Crops failed. People died of starvation and the Black Death started its march. As the dust slowly fell to earth, the sun was again able to warn the world and life returned to normal. Today, we have the opposite problem. Today, the problem is not that too little sun warmth is reaching the earth, but that too much is being trapped in our atmosphere. So much heat is being kept inside greenhouse earth that the temperature of the earth is going up faster than at any previous time in history. NASA provides an excellent course module on the science of global warming.

How does Global Warming drive Climate Change?

Heat is energy and when you add energy to any system changes occur because all systems in the global climate system are connected, adding heat energy causes the global climate as a whole to change. Much of the world is covered with ocean which heats up. When the ocean heats up, more water evaporates into clouds.

Where storms like hurricanes and typhoons are forming, the result is more energy-intensive storms. A warmer atmosphere makes glaciers and mountain snow packs, the Polar ice cap, and the great ice shield jutting off of Antarctica melt raising sea. Changes in temperature change the great patterns of wind that bring the monsoons in Asia and rain and snow around the world, making drought and unpredictable weather more common. This is why scientists have stopped focusing just on global warming and now focus on the larger topic of climate change.

What Causes Global Warming?

There are three positions on global warming: (1) that global warming is not occurring and so neither is climate change; (2) that global warming and climate change are occurring, but these are natural, cyclic events unrelated to human activity; and (3) that global warming is occurring as a result primarily of human activity and so climate change is also the result of human activity.

In general, climate scientists and environmentalists either (1) dispute the data based on, for example, new ice core data or (2) suggest that the timing issue – that is, the rapidity with which the globe has warmed and the climate changed simply do not fit the model of previous natural events. They note also that compared to other stars the sun is actually very stable, varying in energy output by just 0.1% and over a relatively short cycle of 11 to 50 years quite unrelated to global warming as a whole. The data strongly suggests that solar activity affects the global climate in many important ways, but is not a factor in the systemic change over time that we call global warming.

As for the final position that global warming and climate change result from human activity (are "anthropogenic"), scientists attribute current atmospheric warming to human activities that have increased the amount of carbon containing gases in the upper atmosphere and to increased amounts of tiny particles in the lower atmosphere.

Scientists call the tiny particles 'black carbon' (you call it soot or smoke) and attribute their warming effect to the fact that the resulting layer of black particles in the lower atmosphere absorbs heat like a black blanket. Scientists date the beginning of the current warming trend to the end of the 18th or beginning of the 19th century when coal first came into common use.

The most commonly discussed GHGs are:

CO2 or carbon dioxide is produced any time something is burned. It is the most common GHG, constituting by some measures almost 55% of total long-term GHGs. It is used as a marker by the United States Environmental Protection Agency, for example, because of its ubiquity. Carbon dioxide is assigned a GWP or Global Warming Potential of 1. Methane or CH4 is produced in many combustion processes and also by anaerobic decomposition, for example, in flooded rice paddies, pig and cow stomachs, and pig manure ponds. Methane breaks down in approximately 10 years, but is a precursor of ozone, itself an important GHG. CH4 has a GWP of 28-36.

Nitrous oxide in parean (laughing gas), NO/N2O or simply NOx is a byproduct of fertilizer production and use, other industrial processes and the combustion of certain materials. Nitrous oxide lasts a very long time in the atmosphere, but at the 100 year point of comparison to CO2, its GWP is 265-298.

Fluorinated gases were created as replacements for ozone depleting refrigerants, but have proved to be both extremely long lasting and extremely warming GHGs. They have no natural sources, but are entirely man-made. At the 100 year point of comparison, their GWPs range from 1,800 to 8,000 and some variants top 10,000.

What is black carbon and how does it cause global warming?

Black carbon (BC) is tiny particles of carbon released as a result of the incomplete combustion of fossil fuels, biofuels and biomass. These particles are extremely small, ranging from 10 µm (micrometers, PM10), the size of a single bacterium to less than 2.5 µm (PM2.5), one thirtieth the width of a human hair and small enough to pass through the walls of the human lung and into the bloodstream.

What are the most important sources of GHGs and black carbon?

Fossil fuel and related uses of coal and petroleum are the most important sources of GHGs and black carbon (power generation, industry, transportation, buildings). Agriculture is the second most important source (animals – cows and pigs), feed production, chemical intensive food production, and flooded paddy rice production, as well as deforestation driven by the desire to expand cultivated areas.

Natural sources of GHGs and black carbon include forest fires, savanna fires and volcanos. "Climate change is a global challenge and requires a global solution. Greenhouse gas emissions have the same impact on the atmosphere whether they originate in Washington, London or Beijing. Consequently, action by one country to reduce emissions will do little to slow global warming unless other

countries act as well. Ultimately, an effective strategy will require commitments and action by all the major emitting countries."

The global effort to manage climate change has been organized through what is called the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC was launched at the 1992 Rio Earth Summit to achieve GHG concentrations. Managing climate change difficulties arise from two, related reasons: climate change management is viewed as expensive and it poses what we call a collective action problem.

What is climate change mitigation?

The term mitigation refers to efforts to cut or prevent the emission of greenhouse gases - limiting the magnitude of future warming. It may also encompass attempts to remove greenhouse gases from the atmosphere. It differs from climate change adaptation, which refers to the actions taken to manage the unavoidable impacts of climate change. Adaptation is dealt with in the IPCC's working group 2 report. Mitigation may require us to use new technologies, clean energy sources, change people's behavior, or make older technology more energy efficient.

What other options are there?

Geo-engineering is one controversial area that has gathered momentum in recent years. It requires the deliberate intervention in the climate system with the aim of curbing global warming.

One example is Solar Radiation Management (SRM), which involves reflecting more of the Sun's rays away from the planet back into space. This could be done by pumping Sulphur aerosols into the high reaches of the atmosphere, where

they would have similar reflective properties to the ash released naturally by volcanoes.

"Climate change has happened because of human behavior, therefore it's only natural it should be us, human beings, to address this issue. It may not be too late if we take decisive actions today."

DEPARTMENT OF BOTANY

PATTAMUNDAI COLLEGE

PATTAMUNDAI

Affiliated to Utkal University, Bhubaneswar,Odisha

Certificate of Participation

This is to certify that Mr./Ms./Mrs. DR. ANJALI KUMARI DASH of Pattmundai College has actively participated in the National Webinar on **'Biodiversity Conservation: Its Challenges and Opportunities'** organized by Department of BOTANY Pattamundai College, Pattamundai, Kendrapara, Odisha.

Date:19th September 2020, Certificate No-KOXAYK-CE000035

Dr. A.Dash	Dr. N. K.Dhal	Mr. B.R.Dash	Prof A.L.N Dash
Convenor	Resource Person	Resource Person	

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11/17/2020 12:38:14	[illegible]	DEBA SHANKAR MARM	U.N. COLLEGE, NALAGA	Asst. Professor	BOTANY	ODISHA	8270385765	THANK YOU
11/17/2020 12:40:19	[illegible]@gmail.com	SUSANTA ROUT	PATTAMUNDAI DEGRE	Student	ZOOLOGY	ODISHA	7735675879	
11/17/2020 12:43:36	[illegible]@gmail.com	Bikram Pradhan	North Orissa University	Student	Botany	Orissa	07908138293	
11/17/2020 12:43:49	[illegible]	BIRENDRA PAL	North Orissa university	Student	Botany	Odisha	7684038530	Thanks
11/17/2020 12:47:37	[illegible]	SABITA TUDU	North Orissa University, B	Student	BOTANY	Odisha	8114060988	
11/17/2020 12:49:01	[illegible]	DR. SUDAM CHARAN S	North Orissa University	Asst. Professor	Botany	Odisha	9437764583	Thanks
11/17/2020 12:51:23	[illegible]	[illegible]	pattamundai college patt	Student	Zoology	odisha	6372408671	yes
11/17/2020 12:51:59	[illegible]	MONALI BARAL	Pattamundai Degree Colle	Student	Zoology	ODISHA	9861482757	
11/17/2020 13:02:08	[illegible]	Mr. Jitendra Malik	Pattamundai College, Pat	Asst. Professor	Commerce	Odisha	+917008598318	
11/17/2020 13:04:19	[illegible]	KUMARI ALISHA MOHA	North Orissa University	Student	Botany	Odisha	09937403088	
11/17/2020 13:05:40	[illegible]	Yasaswinee Rout	North Orissa University,	Research Scholar	Department of Botany	Odisha	9853648970	
11/17/2020 13:09:05	[illegible]	ANUJA MISHRA	Utkal College Bhubaneswar	Asso. Professor	Botany	Odisha	9437044545	
11/17/2020 13:11:38	[illegible]@gmail.com	ARYABARTINI JENA	Pattamundai college Patta	Student	Math	Odisha	9668388747	Thank you
11/17/2020 13:38:38	[illegible]	SUCHITRA SWAIN	Kendrapara Autonomous	Student	Chemistry	Odisha	7381203330	Thank you
11/17/2020 13:56:06	[illegible]	SANDEEP KUMAR SING	Government College of pl	Student	Botany	Odisha	7008764067	
11/17/2020 13:56:48	[illegible]	ARCHITA PANDA	Pattamundai college	Student	Zoology department	Odisha	7853842716	Thank you
11/17/2020 14:05:45	[illegible]	SUVAM LENKA	Pattamundai College, patt	Student	Physics	Odisha	7325880029	Lot of thanks for organizing
11/17/2020 14:14:19	[illegible]	MANISHA RANI SAHU	North orissa university	Student	Botany	Orissa	8249334344	
11/17/2020 14:30:59	[illegible]	DARSHARANI PRADHAN	SN clg	Student	Zoology	Odisha	6372979086	
11/17/2020 15:31:29	[illegible]@gmail.com	SUDHANSUBALA ROUT	FM AUTONOMOUS COL	Reader in Botany	Botany	Odisha	8688370676	Thank you

[illegible]	[illegible]	[illegible]	Pattamundai College, Patt	Student	Physics	Odisha	7328469009	Lot of thanks for organising
11/17/2020 14:14:19	[illegible]@gma	MANISHA RANI SAHU	North orissa university	Student	Botany	Orissa	8249334344	
11/17/2020 14:30:59	[illegible]@gma	BARSHARANI PRADHAN	SN clg	Student	Zoology	Odisha	6372979686	
11/17/2020 15:31:22	[illegible]@gmail.com	SUDHANSUMALA ROUT	PN AUTONOMOUS COL	Reader in Botany	Botany	Odisha	8658075875	Thank you
11/17/2020 15:38:37	[illegible]@gmail.com	L SRIKAMALA	D.R.NAYAPALLI COLLE	Research Scholar	BOTANY	ODISHA	9658124287	
11/17/2020 15:47:38	lpmishra_2000@yahoo.c	DR. LADUKESH PRASA	Prananath College Autono	Reader	Botany	Odisha	9437138239	
11/17/2020 15:52:58	[illegible]@gmai	KALPANA DAS	Nimapara Autonomous C	Asst. Professor	Botany	Odisha	7873194815	
11/17/2020 15:58:37	[illegible]@gmai	JAYANTA KUMAR MOH	gcp college	Asst. Professor	Botany	Odisha	9437303147	All the best
11/17/2020 15:59:07	[illegible]@gmail.c	MANASI SARANGI	[illegible] Mahavidyala	Asst. Professor	Botany	Odisha	9937469052	Thank you
11/17/2020 16:02:41	[illegible]@gmail.co	DR. GITANJALI ROUT	PRANANATH AUTONOM	Asst. Professor	BOTANY	ODISHA	9437317987	
11/17/2020 16:11:55	[illegible]	SANDHYA CK	MAHENDRA INSTITUTE	Student	ECE	tamilnadu	[illegible]	Thankyou for opportunity
11/17/2020 16:31:13	[illegible]@gmail.c	DR SASMITA BHUYAN	Choudwar College Utkal	Asst. Professor	Botany	Odisha	9337078438	
11/17/2020 16:53:18	[illegible]177@gmail	DIPTIMAYEE MALIK	Pattamundai college	Student	Botany	Orissa	9861485176	
11/17/2020 16:55:34	[illegible]@gmail	ANITA DAS	M.S.M. City College, Raj	Reader in Botany	Botany	Odisha	9438494376	All the best. Thank u all
11/17/2020 17:13:50	[illegible]@gmai	Manas Ranjan Mohanta	North Orissa University	Research Scholar	Botany	Odisha	7008524274	
11/17/2020 17:36:37	[illegible]@gma	DARSHAN PANDA	National Rice Research I	Research Scholar	Plant physiology and Bio	Odisha	7008284458	
11/17/2020 17:46:31	[illegible]@gma	CHETNA MOHAPATRA	Stewart science College	Student	Botany	Odisha	9861494013	I would like to join the national
11/17/2020 18:30:23	[illegible]@gmail.c	ANKITA NAYAK	CBSH, OUAT, BHUBAN	Student	BOTANY	ODISHA	7978093458	Cn
11/17/2020 18:32:46	[illegible]2013@gr	GUPTESWAR [illegible]	DAYANIDHI DEGREE C	Asst. Professor	BOTANY	ODISHA	9040321824	
11/17/2020 18:52:12	[illegible]@gmail.com	Dr. T. VELPANDI	[illegible]	Asst. Professor	Commerce	Tamil Nadu	9488474757	Ok
11/17/2020 19:00:54	[illegible]@gmail	DEEPTIMAYEE SAMAL	K.B.College, [illegible]	Asst. Professor	Botany	Odisha	9776363712	
11/17/2020 19:03:22	[illegible]@gmail.c	AHANYA DAS	North Odisha University,	Student	Botany	Odisha	7894515573	
11/17/2020 19:11:33	[illegible]@gmail.com	DR. L. AJITKUMAR SINH	[illegible] Girls' College, Akam	Asst. Professor	Chemistry	Manipur	+919436022976	
11/17/2020 20:09:30	[illegible]@gmail.com	THEJESH T N	HMS institute of technolo	Asst. Professor	Civil engineering	Karnataka	[illegible]	
11/17/2020 20:12:48	[illegible]@gmail.co	[illegible]	Rabindra Bharati Universi	Student	mw	West bengal	08981148540	
11/17/2020 20:36:25	[illegible]@gmail.com	FAUNDER SINGH	GMS [illegible]	Head Master	Education Department	Punjab	9855422216	
11/17/2020 21:13:40	[illegible]@gm	RAJASHREE SAMANTA	SSJ Mahavidyalaya Rajn	Lecturer	Botany	Odisha	9937281624	Thank you
11/17/2020 21:37:32	[illegible]@gmail.c	DR PRASANT KUMAR P	Choudwar Mahavidyalay	Asst. Professor	Botany	Odisha	[illegible]	Thanks
11/17/2020 21:56:07	[illegible]@gm	RAJALAXMI SAHOO	D.R.Nayapalli College	Professor	Botany	Odisha	9937790031	
11/17/2020 22:31:22	[illegible]@gmail.com	DR. MITHILA DAS	S.N.College, Rajkanika	Asst. Professor	Zoology	Odisha	9438051850	
11/17/2020 22:38:20	[illegible]@gmail.co	Dr Gouri Prasad [illegible]	Kendrapara Autonomous	Asst. Professor	Zoology	Odisha	9937491261	
11/18/2020 0:04:10	[illegible]@gmail.com	Dr Gouri Sankar Juga Pa	S.G College, Kanikapada,	Asst. Professor	Botany	Odisha	9937819525	Thank u
11/18/2020 0:18:41	[illegible]@yahoo.com	DR. ASHIRBAD MOHAP	Sri Jayadev College of Ed	Asst. Professor	Botany	Odisha	9861145218	
11/18/2020 2:47:36	[illegible]@yahoo.in	ANWESA RATH	SBR Govt Women's Colle	Student	Science	Odisha	9437127759	Thanks
11/18/2020 7:18:50	[illegible]@gmail	DIBYANSHU DAS	Pattamundai college, pat	Student	Botany	Odisha	9178418624	
11/18/2020 8:29:54	[illegible]@gmail.com	Bijay Kumar [illegible]	College	Student	Mechanical	ODISHA	[illegible]	
11/18/2020 9:10:44	[illegible]@gmail.com	[illegible] NAYAK	PATTAMUNDAI DEGREE	Student	Botany	Odisha	[illegible]	Welcome
11/18/2020 9:36:23	[illegible]@gmail.c	RAJARAM PATEL	Central University of Hary	Student	Education	Odisha	7751910466	Thank you
11/18/2020 9:56:40	[illegible]@gma	[illegible] PRADHAN	[illegible] Women's High	Lect in Botany	Botany	Odisha	[illegible]	
11/18/2020 9:58:21	[illegible]@gr	Binayak Mohapatra	Utkal university	Student	Botany	Orissa	09337494344	
11/18/2020 9:58:23	[illegible]@gmail	NITISH PADHAN	Rajendra Autonomous Co	Student	Botany	Odisha	7504528589	
11/18/2020 10:00:14	[illegible]@gmail.c	SHRUTIMAYEE BARIK	Gangadhar University	Student	Lifescience	Odisha	7008260831	
11/18/2020 10:00:29	[illegible]	SADHANA PRIYADARSI	Rama Devi Women's Uni	Student	Life science	Odisha	[illegible]	
11/18/2020 10:06:31	[illegible]@gmail	Sushree Pragya Priyada	North Orissa University	Student	Botany	Odisha	[illegible]	
11/18/2020 10:07:00	[illegible]@gmail.c	SUSHREE SANGITA BA	Khallikote University	Research Scholar	PG. Department of Botan	Odisha	[illegible]	Thanks a lot for this initiative
11/18/2020 10:12:08	[illegible]@gmail	[illegible] BEHER	GOVT. WOMEN'S COLLE	Asst. Professor	Botany	Odisha	[illegible]	Welcome
11/18/2020 10:12:28	[illegible]@gmail.com	[illegible]	Ravenshaw University	Student	Lifescience	Odisha	9658617775	All d best
11/18/2020 10:14:57	[illegible]@gmail	[illegible]PRIYA NAIK	NORTH ORISSA UNIVE	Student	BOTANY	ODISHA	[illegible]	Thank you for this opportunity
11/18/2020 10:32:07	[illegible]@gmail.c	SUSHREE SUCHITRA D	Pattamundai college, patt	Student	Botany	Odisha	[illegible]	
11/18/2020 10:38:30	[illegible]@gmail.com	[illegible] SAMAL	[illegible] Mahavidyalay	Lecturer in botany	Dept of Botany	Odisha	[illegible]	
11/18/2020 11:04:10	[illegible]@yahoo.c	Hari Shankar Lal	Vinoba Bhave University	Research Scholar	P.G.Department of Botan	JHARKHAND	[illegible]	Yes
11/18/2020 11:21:38	[illegible]	PRIYADARSHANI SAHO	S.N.college Rajkanika Ke	Student	Department of zoology	Odisha	6372042342	
11/18/2020 11:31:49	[illegible]@g	SOUBHAGYAWATI BEHE	S.N college	Student	Zoology	Odisha	8114898750	
11/18/2020 11:33:13	[illegible]@gmail.c	JAYASHREE ROUL	S.N College, Rajkanika	Student	Zoology	Odisha	9668777397	
11/18/2020 11:34:44	[illegible]@gmail	SUPRIYA PANDA	SN Degree college Rajka	Student	Zoology	Odisha	[illegible]	Thank you
11/18/2020 11:53:24	[illegible]@gmai	BISWA RANJAN ROUT	College	Student	Zoology	Odisha	[illegible]	
11/18/2020 12:01:51	[illegible]@gm	DILLIP KUMAR DEBATA	[illegible] college	Lecturer	Botany	Odisha	[illegible]	
11/18/2020 12:04:03	[illegible]@gmail	[illegible] SWAIN	Kendrapara Autonomous	Student	Department of Zoology	Odisha	[illegible]	Yes
11/18/2020 12:04:25	[illegible]@gmail	PRIYANKA PRIYADARSI	Kendrapara Autonomous	Student	Zoology	Odisha	[illegible]	


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Prajnya Paramit...
Padmavati Mah...

ପଟ୍ଟାମୁଣ୍ଡାଇ କଲେଜ ଉଦ୍ଭିଦ ବିଜ୍ଞାନ ଜାତୀୟ ୱେବିନାର

ପଟ୍ଟାମୁଣ୍ଡାଇ, ୨୩।୧୧ (ନି.ପ୍ର): ପଟ୍ଟାମୁଣ୍ଡାଇ କଲେଜ ଉଦ୍ଭିଦ ବିଜ୍ଞାନ ବିଭାଗ ପକ୍ଷରୁ ଜୈବ ବିବିଧତାର ସଂରକ୍ଷଣ ଓ ଏହାର ସୁଯୋଗ ଶୀର୍ଷକ ଜାତୀୟ ୱେବିନାର କଲେଜ ଅଧ୍ୟକ୍ଷ ପ୍ରଫେସର ଅଧିକାରୀ ଲକ୍ଷ୍ମୀନାରାୟଣ ଦାସଙ୍କ ପୌରୋହିତ୍ୟରେ ଅନୁଷ୍ଠିତ ହୋଇଯାଇଛି। ଏଥିରେ ଭୁବନେଶ୍ୱର ଆରଏମଆରସି ମୁଖ୍ୟ ବୈଜ୍ଞାନିକ ଡା. ନବୀନକୁମାର ଧଳ, ରାଜନଗର ବନଖଣ୍ଡ ଅଧିକାରୀ ବିକାଶରଞ୍ଜନ ଦାସ, ଉତ୍ତର ଓଡ଼ିଶା ବିଶ୍ୱବିଦ୍ୟାଳୟ ସହକାରୀ ପ୍ରଫେସର ଡ. ସୁଜାତାରଞ୍ଜନ ସାହୁ ପ୍ରମୁଖ ବୈଷୟିକ ଦିଗରେ ଆଲୋଚନା କରିଥିଲେ। ଅଧ୍ୟାପକ ଡା. ମାନସ ନାୟକଙ୍କ ସଂଯୋଜନାରେ ଆୟୋଜିତ କାର୍ଯ୍ୟକ୍ରମରେ ପଟ୍ଟାମୁଣ୍ଡାଇ କଲେଜ ଉଦ୍ଭିଦ ବିଜ୍ଞାନ ମୁଖ୍ୟ ଡ. ପ୍ରକୃତି ଦାଶ ସ୍ୱାଗତ ଭାଷଣ ଓ ଅତିଥି ପରିଚୟ ପ୍ରଦାନ କରିଥିଲେ। ଅଧ୍ୟାପିକା ସୁଚିସ୍ମିତା ବିଶ୍ୱାଳ ଧନ୍ୟବାଦ ଦେଇଥିଲେ।

ସମାଜ ତା ୨୮-୧୧-୨୦୨୦

ଜାତୀୟସ୍ତରୀୟ ୱେବିନାର

ପଞ୍ଚମୁଖୀ,୨୪/୧୧(ସମିସ): ପଞ୍ଚମୁଖୀ କଲେଜ ରସାୟନ ବିଜ୍ଞାନ ପକ୍ଷରୁ ଏକ ଜାତୀୟ ୱେବିନାର ଅନୁଷ୍ଠିତ ଯାଇଛି। କଲେଜ ଅଧ୍ୟକ୍ଷ ପ୍ରଫେସର [illegible] ଦାସ ଏହି ୱେବିନାରରେ ଅଧ୍ୟକ୍ଷତା କରିଥିଲେ। 'ଜୈବ ବିବିଧତାର ସଂରକ୍ଷଣ ଓ ଏହାର ସୁଯୋଗ ଓ ଆହ୍ୱାନ' ଶୀର୍ଷକ ଜାତୀୟ ୱେବିନାରରେ [illegible] ମୁଖ୍ୟ ଅତିଥିଭାବେ [illegible] ମୁଖ୍ୟ ବୈଜ୍ଞାନିକ [illegible] ଡକ୍ଟର [illegible] ଦାସ, [illegible] ବିଶ୍ୱବିଦ୍ୟାଳୟର ସହକାରୀ ପ୍ରାଧ୍ୟାପକ [illegible] ପ୍ରମୁଖ ବିଷୟଗୁଡ଼ିକ ଆଲୋଚନା କରିଥିଲେ। ପଞ୍ଚମୁଖୀ କଲେଜ [illegible] ବିଜ୍ଞାନ ବିଭାଗର ମୁଖ୍ୟ [illegible] ସ୍ୱାଗତ ଭାଷଣ ଓ ଅତିଥି ପରିଚୟ ପ୍ରଦାନ କରିଥିଲେ। ଅଧ୍ୟାପିକା [illegible] ଧନ୍ୟବାଦ ଅର୍ପଣ କରିଥିଲେ। ଅଧ୍ୟାପିକା [illegible] ଓ ଅଧ୍ୟାପକ [illegible] ଏହାକୁ ପରିଚାଳନା କରିଥିଲେ।

ସମ୍ବାଦ ତା। ୨୭-୧୧-୨୦୨୦

Pattamundai College

Pattamundai

Celebrating Golden Jubilee Year

REPORT

AN EXTRAMURAL WEBINAR ON

"Impact of COVID-19 on Banking Sector of India"

Resource Person:

Mr. Prasant Kumar Behera
Asst. Professor & Head
Department of Economics
Central University of Odisha
Sunabeda, Koraput, Odisha

Held At 11 AM On 12th September 2020

Organized by:

DEPARTMENT OF ECONOMICS
PATTAMUNDAI COLLEGE
PATTAMUNDAI

REPORT

An extramural webinar was organised by the Department of Economics, Pattamundai College, Pattamundai on 12-09-2020 on the topic, ***"Impact of COVID-19 on Banking Sector of India"***. The resource person of the webinar was Mr. Prasant Kumar Behera, Head Department of Economics, Central University of Odisha. Prof. Adhikari Laxminarayan Dash, Principal of the college chaired the webinar and formally welcomed the resource person and all the participants. Mr. Pradyumna Pradhan HOD Economics gave a key note address on the topic and Mr. Subhasis Mishsra, Lecturer in Economics introduced the resource person. Most of the students of the department, other departments, staff members of the college, lecturers and research scholars from other colleges, Universities attended the webinar. The webinar was ended with a vote of thanks by Abhina Sundar Padhi, a student of +3 final year student of this college.

OFFICE OF THE PRINCIPAL
Mobile : 9437376724

PATTAMUNDAI COLLEGE

NAAC ACCREDITED B+ GRADE

PATTAMUNDAI, KENDRAPARA, ODISHA - 754215

Ref No. :.....831..... Date...07/09/2020.....

To

Mr. Prasant Kumar Behera

Asst. Professor and Head,
Department of Economics &
Department of Business Management
Central University of Odisha,
Sunabeda, Koraput, Odisha

Sub: -Request to act as a Resource Person

Dear Sir,

You are requested to act as a Resource Person for the extramural webinar on **"Impact of COVID-19 on Banking Sector of India"** which is going to be organised by the Department of Economics, Pattamundai College, Pattamundai at 11.00 am on 12th September 2020.

Your kind consent is highly solicited.

7.9.20

Principal
Pattamundai College

Gmail prasantkumarbehera5@gmail.com

744

Invitation to act as Resource Person

Inbox ×

Principal Pattamundai College
Principal Pattamundai College pattamundaicollege@gmail.com

Prasant Kumar Behera
to me

Thank you so much sir. I am herewith accepting the invitation and giving my consent for the same. F

Yours sincerely

Prasant Kumar Behera
Asst. Professor & HoD I/c
Department of Economics &
Department of Business Management
Central University of Odisha
Sunabeda, Koraput, Odisha, Pin-763004
Mobile Number:- 9438483800/9861190395

On Mon, Sep 7, 2020 at 12:35 PM Principal Pattamundai College <pattamundaicollege@gmail.com>

> **Principal**
> **Pattamundai College**
> pattamundaicollege@gmail.com

No
Ste

DEPARTMENT OF ECONOMICS
PATTAMUNDAI COLLEGE , PATTAMUNDAI

Organises
a Webinar on

"Impact of COVID-19 on Banking Sector of India"

Date: 12.09.2020 , Time:11 A.M

RESOURCE PERSON

Mr. Prasant Kumar Behera
Asst. Professor & Head
Department of Economics &
Department of Business Management
Central University of Odisha

Prof. A.L.N Dash
Principal
Pattamundai College
Pattamundai

Mr. Pradyumna Pradhan
H.O.D Economics, Convenor

Mr. Subhasis Mishra
Co-Convenor

PRASANT KUMAR BEHERA
Asst. Professor & HoD
Dept. of Economics
&
Dept. of Business Management
Central University of Odisha
Suanbeda, Koraput, 763004
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Webinar
on
Impact of COVID-19 on India's Banking Sector

Delivered By

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COVID-19 is undoubtedly one of the biggest global events of our lifetimes, presenting unprecedented challenges to many industries, governments and people all over the world. The pandemic remains a health and humanitarian crisis, and the business and economic impact has been deep and far reaching. Financial services firms, in particular, have the opportunity to help consumers and businesses weather the economic downturn and navigate the current storm.

The Indian economy wasn't in great shape even before the Covid-19 outbreak, which has only made matters worse. The report by the Reserve Bank of India's (RBI) expert committee on a resolution framework, headed by former ICICI Bank chief K V Kamath, brings this out clearly. The report notes that the pandemic "has affected the best of companies" and businesses that were otherwise viable before the outbreak. Experts believe that banks may be more risk-averse to restructuring loans this time around, having already suffered big losses in previous restructuring efforts.

Nineteen sectors, which were not under stress before the pandemic but have been hit it, account for Rs 15.5 lakh crore of debt. Retail and wholesale trade are the worst affected with outstanding debt of Rs 5.4 lakh crore. The pandemic has also affected 11 sectors which were already under stress. These sectors have a debt of Rs 22.2 lakh crore. Non-banking financial companies (NBFCs) have the

highest , Rs 7.98 lakh crore, among these sectors. Agriculture and allied products make up the biggest silver lining in India's debt landscape. This sector has debt of Rs 9.8 lakh crore. It was stress-free before the pandemic and continues to be so.\

Financial Institutions need to plan for a multiple scenario till operations are normalized keeping both their customers as well as employees needs at the centre of their businesses. It is expected that the government stimulus will plan to address the broader economic challenges. There will be disruptions and delinquencies, however these challenges will open up choices for deepening customer relationships, investments in technology of the future, shift in mind-sets to truly adopt and execute future of work. Financial institutions need to evaluate, test and implement business continuity and contingency plans along with building business innovations and operational flexibilities. Institutions that take sensitive measures to ensure customer and employee reliefs, will be able to truly differentiate and eventually grow and sustain themselves. In summary, times will be tough but by adopting a vigilant short, medium and long-term action plan, financial services players will emerge from this crisis as stronger, confident and socially responsible institutions. Institutions which use the downturn to sharpen their business models are likely to gain more from the impetus which the government stimulus is likely to provide.

A lot has been done already. Banks in India have focused on maintaining critical staff at branches and have temporarily redeployed staff to manage online or phone enquiries from customers. They've also deployed mobile ATMs and implemented doorstep banking for senior citizens and other customers that need additional attention. We expect financial firms to implement video collaboration tools, new chat and messaging software and other fintech innovations to continue live interactions with customers who have been coping with social distancing norms, with some already making use of common consumer apps to that end. Several banks have made investments in technology and digital transformation

over the past couple of years. A lot of them, however, are still heavily reliant on face-to-face interactions, supported by paper processes. So, we expect to see renewed vigor in the Indian financial services industry with banks making a concerted effort to up their digital game. This will be critical as COVID-19 is likely to have a prolonged impact, and banking touches every part of our economy.

Most banks have addressed the immediate challenges of COVID-19, related to protecting staff and providing much needed services to customers. They now have the chance to be active participants to help mitigate this crisis, and there are four key areas they can focus on to help navigate the current situation:

- **Customer Service and Advice**: As a result of social distancing, an increasing number of consumers are using online banking channels to manage their money. This is likely to result in a more permanent shift in customer preferences to digital channels and an increased demand for digital services. It's important for banks to be accessible to all consumers, including the elderly or those not familiar with digital banking, providing education on how to use digital tools, keeping ATMs stocked and operational. As customers seek help and advice on short-term cash management and re-planning their future, banks would need to prioritize live interactions through video collaboration tools. This increase in digital customer engagement must go hand in hand with a ramp-up of cybersecurity and fraud-protection tools to protect customers.
- **Credit Management:** Even with the Indian government's stimulus packages and Reserve Bank of India's (RBI) liquidity measures, banks can expect an increase in loan defaults as borrowers across customer groups struggle to make payments in the face of an economic crisis resulting from lost business and jobs. Besides the moratorium facility announced by the RBI for all term loans, as part of the COVID-19 package, lenders should consider proactively restructuring loans to reduce the cashflow burden in the near term, thus reducing defaults in the immediate future. The industry must work together to

make the financial relief process quick and easy to deploy. Banks should proactively initiate credit forbearance and modification programs using a data-driven approach to understand which customers need help and then rapidly reach out with tailored, relevant solutions. Even with these programs in place, some customers may still not be able to make their next payments. So, banks should prepare for losses and build capacity to deal with an increase in delinquent loans. As consumer demand picks up, albeit gradually, post lockdown, banks will need to repurpose their go-to-market and customer acquisition model, keeping in mind changing consumer behavior post COVID-19, as well as focus on digitally native journeys and re-look at underwriting norms for better risk discovery.

- **Revenue Compression**: Revenue from retail and commercial banking is falling sharply, as underlying consumption and transactions have seen an exponential dip. While central banks around the world slash interest rates, banks are reducing yields to generate business, thus significantly reducing net interest margins. Income from payments and other fee-based services are hit by a general decline in economic activity. With measures like moratorium periods provided on loans, banks' cashflow have also taken a hit. We expect an overall drop of up to 10% in banks' payments revenues, which means a USD 150 billion top-line decline for the industry globally, as demand in sectors like retail and entertainment falls sharply or moves to online channels, while activity in areas such as tourism and travel evaporates. There is little that banks can to do to stop the overall drop in revenue, but they can focus on making payments safer by increasing limits on contactless payment channels and educating consumers on digital wallets. Banks can also focus on cashback and loyalty rewards to encourage spending in sectors that need it the most.
- **Operating Model Adjustments, Cost Elasticity and Innovation**: Over the next few quarters, the banking sector will face a misalignment between short-term costs and revenues due to the economic impact of COVID-19. Banks

would need to review and prioritize current projects to ensure allocation of resources to the most pressing needs. Banks should also focus on investing in areas that will outlive the current pandemic, including projects and initiatives that maintain or improve the customer experience such as a paperless utility, end-to-end digital advisory and lending capabilities, increased fraud and cybersecurity analysis and detection, etc. These new digital tools will make banks more efficient and resilient to future changes. Banks that haven't focused on remote working and virtual collaboration in the past should explore establishing elastic operations. This will insure banks against such unprecedented lockdowns and perhaps better manage cost overheads.

COVID-19 will have long-lasting impact on many industries including banks. Post crisis, digital maturity and COVID-19 resiliency will determine strategy of banking players with three segments emerging: banks that are already future-ready with truly digital banking capabilities and cost elasticity, banks that are digital laggards and that need to evolve and renew due to sub-par COVID-19 resiliency, and lastly banks that will struggle to survive as a result of being digital laggards with sub-par financial and operational resiliency. COVID-19 will change our behaviors as customers, citizens and employees in India and around the world. As people become more focused on their well-being, businesses will also need to understand how they can be part of a new health ecosystem that is likely to dominate customer thinking going forward. The idea that "every business is a health business" is already emerging in many corners of financial services, and that is perhaps one of the few positive lasting impacts to result from COVID-19.

Challenges in Retail Banking

Banks form the backbone of every economy and play a critical role in the lives of citizens by providing them with essential financial services. It is

important for banks to remain operational during such a crisis. However, like other organisations affected by COVID-19, banks would also need to undergo certain long-term changes in the way they function. They will need to adhere to the guidelines on social distancing and safety precautions in their branches and offices. This can create challenges such as:

- decline in revenue generation due to lower customer footfalls, lower demand, reduced and remote working of staff
- likely stress on net interest income owing to skewed interest expense
- requirement of additional provisioning owing to an increase in expected stressed assets
- higher costs for ensuring 'lights on' operations.

In spite of these challenges, there is a significant opportunity for banks to transform themselves in areas such as cost optimisation, digitalisation and productivity, and become resilient, agile and profitable.

Suggestions for the Banks

- adapting to new customer norms and analysing customer preferences towards channels, products or financial needs, and changing business models accordingly
- ring-fencing profitable customers by providing customised services
- focusing on building a good brand image to earn customer loyalty
- revisiting the strategy for capturing new market segments via new products and channels
- evaluating intra-industry partnerships for sales and services
- reconstructing the resilience plan by incorporating wider exigencies and scenarios.

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Certificate of Participation

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Pradyumna Pra...
Subrat Lenka
gitanjali lenka


Pradyumna Pra...
Sasmita Rout

ପଟ୍ଟାମୁଣ୍ଡାଇ କଲେଜ ଅର୍ଥଶାସ୍ତ୍ର ବିଭାଗ ପକ୍ଷରୁ ଅନ ଲାଇନ ଆଲୋଚନାଚକ୍ର

ପଟ୍ଟାମୁଣ୍ଡାଇ, ୧୬।୯ (ନି.ପ୍ର): ପଟ୍ଟାମୁଣ୍ଡାଇ କଲେଜ ଅର୍ଥଶାସ୍ତ୍ର ବିଭାଗ ପକ୍ଷରୁ ଭାରତୀୟ ବ୍ୟାଙ୍କିଙ୍ଗ ବ୍ୟବସ୍ଥା ଉପରେ କୋଭିଡ-୧୯ ର ପ୍ରଭାବ ଶୀର୍ଷକ ଏକ ଅନ ଲାଇନ ଆଲୋଚନାଚକ୍ର ଅନୁଷ୍ଠିତ ହୋଇଯାଇଛି। କଲେଜ ଅଧ୍ୟକ୍ଷ ପ୍ରଫେସର ଅଧିକାରୀ ଲକ୍ଷ୍ମୀନାରାୟଣ ଦାଶଙ୍କ ପୌରୋହିତ୍ୟରେ ଆୟୋଜିତ ଏହି ଆଲୋଚନାଚକ୍ରରେ ଓଡ଼ିଶା କେନ୍ଦ୍ରୀୟ ବିଶ୍ୱବିଦ୍ୟାଳୟର ଅର୍ଥଶାସ୍ତ୍ର ବିଭାଗର ମୁଖ୍ୟ ସହକାରୀ ପ୍ରଫେସର ପ୍ରଶାନ୍ତକୁମାର ବେହେରା ମୁଖ୍ୟ ଆଲୋଚକ ଭାବେ ଯୋଗଦେଇ ଭାରତୀୟ ବ୍ୟାଙ୍କିଙ୍ଗ ବ୍ୟବସ୍ଥା ଉପରେ କୋଭିଡ- ୧୯ର ପ୍ରଭାବ ଏବଂ ଏହା ଦ୍ୱାରା ଭାରତୀୟ ଅର୍ଥନୀତି ଓ ସାଧାରଣ ଲୋକ କିପରି ପ୍ରଭାବିତ ହେବେ ତାହା ଆଲୋଚନା କରିଥିଲେ। ବିଭାଗୀୟ ମୁଖ୍ୟ ଅଧ୍ୟାପକ ପ୍ରଦ୍ୟୁମ୍ନ ପ୍ରଧାନ ସ୍ୱାଗତ ଭାଷଣ ପ୍ରଦାନ କରିଥିବା ବେଳେ ଅଧ୍ୟାପକ ଶୁଭାଶିଷ ମିଶ୍ର ଅତିଥି ପରିଚୟ ପ୍ରଦାନ କରିଥିଲେ। ଏହି ଆଲୋଚନାଚକ୍ରରେ ଶତାଧିକ ଛାତ୍ରଛାତ୍ରୀ ସହ ବହୁସଂଖ୍ୟକ ଅଧ୍ୟାପକ/ଅଧ୍ୟାପିକା ଅଂଶଗ୍ରହଣ କରିଥିଲେ। ଛାତ୍ର ଅଭିଜିତ୍ ପାତ୍ର ଧନ୍ୟବାଦ ଦେଇଥିଲେ।

The Samaj
17.09.2020

ଅର୍ଥଶାସ୍ତ୍ର ବିଭାଗ
ପକ୍ଷରୁ ଆଲୋଚନାଚକ୍ର

ପଟ୍ଟାମୁଣ୍ଡାଇ,୧୬।୯(ଆସ୍ପ): ପଟ୍ଟାମୁଣ୍ଡାଇ କଲେଜ ଅର୍ଥଶାସ୍ତ୍ର ବିଭାଗ ପକ୍ଷରୁ ଭାରତୀୟ ବ୍ୟାଙ୍କିଙ୍ଗ ବ୍ୟବସ୍ଥା ଉପରେ କୋଭିଡ-୧୯ର ପ୍ରଭାବ ଶୀର୍ଷକ ଏକ ଅନ୍ତର୍ଜାଲ ଆଲୋଚନାଚକ୍ର ଅନୁଷ୍ଠିତ ହୋଇଯାଇଛି। ଅଧ୍ୟକ୍ଷ ପ୍ରଫେସର ଅନୁକୂଲା ଲକ୍ଷ୍ମୀନାରାୟଣ ମାଣଙ୍କ ପୌରୋହିତ୍ୟରେ ଆୟୋଜିତ ଏହି ଆଲୋଚନାଚକ୍ରରେ ଓଡ଼ିଶା କେନ୍ଦ୍ରୀୟ ବିଶ୍ୱବିଦ୍ୟାଳୟର ଅର୍ଥଶାସ୍ତ୍ର ବିଭାଗର ମୁଖ୍ୟ ପ୍ରଫେସର ପ୍ରଜ୍ଞ ବେହେରା ମୁଖ୍ୟ ଅତିଥିରୂପେ ଯୋଗଦେଇ ଭାରତୀୟ ବ୍ୟାଙ୍କିଙ୍ଗ ବ୍ୟବସ୍ଥା ଉପରେ କୋଭିଡ- ୧୯ ର ପ୍ରଭାବ ଏବଂ ଏହାଠାରୁ ଭାରତୀୟ ଅର୍ଥନୀତି ର ସାମଗ୍ରିକ କ୍ଷେତ୍ର ବିଭିନ୍ନ ପ୍ରଭାବିତ ହେବେ ସେନେଇ ଆଲୋଚନା କରିଥିଲେ। ବିଭାଗୀୟ ମୁଖ୍ୟ ଅଧ୍ୟାପକ ପ୍ରଦ୍ୟୁମ୍ନ ପ୍ରଧାନ ସ୍ୱାଗତ ଭାଷଣ ଦେଇଥିବାବେଳେ ଅଧ୍ୟାପକ ଶୁଭାଶୀଷ ମିଶ୍ର ଅତିଥିପରିଚୟ ପ୍ରଦାନ କରିଥିଲେ। ଶେଷରେ ଅତିରିକ୍ତ ମୁଖ୍ୟ ପାଠୀ ଧନ୍ୟବାଦ ଦେଇଥିଲେ।

The Pramaya.
17.09.2020

Bikash Ranjan Dash, IFS

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This is to certify that, Green Audit and Environment Audit of Pattamundai College, Pattamundai in the District of Kendrapada, Odisha for the year 2017-18 to 2019-20 has been conducted by the undersigned.

(Bikash Ranjan Dash)
Divisional forest Officer
Mangrove Forest Division(WL)
Rajnagar

Divisional Forest Officer Mangrove Forest Division (WL) Rajnagar

GREEN AUDIT REPORT

2017-18 TO 2019-20

PATTAMUNDAI COLLEGE, PATTAMUNDAI, KENDRAPARA, ODISHA

Prepared by:-

BIKASH RANJAN DASH

DIVISIONAL FOREST OFFICER

MANGROVE FOREST DIVISION (WILDLIFE)

RAJNAGAR, KENDRAPARA, ODISHA

EXECUTIVE SUMMARY

Educational institutions are the nursing grounds for the futures of a nation's growth. A conducive learning atmosphere in an educational institution requires a clean and healthy environment. While the concept of 'Eco Club' is being adopted in institutions of primary education level to imbibe the essence of environment among the young, more environmental responsibility is required in case of institutions of higher education to achieve environmental sustainability through wise resource utilization and waste discharge to the environment. Waste minimization plan and sustainable environmental management are now mandatory for educational institutions. Environmental Auditing or Green Auditing is a process to test the environmental performance of an organization against its environmental policies and objectives.

The audit process in Pattamundai College, Pattamundai involved initial interactions with the management to clarify policies, activities, records and cooperation of staff and students in the implementation of mitigation measures. This was followed by collection of data through questionnaire, review of records, observation of practices and observable outcomes. In order to assess the quality of water and soil, data on water and soil quality was obtained by testing of samples collected from different locations of the college campus by testing laboratories. In addition, the approach ensured that the management, staff and students are active participants in the green auditing process in the college.

This is the first Green Audit of Pattamundai College and the baseline data prepared for the college will be a useful tool for campus greening, resource management, planning of future projects, and a document for implementation of sustainable development of the college. It is expected that the management will be committed to implement the green audit recommendations.

C O N T E N T S

BRIEF BACKGROUND OF THE COLLEGE

Pattamundai College, affiliated to Utkal University, Odisha, is situated away from the din and bustle of the town with five meadows and rich corn fields around. It came into being in 1970 as an Arts College with the provision for teaching pre-University Humanities course. The institute at present is a family of 1475 students with boys and girls of 869 and 606 respectively taking education at under graduate level in Arts, Commerce and Science disciplines with 80 numbers of teaching and non teaching faculties.

With a long history of 50 years and a picturesque sprawling campus of 14.6 acres land of its own is indeed a testimony of truly materialized dream of education lovers of Pattamundai. Since fifty springs has been passed, this institution continuously ventilating knowledge and has been playing a pivotal role in the development of Pattamundai and its surrounding regions. With the modest strength of 128 students in the year of its inception-1970, besides all odds and constraints the college grew manifold in leaps and bounds. It is carefully nurtured by illustrious academicians, administrators, dedicated faculties and alumni, with institutionalised efforts over the years, and it has become a premiere institution in the academic map of Odisha.

In its onward march, the institution cradled with one faculty in Arts in 1970, and introduced Honours in Political Science, History, Economics in 1978 and English, Odia, Sociology, Philosophy & Education in 1989.Then Commerce faculty was opened in 1979 and Science faculty in 1989 with introduction of Chemistry and Mathematics Honours in 1994-94 and Botany, Physics and Zoology Honours in 1998 added to its glory. The University was pleased to open a vocational subject of Tourism and Travel Management in 1998 which illuminated as land mark in development and expansion of the academic area of the college. The college has a permanent affiliation and has been listed under 2(f) and 12(B) of the UGC act which withstands the academic and administrative standards of the college. In response to the changing needs of the society and as per UGC norms innovative experiments are being carried out with help of computer networking for making the teaching learning process interactive and participative.

With the need of the time, the institution expanded its area of innovation in different respects to meet the requirement of the students as well as different stake holders.

With the infrastructural growth such as addition of new buildings, hostels, renovation of library laboratories and playground, it also emphasized to enhance its academic quality to reach the institution to a new height. It contributed toppers in Sociology and Mathematics at University level in different years with many more best students along with achievements in sports and other fields. The institution also adopted the new curriculum as changed by Utkal University at different times and prepared the students accordingly with a new idea to compete with the other in national and international levels. The contribution of its NCC, NSS and YRC students has a remarkable effect in serving the society by awarding and donating blood, planting trees, campus cleaning, observing national days etc. The institution is one step ahead by planting about 4000 trees since 1990 to make the campus an eco-friendly environment with a permanent green and waste management policy of its own. The institution is diversified with a planed electricity management to save energy by switching off the unused buildings and converting whole institution with LED bulbs. This year, the institution has also planned to install solar power to provide the main building where main electric consumption is there.

The institution has a fully operational website providing day to day information and has also fully automated library with INFLIBNET connection and e-portals to provide easy access to its all the stake holders.

Location of Pattamundai College

Vision of the College

- To make higher education qualitative and value based for the socio-economic transformation of the nation.
- To instill a sense of discipline and morality among the student's community for the making the students socially responsible citizens.

Mission of the College

- To grow into an institution of excellence and exemplary at the university level
- To provide literary, scientific, professional and technical education to the aspiring rural youth at a minimum cost.
- To be recognized as an institution with proven capacity to provide quality education in Science, Commerce & Humanities.
- To create symbiotic relationship with the society to meet the changing needs
- To introduce self-financing courses in multidisciplinary area.
- To adopt continues measures to improve the quality of the programme.
- To provide need-based career-oriented courses to the needs of the society

- To involve the Alumni for all round development of the college

NAAC Accredition

Year: 2006

Grade: B+

Courses offered:

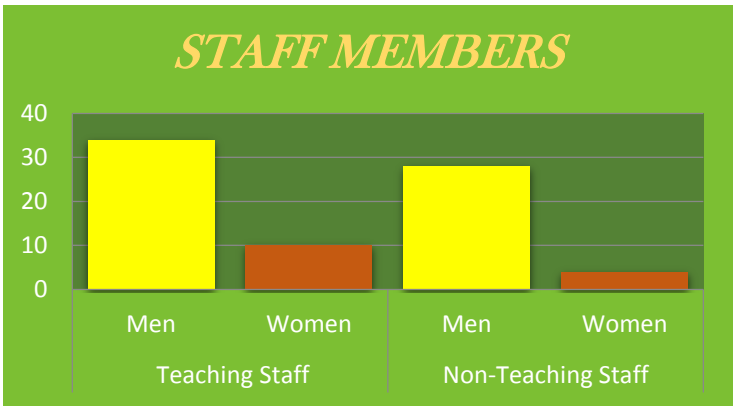
The institution offers following programmes which include the different courses as given in the table below.

PROGRAMME OFFERED	COURSES OFFERED
Bachelor of Arts	Economics
	Education
	English
	History
	Odia
	Philosophy
	Political science
	Sociology
Bachelor of Science	Botany
	Chemistry
	Mathematics
	Physics
	Zoology
Bachelor of Commerce	Commerce

Strength of Staff (Teaching/ Non-teaching):

Presently this institution runs with 76 Nos of both teaching and non teaching staff members whose continuous effort makes this institution a glorious one. Among the total staff, detailed analysis of men and women of both the categories are given.

Teaching Staff		**Non-Teaching Staff**	
Men	Women	Men	Women
34	10	28	4



Strength of Students:

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2017-18	Arts	124	352	88	126	0	0	24	105	0	0	0	5	236	588	824
	Commerce	185	103	34	22	0	0	43	36	0	0	2	3	264	164	428
	Science	97	109	25	16	0	0	26	42	0	0	3	0	151	167	318
	Total	406	564	147	164	0	0	93	183	0	0	5	8	651	919	1570

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Arts	140	392	56	107	0	0	12	61	0	0	0	3	208	563	771
	Commerce	213	120	30	13	0	0	9	13	0	0	4	2	256	148	404
	Science	114	126	22	11	0	0	3	21	0	0	3	0	142	158	300
	Total	467	638	108	131	0	0	24	95	0	0	7	5	606	869	1475

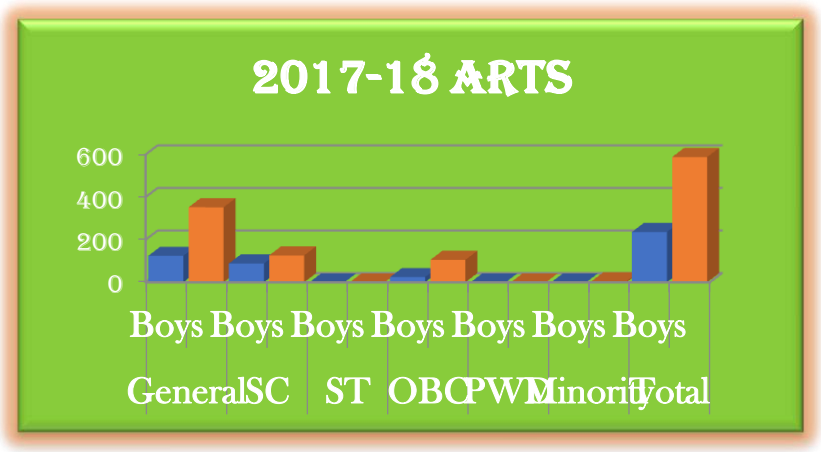
Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Arts	93	329	47	114	0	0	23	120	0	0	0	3	163	566	729
	Commerce	159	100	39	12	0	0	49	26	0	0	2	0	249	138	387
	Science	90	102	21	18	0	0	34	21	0	0	2	0	147	141	288
	Total	342	531	107	144	0	0	106	167	0	0	4	3	559	845	1404

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2017-18	Commerce	185	103	34	22	0	0	43	36	0	0	2	3	264	164	428

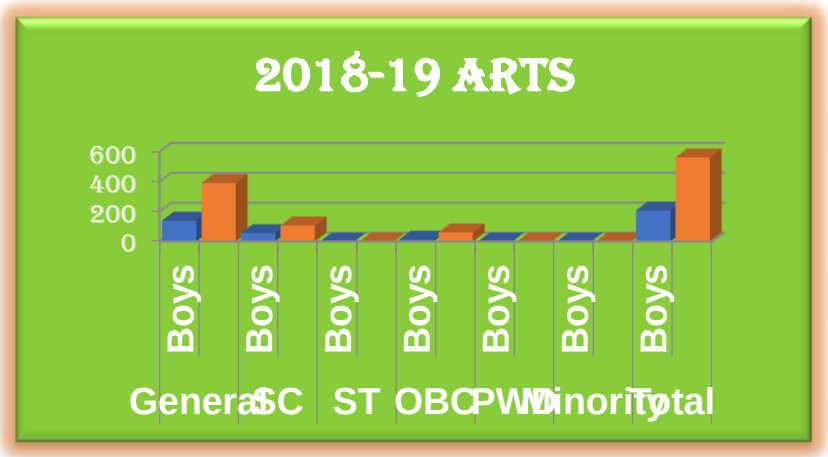
Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2017-18	Science	97	109	25	16	0	0	26	42	0	0	3	0	151	167	318

Table -7

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2017-18	Arts	124	352	88	126	0	0	24	105	0	0	0	5	236	588	824

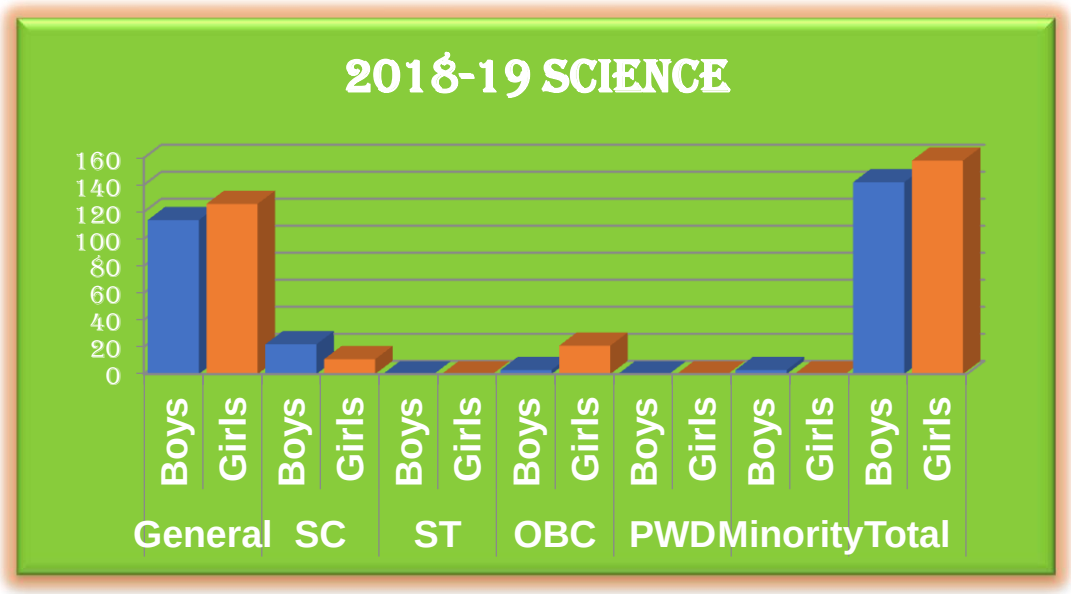


Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Arts	140	392	56	107	0	0	12	61	0	0	0	3	208	563	771



Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Commerce	213	120	30	13	0	0	9	13	0	0	4	2	256	148	404

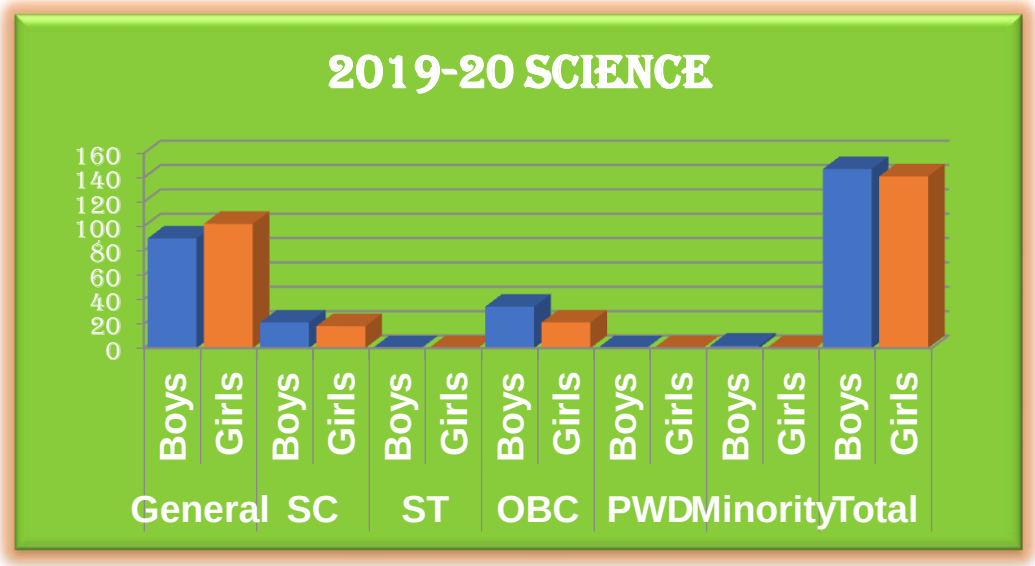
Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Science	114	126	22	11	0	0	3	21	0	0	3	0	142	158	300



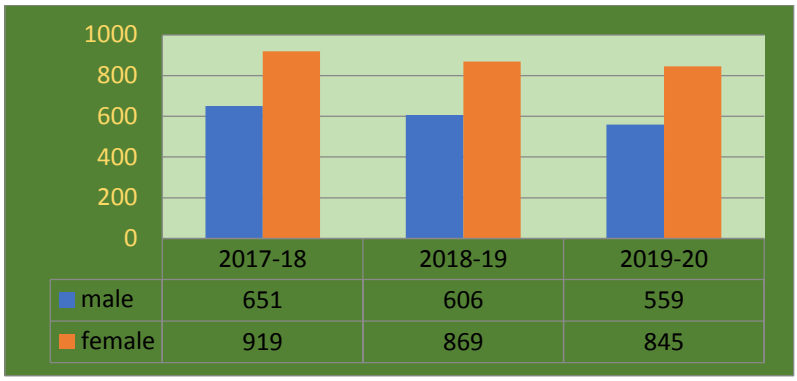
Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Arts	93	329	47	114	0	0	23	120	0	0	0	3	163	566	729

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Commerce	159	100	39	12	0	0	49	26	0	0	2	0	249	138	387

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Science	90	102	21	18	0	0	34	21	0	0	2	0	147	141	288



Year	Male	Female	Total
2017-18	651	919	1570
2018-19	606	869	1475
2019-20	559	845	1404



Physical structure (Area/ Built up area/ No. of class rooms/ libraries/ administrative rooms/ laboratories/ auditoriums/ conference rooms/ staff common rooms/ students common rooms/ hostels/ canteens/ others)

The institution has a land area of 14.6 acres of its own which is surrounded with pucca boundary fully to check the free access of the trespassers to overcome any kind of huddles in its academic atmosphere. Out of this, the built up area covers 10299.23m^2 which includes the physical

structures given in the list below to cater the need of the students as well as all other stakeholders. The rest part of the total area covers a huge playground with full of green lands of different plants. Different gardens inside the campus add to its beautification in many folds.

. **Details of physical structures**	
Physical Structure	**Area/No**
Total Area	14.6 Acre
Built Up Area	10299.23 m^2
Class Rooms	32
Libraries	01
Administrative rooms	05
Laboratories	04
Auditoriums	01
Conference rooms	01
Staff common rooms	01
Students common rooms	02
Hostels	03
Canteens	01
Guest House	01
Post Office	01
Staff Quarter	02
Stadium	01
Security Rooms	03
Principal Quarter	01
Cycle Stand	01
Examination Hall	01
Lavatories	14

Construction Area in Sqft.		
Specific area	**Size in ft**	**Total area in ft^2.**
Staff Common Room to Boys Lavatories	2(200 X 28)	11200
Administrative Block	2(125 X 28)	7000
Zoology Department	89 X 37	3293
Examination Hall	2(115 X 25)	5750
Room No-01 to 06	145 X 26	37770
Room No-26 & 27	64 X 27	1727
Library Hall	2(137 X 38)	10412
Chemistry, Botany & Math Laboratory	100 X 68	6800
Boys Hostel	92 X 67	6164
Principal Quarter	51 X 34	1734
Guest House	62 X 56	3472

Canteen	34 X 23	782
Old Chemistry Block	87 X 42	3650
Post Office	36 X 46	1656
New OBC Hostel	3(94 X 52)	14664
Ladies Hostel	2 (112 X 90)	20160
Staff Quarter	79 X 35	2765
Cycle Stand	35 X 18	630
Stadium	72 X 31	2232
Security 3 Nos. Room	10 X 12.5	125
	25 X 10	250
	10 X 12.5	125
Total		**110860 ft^2 =10,299.23 m^2**

Establishment of Environment Management System

- **Declaration of Environment Policy**

The institution has its own environment policy to set up the targets which technically possible for the environmental protection and economically possible to create eco-friendly green environment .The different policies are

- To create the sense for environmental protection for the society.
- To aware and educate different stake holders regarding relevant laws and regulations of environmental protection.
- To aware about planting of more number of trees and reduce fossil fuel consumption.
- To reduce energy consumption and avoid plastic based materials.
- To aware the local people by making continuous rally with placards, posters and road show by the students.
- To avoid the burning of coal, wood, leaves, dung cake for different purposes and give more emphasis on use of natural gas.
- To dispose the particular wastes in proper manner as per then rule.

- **Planning of programme or activity**

The institution has an annual plan and programme for the different activities relating to plantation, gardening (ornamental and medicinal), beautification, auction of uprooted trees, and waste disposal of its own. The different stake holders such as NCC, NSS, YRC, Alumni etc. are advised accordingly to perform such activities in due course of time to adhere the environmental policy of this institution.

- **Implementation and operation**

As per the programme, the institution is planted with different trees by our different stake holders and they are well aware to take care of these plants. Regular awareness programme, meetings and placards rally are going on to aware and activate the students, staff and people of this locality. Cleanness programme are regularly done to make the campus clean. The watering of plants and garden are regularly done through supplied, waste and harvested rain water. The waste management of the institution is properly done as explained in the waste management.

OBJECTIVES OF GREEN AUDIT

The objectives of Environmental Audit in Pattamundai College are:

- To recognize the initiative taken by the College towards environment.
- To recognize, diagnose and resolve the environmental problems.
- To recognize the effects of the College on the environment and vice versa.
- To identify and control the impact of activities of the College on environment.
- To suggest the best protocols for sustainable environment.
- To assess environmental performance and the effectiveness of the measures to achieve the defined objectives and targets.
- To identify the different pressures on the College to improve their environmental performance.
- To ensure that the natural resources are utilized properly as per national policy of environment.
- To set the procedure for disposal of all types of harmful wastes.
- To reduce energy consumption.

- To give preference to the most energy efficient and environmentally sound appliances.
- To minimize the consumption of water and monitor its quality.
- To identify the risks of hazards and implement the policies for safety of stakeholders.
- To make sure that rules and regulations are taken care to avoid the interruptions in environment.
- To provide baseline information to enable the College to evaluate and manage environmental change, threat and risk.
- To identify the gap areas and suggest recommendations to improve the Green Campus status of the College.

TARGET AREAS OF GREEN AUDITING

Green audit forms part of a resource management process. Although they are individual events, the real value of green audit is the fact that they are carried out, at defined intervals, and their results can illustrate improvement or change over time. The concept mainly focuses on the efficient use of energy and water; minimize waste generation or pollution and also economic efficiency.

All these indicators are assessed in the process of Green Auditing of this Institute. It focuses on the reduction of contribution to emissions, procure a cost effective and secure supply of energy, encourage and enhance energy use conservation, promotes personal action, reduce the institute's energy and water consumption, reduce wastes to landfill, and integrate environmental considerations into all services considered to have significant environmental impacts. Target areas included in this green auditing are water, energy, waste, green campus and carbon footprint.

Auditing for Water Management

Water is a natural resource; all living organisms depend on water. Groundwater depletion and water contamination are taking place at an alarming rate. Hence it is essential to examine the quality and usage of water in the college. Water auditing is conducted for the evaluation of facilities of raw water intake and determining the facilities for water treatment and reuse. The

concerned auditor investigates the relevant method that can be adopted and implemented to balance the demand and supply of water.

Auditing for Energy Management

Energy conservation is an important aspect of campus sustainability which is also linked with carbon foot print of the campus. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

Auditing for Waste Management

Human activities create waste, and it is the way these wastes are handled, stored, collected and disposed of, which can pose risks to the environment and to public health. Pollution from waste is aesthetically unpleasing and results in large amounts of litter in our communities which can cause health problems. Solid waste can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. Bio-degradable wastes include food wastes, canteen waste, wastes from toilets etc. Non-biodegradable wastes include what is usually thrown away in homes and schools such as plastic, tins and glass bottles etc. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals, acids and petrol. Unscientific management of these wastes such as dumping in pits or burning them may cause harmful discharge of contaminants into soil and water supplies, and produce greenhouse gases contributing to global climate change respectively. Special attention should be given to the handling and management of hazardous waste generated in the college. Bio-degradable waste can be effectively utilized for energy generation purposes through anaerobic digestion or can be converted to fertilizer by composting technology. Non-biodegradable waste can be utilized through recycling and reuse. Thus, the minimization of solid waste is essential to a sustainable college. The prevailing waste disposal policies are assessed and suggestions made on the best way to combat the problems.

Auditing for Green Campus Management

Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. In one year, a single mature tree will absorb up to 48 pounds of carbon dioxide from the atmosphere, and release it as oxygen. The amount of oxygen released by the trees of the campus is good for the people in the campus. So while you are busy studying and working on earning those good grades, all the trees in campus are also working hard to make the air cleaner for you.

Auditing for Carbon Footprint

Burning of fossil fuels (such as petrol) has an impact on the environment through the emission of greenhouse gases into the atmosphere. The most common greenhouse gases are carbon dioxide, water vapour, methane, nitrous oxide and ozone. Of all the greenhouse gases, carbon dioxide is the most prominent greenhouse gas, comprising 402 ppm of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions. Vehicular emission is the main source of carbon emission in the campus, hence to assess the method of transportation that is practiced in the college is important.

METHODOLOGY ADOPTED

The methodology adopted to conduct the Green Audit of the college had the following components

Onsite Visit

Three day field visit was conducted by the Green Audit Team . The key focus of the visit was on assessing the status of the green cover of the college, their waste management practices and energy conservation strategies etc.

Group Discussion

The Group discussions were held with the staff members, students and the management focusing various aspects of Green Audit. The discussion was focused on identifying the attitudes and awareness towards environmental issues at the institutional and local level.

Energy, waste management and Carbon foot print analysis Survey

With the help of teachers and students, the audit team assessed the energy consumption pattern and waste generation, disposal and treatment facilities of the college. The monitoring was conducted with a detailed questionnaire survey method.

Pre Audit Meeting

AUDIT STAGE

Green auditing began with the assessment of the status of the green cover of the Institution followed by waste management practices and energy conservation strategies etc. Different facilities at the college were monitored, different types of appliances and utilities (lights, taps, toilets, fridges, etc.) were determined as well as measuring the usage per item (Watts indicated on the appliance or measuring water from a tap) and identifying the relevant consumption patterns (such as how often an appliance is used) and their impacts. The staff were interacted to get details of usage, frequency or general characteristics of certain appliances.

Data collection was done in the sectors such as Energy, Waste, Greening, Carbon footprint and Water use. College records and documents were verified several times to clarify the data received through survey and discussions. The environment samples including water, soil from various location of the campus were collected and analyzed at government recognized testing laboratories.

Post Audit Discussion

GREEN AUDIT REPORT

Water Quality assessment

Water quality:

Water samples were collected from 4 different sites such as tube well water (boys hostel), pond water (near main building) and two bore wells of the campus and analysed for the basic parameters by sending State Food Testing Laboratory, Bhubaneswar, Odisha whose results are given in the tabular form.

Parameters	**Tube Well Water (Boys hostel)**	**Pond Water (Near Main Building)**	**Bore Well Water 1**	**Bore Well Water 2**	**Standard BSI value (BIS)**
Colour	Nil	Nil	Nil	Nil	Agreeable
Odour	Nil	Nil	Nil	Nil	Agreeable
Alkalinity (mg/l)	150	136	152	110	200
Chloride (mg/l)	32	28	36	34	250 mg/l Max
Residual Free	Nil	Nil	Nil	Nil	0.2 mg/l Max

Chlorine(mg/l)					
Total Hardness (Total)	62	54	64	58	200 mg/l Max
Iron (as Fe) (mg/l)	3.5	Nil	Nil	Nil	1.0 mg/l Max
pH	6.0	6.5	7.0	7.5	6.0 to 8.5
Turbidity	20 NTU	15 NTU	Nil	Nil	1 NTU Max
Sulphate as SO_4^{-2}(mg/l)	Nil	Nil	Nil	Nil	200 mg/l Max
Total Alkalinity (as HCO_3^-)(mg/l)	150	136	152	110	200 mg/l Max
Nitrate (as NO_3^-)	Nil	Nil	Nil	Nil	45 mg/l Max
Nitrate (as NO_2^-)	Nil	Nil	Nil	Nil	0.02 mg/l Max
Test for E.Coli coliform	Negative	Negative	Negative	Negative	Absent
MPN of Coli form group of organisms per 100 ml	Negative	+5	Absent	Absent	Negative

Water samples for testing

Water Management

The institution has its own water management system. There are two deep Bore wells with two submersible pumps of capacity 2 hp and 1 hp each which meet all the need of the water. The distribution of water is properly done to different places as per the requirements. Different overhead tanks are available in different parts of the college to meet these requirements. There are 13 water purifiers and 1 cooler at different parts of the college to overcome the drinking water of the different stakeholders. The waste water obtained from different parts are well managed by watering the plants, ponds as well as sumps. Also college has access to the municipality supply water and also used at its need. Rain water harvesting system is also managed properly to watering the plants and rest to the ponds. There is also a well available in the college whose water is not used due to the supply of water from the Bore wells. The ponds are cleaned time to time for the pisciculture which add some funds to the college and consume biodegradable wastes left to the ponds through rain as well as waste water.

Sl. No	Parameters	Response	Remarks
1	Source of water	Bore Well with submersible pump, Municipality water supply, Ponds	Bore Well-02 Ponds -02
2	No of wells	01	Available but not in use (Location- Physics Department back side)
3	No of motors used	02	
4	Horse power (motor)	2 hp and 1 hp each	Total Quantity -02
5	Depth of well	20 feet	
6	Water level	10 feet	
7	No of water tanks	20	
8	Capacity of tank	18,000 L	2000 L × 4 =8000 L 750 L × 4 =3000 L 1000 L × 6 =6000 L 500 L × 2 =1000 L

9	Qty of water pumped everyday	10,000 L	Regular use before COVID-19
10	No of ponds	02	Near College Canteen-01 Boys Hostel -01
11	Any water wastage/ why?	No	
12	Water usage for gardening	Yes	
13	Waste water sources	1) Lavatory College Office& Building 2) Laboratory(Physics, Chemistry, Zoology &Botany) 3) Water Cooler & Water Purifiers. Outlet 4) Boys & Girls Hostel, Toilets, Kitchen &wash basin outlet	
14	Use of waste water	Gardening, Plantation & Drained to ponds for storage.	
15	Fate of wastewater from labs	Soak pits are made at their outlet to absorb within	
16	Whether waste water from labs mixed with ground water	No	Absorbed fully within the soak pits.
17	Whether any green chemistry method practiced in labs	No	
18	Any treatment of lab water	No	Only absorbed through soak pits.
19	No of water coolers	01+13 =14	01-Water Cooler 11-Kent RO water Purifier 02-UV water purifiers
20	Rain water	Yes	

	harvest available?		
21	No of units and amount of water harvested	02 units	
22	Any leaky taps	No	
23	Amount of water lost per day	Nil	
24	Any water management plant used	No	
25	Any water saving techniques followed	Yes	1.Urinals are equipped with push pull angle cocks to prevent wastage of water. 2. Overhead water tanks connected with ball cock to prevent water spillages automatically
26	Are there any signs reminding people to turn off the water		1. Overhead tanks are also connected with drain Pipes in case water fall on ground because of faulty ball cock.

Soil Quality Assessment

Soil samples were collected from four locations such as ornamental garden, playground , herbal garden and back side of the main building plantation area of the campus and analysed the basic Parameters Krushi Vigyan Kendra, Kendrapara, Odisha. The results are tabulated and presented in the table.

Parameter	**Location 1**	**Location 2**	**Location 3**	**Location 4**
pH	5.8	5.4	5.9	6.2
Total Available Nitrogen (kg/ha)	195.2	175.6	205.3	220.4
Total organic carbon (%)	0.39	0.35	0.41	0.44
Available Phosphorous (kg/ha)	10.2	9.3	10.4	11.3

Soil samples for testing

Energy Audit

A detailed data of consumption of electricity of the institution for the sessions 2017-18, 2018-19 and 2019-20 are given elaborately in table separately. The consumption of electricity is varied with the addition / modification of different items/ instruments. The institution is equipped with modern / updated electric appliances such as 5star rated instruments LED tube and bulbs to reduce the energy consumption. It also tried to add solar energy system to further save and use of green energy.

Data Sheet for Energy Audit of the Session: 2017-18

Room No./ Name	**Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)**	**Number**	**Power In watt**	**Usage Time (Hr/Day)**
NAAC	Fan	2	140	5
	CFL	2	36	5
	Desktop	8	440	5
	Laptop	1	150	5
	AC	1	1500	2
Principal's Office	Fan	3	210	7
	CFL	3	36	7
	Laptop	1	150	7

Principal's Rest Room	Fan	1	70	5
	CFL	1	36	5
	CCTV DVR	1	220	24
	AC	1	1500	2
	Refrigerator	1	125	24
Account Section	Fan	2	140	7
	CFL	2	48	7
	Desktop	1	220	7
	Printer	2	220	5
Administrative Office	Fan	2	140	7
	CFL	3	96	7
	Printer	1	220	5
Office Veranda	Tube Light	4	48	5
Staff Common Room	Fan	8	560	7
	CFL	6	240	7
	AC	3	4500	3
	Water Purifier	1	30	24
Examination Section	Fan	8	560	5
	Tube Light	9	360	5
	Desktop	1	220	5
SAMS	Fan	1	70	5
	Tube Light	2	80	5
	Desktop	3	220	5
	Xerox	1	350	5
Education Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
Economics Seminar	Fan	3	210	5
	Tube Light	3	120	5
Sociology Seminar	Fan	2	140	5
	Tube Light	2	80	5
English Seminar	Fan	1	70	5
	Tube Light	1	40	5
	Laptop	1	150	5
	Printer	1	220	5
Philosophy Seminar	Fan	2	140	5
	Tube Light	1	40	5
Vocational Office	Fan	1	70	5
	Tube Light	2	80	5
Odia Seminar	Fan	3	210	5
	Tube Light	2	80	5
History Seminar	Fan	3	210	5
	Tube Light	3	120	5
Political Sc	Fan	3	210	5

Seminar	Tube Light	3	120	5
Commerce Seminar	Fan	3	210	5
	Tube Light	4	160	5
Ladies Common Room	Fan	2	14	5
	Tube Light	6	240	5
	Water Purifier	1	30	24
Zoology Department	Fan	9	630	5
	Tube Light	10	400	5
	CFL	3	72	5
Motor Room	Motor	1	1492	4
	Bulb	1	40	4
Class Room No 08	Fan	8	560	5
	CFL	3	60	5
Class Room No 10	Fan	4	280	5
	CFL	2	45	5
Class Room No 09	Fan	1	70	5
	CFL	1	15	5
Class Room No 07	Fan	2	140	5
	CFL	1	30	5
Class Room No 14	Fan	1	70	5
	CFL	1	15	5
Class Room No 15	Fan	1	70	5
	CFL	1	15	5
Class Room No 16	Fan	6	210	5
	CFL	2	45	5
Class Room No 17	Fan	1	70	5
	CFL	1	15	5
Class Room No 18	Fan	1	70	5
	CFL	1	15	5
Class Room No 19	Fan	1	70	5
	CFL	1	15	5
Class Room No 20	Fan	6	420	5
	CFL	2	45	5
Class Room No 21	Fan	8	560	5
	CFL	2	60	5
Class Room No 23	Fan	6	420	5
	CFL	2	45	5
Class Room No 24	Fan	2	140	5
	CFL	2	30	5
Class Room No 25	Fan	10	700	5
	CFL	2	75	5
Physics Department	Fan	9	630	5
	CFL	10	295	5
	Desktop	1	220	5

	Water Purifier	1	30	24
	Refrigerator	1	125	24
	Printer	1	220	5
Botany Department	Fan	11	770	5
	CFL	7	140	5
	Desktop	1	220	5
	Printer	1	220	5
	Refrigerator	1	125	24
Mathematics Department	Fan	4	280	5
	CFL	6	90	5
	Desktop	1	1320	5
	Printer	1	220	5
Chemistry Department	Fan	12	840	5
	CFL	3	45	5
	Refrigerator	1	125	24
	Tube light	7	280	5
Library	Fan	25	1750	5
	Tube Light	13	520	5
	CFL	20	300	5
	Desktop	3	660	5
	Water Purifier	1	30	24
	Printer	1	220	5
	Xerox	1	350	5
Boys Hostel	Fan	12	840	5
	Tube Light	16	192	5
	Water Purifier	1	30	24
	CFL	3	132	5
Ladies Hostel	Fan	24	1680	5
	Water Purifier	1	30	24
	Tube Light	25	1000	5

Data Sheet for Energy Audit of the Session: 2018-19

Room No./ Name	**Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)**	**Number**	**Power In watt**	**Usage Time (Hr/Day)**
NAAC	Fan	2	140	5
	LED	2	18	5
	Desktop	8	440	5

	Laptop	1	150	5
	AC	1	1500	2
Principal's Office	Fan	5	210	7
	LED	3	27	7
	Laptop	1	150	7
Principal's Rest Room	Fan	1	70	5
	LED	2	18	5
	CCTV DVR	1	220	24
	AC	1	1500	2
	Refrigerator	1	125	24
Account Section	Fan	2	140	7
	LED	3	27	7
	Desktop	1	220	7
	Printer	2	220	5
Administrative Office	Fan	2	140	7
	LED	5	45	7
	Printer	1	220	5
Office Veranda	Tube Light	4	48	5
Staff Common Room	Fan	8	560	7
	LED	8	72	7
	AC	3	4500	3
	Water Purifier	1	30	24
Examination Section	Fan	8	560	5
	Tube Light	9	360	5
	Desktop	1	220	5
	LED	3	27	7
SAMS	Fan	1	70	5
	Tube Light	2	80	5
	Desktop	3	220	5
	Xerox	1	350	5
Education Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
Economics Seminar	Fan	3	210	5
	Tube Light	3	120	5
Sociology Seminar	Fan	2	140	5
	Tube Light	2	80	5
English Seminar	Fan	1	70	5
	Tube Light	1	40	5

	Laptop	1	150	5
	Printer	1	220	5
Philosophy Seminar	Fan	2	140	5
	Tube Light	1	40	5
Vocational Office	Fan	1	70	5
	Tube Light	2	80	5
Odia Seminar	Fan	3	210	5
	Tube Light	2	80	5
History Seminar	Fan	3	210	5
	Tube Light	3	120	5
Political Sc Seminar	Fan	3	210	5
	Tube Light	3	120	5
Commerce Seminar	Fan	3	210	5
	Tube Light	4	160	5
Ladies Common Room	Fan	2	14	5
	Tube Light	6	240	5
	Water Purifier	1	30	24
Zoology Department	Fan	9	630	5
	Tube Light	10	400	5
	LED	5	45	5
Motor Room	Motor	1	1492	4
	LED	1	9	6
Class Room No 08	Fan	8	560	5
	LED	5	45	5
Class Room No 10	Fan	4	280	5
	LED	3	27	5
Class Room No 09	Fan	1	70	5
	LED	1	9	5
Class Room No 07	Fan	2	140	5
	LED	1	9	5
Class Room No 14	Fan	1	70	5
	LED	1	9	5
Class Room No 15	Fan	1	70	5
	LED	1	9	5
Class Room No 16	Fan	6	210	5
	LED	4	36	5
Class Room No 17	Fan	1	70	5
	LED	1	9	5
Class Room No 18	Fan	1	70	5

	LED	1	9	5
Class Room No 19	Fan	1	70	5
	LED	1	9	5
Class Room No 20	Fan	6	420	5
	LED	4	36	5
Class Room No 21	Fan	8	560	5
	LED	4	36	5
Class Room No 23	Fan	6	420	5
	LED	4	36	5
Class Room No 24	Fan	2	140	5
	LED	2	18	5
Class Room No 25	Fan	10	700	5
	LED	4	36	5
Physics Department	Fan	9	630	5
	LED	10	90	5
	Desktop	1	220	5
	Water Purifier	1	30	24
	Refrigerator	1	125	24
	Printer	1	220	5
Botany Department	Fan	11	770	5
	LED	7	63	5
	Desktop	1	220	5
	Printer	1	220	5
	Refrigerator	1	125	24
Mathematics Department	Fan	4	280	5
	LED	6	54	5
	Desktop	1	1320	5
	Printer	1	220	5
Chemistry Department	Fan	12	840	5
	LED	8	72	5
	Refrigerator	1	125	24
	Tube light	7	280	5
Library	Fan	25	1750	5
	Tube Light	13	520	5
	LED	20	180	5
	Desktop	3	660	5
	Water Purifier	1	30	24
	Printer	1	220	5
	Xerox	1	350	5

Boys Hostel	Fan	12	840	5
	Tube Light	16	192	5
	Water Purifier	1	30	24
	LED	3	27	5
Ladies Hostel	Fan	24	1680	5
	Water Purifier	1	30	24
	Tube Light	25	1000	5

Data Sheet for Energy Audit of the Session: 2019-20

Room No./ Name	**Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)**	**Number**	**Power**	**Usage Time (Hr/Day)**
NAAC	Fan	2	140	5
	LED	3	36	5
	Desktop	2	440	5
	Laptop	1	150	5
	AC	1	1500	2
	Printer	2	440	5
Principal's Office	Fan	3	210	7
	LED	3	36	7
	Laptop	1	150	7
Principal's Rest Room	Fan	1	70	5
	LED	3	36	5
	Desktop	1	220	5
	CCTV DVR	1	220	24
	AC	1	1500	2
	Printer	1	220	5
	Refrigerator	1	125	24
Account Section	Fan	2	140	7
	LED	4	48	7
	Desktop	1	220	7
	Printer	2	220	5
Administrative Office	Fan	2	140	7
	LED	8	96	7
	Desktop	1	220	7

	Printer	1	220	5
Office Veranda	Tube Light	4	48	5
Staff Common Room	Fan	8	560	7
	LED	16	240	7
	AC	3	4500	3
	Water Purifier	1	30	24
Examination Section	Fan	8	560	5
	Tube Light	9	360	5
	Desktop	1	220	5
SAMS	Fan	1	70	5
	Tube Light	2	80	5
	Desktop	3	220	5
	Xerox	1	350	5
Education Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
Economics Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
	Printer	1	220	5
Sociology Seminar	Fan	2	140	5
	Tube Light	2	80	5
	Laptop	1	150	5
English Seminar	Fan	1	70	5
	Tube Light	1	40	5
	Laptop	1	150	5
	Printer	1	220	5
Philosophy Seminar	Fan	2	140	5
	Tube Light	1	40	5
	Laptop	1	150	5
Vocational Office	Fan	1	70	5
	Tube Light	2	80	5
Odia Seminar	Fan	3	210	5
	Tube Light	2	80	5
History Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Desktop	1	220	5
Political Sc Seminar	Fan	3	210	5
	Tube Light	3	120	5

	Laptop	1	150	5
Commerce Seminar	Fan	3	210	5
	Tube Light	4	160	5
	Laptop	1	150	5
Ladies Common Room	Fan	2	14	5
	Tube Light	6	240	5
	Fan	9	630	5
Zoology Department	Tube Light	10	400	5
	Laptop	1	150	5
	LED	6	72	5
Motor Room	Motor	1	1492	4
	Bulb	1	40	4
Class Room No 08	Fan	8	560	5
	LED	4	60	5
Class Room No 10	Fan	4	280	5
	LED	3	45	5
Class Room No 09	Fan	1	70	5
	LED	1	15	5
Class Room No 07	Fan	2	140	5
	LED	2	30	5
Class Room No 14	Fan	1	70	5
	LED	1	15	5
Class Room No 15	Fan	1	70	5
	LED	1	15	5
Class Room No 16	Fan	6	210	5
	LED	3	45	5
Class Room No 17	Fan	1	70	5
	LED	1	15	5
Class Room No 18	Fan	1	70	5
	LED	1	15	5
Class Room No 19	Fan	1	70	5
	LED	1	15	5
Class Room No 20	Fan	6	420	5
	LED	3	45	5
Class Room No 21	Fan	8	560	5
	LED	4	60	5
Class Room No 23	Fan	6	420	5
	LED	3	45	5
Class Room No 24	Fan	2	140	5

	LED	2	30	5
Class Room No 25	Fan	10	700	5
	LED	5	75	5
Physics Department	Fan	9	630	5
	LED	13	295	5
	Desktop	1	220	5
	Water Purifier	1	30	24
	Refrigerator	1	125	24
	Printer	1	220	5
Botany Department	Fan	11	770	5
	LED	7	140	5
	Desktop	1	220	5
	Water Purifier	1	30	24
	Refrigerator	1	125	24
Mathematics Department	Fan	4	280	5
	LED	6	9	5
	Desktop	6	1320	5
	Printer	1	220	5
Chemistry Department	Fan	12	840	5
	LED	3	45	5
	Tube light	7	280	5
Library	Fan	25	1750	5
	Tube Light	13	520	5
	LED	20	300	5
	Desktop	3	660	5
	Printer	1	220	5
Boys Hostel	Fan	12	840	5
	Tube Light	16	192	5
	LED	11	132	5
Ladies Hostel	Fan	24	1680	5
	Tube Light	25	1000	5

Annual Electricity Bill: 2017-18: Rs 93,844/-

2018-19: Rs 77,582/-

2019-20: Rs 81,681/-

The total energy utilization of the college for different purposes is approximately **17856.97 units/month**. Increased production of solar energy a type of nonconventional category of energy will be a good energy management system for the college. Electricity charges per month are **Rs.100000/month**. Energy saving through the replacement of incandescent bulbs, CFL lamps and tube lights to LED light could be a good option. Energy efficient electrical equipment especially fans and pump sets can be replaced against old ones. Awareness programs for the stakeholders to save energy may also increase sustainability in the utilization of various energy sources.

Availability of solar power with details:

The college has a plan to install luminous PCU 7.5 KVA solar power system since beginning of this session with an agreement with M/s Swarna Tyres to supply electric energy to the main building where main drain of current is carried out. But due to CORONA Pandemic the firm is unable to install it in time. So, the agreement of this firm is canceled and a new process of agreement is going on to install it very soon.

Waste Management

Waste management is important for an eco-friendly campus. In a college different types of wastes are generated, its collection and management are very challenging. The following data provide the details of the waste generated and the disposal method adopted by the college. Annexure -2

Waste Management for the session 2017-18

Approximate quantity of waste generated per day (in kg)

Approx.	**Biodegradable**	**Non-biodegradable**	**Hazardous**	**Others**
Office				
<1 Kg	√	√	Nil	Nil
2-10 Kg				
>10 Kg				
Laboratories				
<1 Kg	√	√	Nil	Nil

2-10 Kg				
>10 Kg				
Canteen/ Kitchen				
<1 Kg		√	Nil	Nil
2-10 Kg				
>10 Kg	√			

Waste Management for the session 2018-19

Approximate quantity of waste generated per day (in kg)

Approx.	**Biodegradable**	**Non-biodegradable**	**Hazardous**	**Others**
Office				
<1 Kg	√	√	Nil	Nil
2-10 Kg				
>10 Kg				
Laboratories				
<1 Kg	√	√	Nil	Nil
2-10 Kg				
>10 Kg				
Canteen/ Kitchen				
<1 Kg		√	Nil	Nil
2-10 Kg				
>10 Kg	√			

Waste Management for the session 2019-20

Approximate quantity of waste generated per day (in kg)

Approx.	**Biodegradable**	**Non-biodegradable**	**Hazardous**	**Others**
Office				
<1 Kg	√	√	Nil	Nil
2-10 Kg				
>10 Kg				
Laboratories				
<1 Kg	√	√	Nil	Nil
2-10 Kg				
>10 Kg				
Canteen/ Kitchen				
<1 Kg		√	Nil	Nil

2-10 Kg				
>10 Kg	√			

How the waste generated in the college are managed

	Yes/ No	**Remark**
Composting/ Vermicomposting	Yes	
Recycling	Yes	Waste water used for gardening
Reusing		
Other ways		

Waste generated in the College

	Yes/ No	**Remark**
E-waste	Yes	All the E-Wastes (315 Kg) of the College up to 30-09-2020 have already been disposed to State Pollution Control Board, Odisha in College letter No 946 dated 30-09-2020 with generation of Rs 4094/- towards college fund.
Hazardous waste	Yes	Hazardous wastes generated from different laboratories are well managed by dumping in sealed sump.
Solid waste	Yes	The Biodegradable solid wastes are consumed for Vermi composting purpose and Non- biodegradable wastes are handed over to municipality through its regular collection vehicle.
Dry leaves	Yes	Used for Vermi composting purpose.
Canteen	Yes	The waste generated from the canteen is disposed as mentioned in the above process.
Liquid waste	Yes	All types of liquid wastes are used for gardening, plantation and pond watering.
Glass	Yes	As this is treated as solid waste, it is handed over to

		municipality for its proper disposal.
Unused equipment	Yes	Disposed as E-Waste
Napkins	Yes	Biodegradable and disposed as me
Others (specify)	-	

Green Campus

The institution is sincerely concerned about the environmental pollution too early for which many timber yielding plants as well as medicinal plants were planted in the campus since 1990. This is a continuous practice of this institution for which it has reached around 4000 trees of different kinds. It not only reduces the green house gases but also supplies huge amount of oxygen to create an eco-friendly environment. The Google earth picture and detailed list of plants are given below for the information. As this is a cyclone prone area, almost every year the institution suffers loss of some trees which is used for the generation of funds by selling the broken trees. The details of fund generation in different years are given in annexure- V.

Tree Enumeration by staff and students

List of plants in the campus: 2017-18

Sl.No	Botanical Name	Common Name	Number
1	Ficus benghalensis	Bara	1
2	Cedrus deodara	Debadaru	94
3	Terminalia arjuna	Arjuna	292
4	Syzygium cumini	Jamu	7
5	Emblica officinalis	Amla	6
6	Callistemon citrinus:	Bottle brush	3
7	Alstonia scholaris	Chhatiana	15
8	Azaridichta indica	Nimba	204
9	Millettia pinnata	Karanja	231
10	Bombax ceiba	Simili	7
11	Simarouba glauca	Simrua	103
12	Saraca asoca	Asoka	4
13	Phoenix dactylifera	Khajuri	33
14	Neolamarckia cadamba	Kadamba	5
15	Melia azedarach	Mahanimba	15
16	Cocus nucifera	Nadia	41
17	Syzygium austral	Australian Cherry	6
18	Terminalia bellirica	Bahada	1
19	Swietenia macrophylla	Mahogany	106
20	Artocarpus heterophyllus	Panasa	7
21	Hevea brasiliensis	Rubber	1
22	Mangifera indica	Amba	15
23	Dalbergia sisso	Sisu	39
24	Tectona grandis	Saguan	252
25	Roystonea regia	Areca palm	2
26	Ficus carica	Dimiri	5
27	Acacia auriculiformis	Akasia	8

28	Psidium guava	Pijuli	12
29	Albzia lebbeck	Sirisa	21
30	Casuarina equisetifolia	Jhaun	41
31	Magnolia Champaka	Swarna champa	7
32	Dellenia indica	Ou	7
33	Terminallia cattappa	Katha badam	27
34	Streblus asper	Sahada	18
35	Delonix regia	Krushnachuda	17
36	Caesalpinia pulcherrima	Radhachuda	15
37	Mimusops elengi	Baula	14
38	Gmelina arborea	Gambhari	19
39	Aegle marmelos	Bela	6
41	Diospyros melanoxylon	Kendu	5
42	Schleichera oleosa	Kusum	1
43	Annona reticulata	Ata	1
44	Eucalypatus radiata	Eucalypatus	2217
45	Samanea saman	Chakunda	8
46	Annona squamosa	Neua	1

Total= 3940

List of plants in the campus: 2018-19

Sl.No	Botanical Name	Common Name	Number
1	Ficus benghalensis	Bara	1
2	Cedrus deodara	Debadaru	98
3	Terminalia arjuna	Arjuna	284
4	Syzygium cumini	Jamu	7
5	Emblica officinalis	Amla	6
6	Callistemon citrinus:	Bottle brush	3
7	Alstonia scholaris	Chhatiana	18

8	Azaridichta indica	Nimba	204
9	Millettia pinnata	Karanja	248
10	Bombax ceiba	Simili	7
11	Simarouba glauca	Simrua	108
12	Saraca asoca	Asoka	4
13	Phoenix dactylifera	Khajuri	34
14	Neolamarckia cadamba	Kadamba	5
15	Melia azedarach	Mahanimba	15
16	Cocus nucifera	Nadia	41
17	Syzygium austral	Australian Cherry	6
18	Terminalia bellirica	Bahada	1
19	Swietenia macrophylla	Mahogany	118
20	Artocarpus heterophyllus	Panasa	7
21	Hevea brasiliensis	Rubber	1
22	Mangifera indica	Amba	17
23	Dalbergia sisso	Sisu	44
24	Tectona grandis	Saguan	256
25	Roystonea regia	Areca palm	2
26	Ficus carica	Dimiri	5
27	Acacia auriculiformis	Akasia	8
28	Psidium guava	Pijuli	14
29	Albzia lebbeck	Sirisa	21
30	Casuarina equisetifolia	Jhaun	41
31	Magnolia Champaka	Swarna champa	7
32	Dellenia indica	Ou	7
33	Terminallia cattappa	Katha badam	27
34	Streblus asper	Sahada	19
35	Delonix regia	Krushnachuda	20

36	Caesalpinia pulcherrima	Radhachuda	16
37	Mimusops elengi	Baula	14
38	Gmelina arborea	Gambhari	20
39	Aegle marmelos	Bela	6
41	Diospyros melanoxylon	Kendu	5
42	Schleichera oleosa	Kusum	1
43	Annona reticulata	Ata	1
44	Eucalypatus radiata	Eucalypatus	2246
45	Samanea saman	Chakunda	8
46	Annona squamosa	Neua	1

Total=4022

List of plants in the campus: 2019- 20

Sl. No	Botanical Name	Common Name	Number
1	Ficus benghalensis	Bara	1
2	Cedrus deodara	Debadaru	107
3	Terminalia arjuna	Arjuna	347
4	Syzygium cumini	Jamu	7
5	Emblica officinalis	Amla	6
6	Callistemon citrinus:	Bottle brush	3
7	Alstonia scholaris	Chhatiana	15
8	Azaridichta indica	Nimba	215
9	Millettia pinnata	Karanja	262
10	Bombax ceiba	Simili	7
11	Simarouba glauca	Simrua	124
12	Saraca asoca	Asoka	4
13	Phoenix dactylifera	Khajuri	33
14	Neolamarckia cadamba	Kadamba	5

15	Melia azedarach	Mahanimba	17
16	Cocus nucifera	Nadia	41
17	Syzygium austral	Australian Cherry	6
18	Terminalia bellirica	Bahada	1
19	Swietenia macrophylla	Mahogany	121
20	Artocarpus heterophyllus	Panasa	7
21	Hevea brasiliensis	Rubber	1
22	Mangifera indica	Amba	15
23	Dalbergia sisso	Sisu	41
24	Tectona grandis	Saguan	275
25	Roystonea regia	Areca palm	2
26	Ficus carica	Dimiri	5
27	Acacia auriculiformis	Akasia	8
28	Psidium guava	Pijuli	12
29	Albzia lebbeck	Sirisa	21
30	Casuarina equisetifolia	Jhaun	41
31	Magnolia Champaka	Swarna champa	7
32	Dellenia indica	Ou	7
33	Terminallia cattappa	Katha badam	27
34	Streblus asper	Sahada	18
35	Delonix regia	Krushnachuda	17
36	Caesalpinia pulcherrima	Radhachuda	15
37	Mimusops elengi	Baula	14
38	Gmelina arborea	Gambhari	19
39	Aegle marmelos	Bela	6
41	Diospyros melanoxylon	Kendu	5
42	Schleichera oleosa	Kusum	1
43	Annona reticulata	Ata	1

44	Eucalypatus radiata	Eucalypatus	2297
45	Samanea saman	Chakunda	8
46	Annona squamosa	Neua	1

Total= 4193

No of trees planted:

Session	No. of trees planted	No. of trees broken	Total no. of trees
2017-18	550	Nil	3940
2018-19	127	35(Due to cyclone)	4022
2019-20	194	23(Due to cyclone)	4193

No of gardens:

Garden Types	Number
Ornamental Garden	02
Medicinal Garden	01
Orchards	01
Others	01


College Garden

List of Medicinal plants in herbal garden of Pattamundai College

Sl.No	Common Name	Botanical Name
1	Amla	*Phyllanthus emblica*
2	Bela	*Aegle marmelos*
3	Gangasiuli	*Nictanthes arbor-tristis*
4	Amarpoi	*Kalanchoe pinnata*
5	Manjuati	*Lawsonia inermis*
6	Bahada	*Terminalia bellirica*
7	Mandara	*Hibiscus rosa-sinensis*
8	Dhanwantari	*Cymbopogan flexuosus*
9	Pipali	*Piper longum*
10	Tulasi	*Ocimum sanctum*
11	Ghritkumari	*Aloe vera*
12	Badiamla	*Phyllanthus fraternus*
13	Satabari	*Asparagus racemosus*
14	Brahmi	*Bacopa monnieri*
15	Dayana	*Artemisia vulgaris*
16	Rukuna	*Coleus barbatus*
17	Banadhania	*Eryngium foetidum*
18	Karpura tulasi	*Ocimum kilimandscharicum*
19	Chireita	*Andrographis paniculata*
20	Pasaruni	*Paederia foetida*
21	Salaparni	*Desmodium gangeticum*
22	Ramatulasi	*Ocimum gratissimum*
23	Satabari	*Asparagus racemosus*
24	Gugula	*Commiphora caudata*
25	Agaru bacha	*Alpina galanga*
26	Ankaranti	*Cauroupita guianensis*
27	Dalchini	*Cinnamomum verum*
28	Tejapatra	*Cinnamomum tamala*
29	Kanchana	*Bauhinia variegata*
30	Insulin	*Costus igneus*

31	Thalkudi	*Centella asiatica*
32	Pana	*Piper betle*
33	Kanaka champa	*Pterospermum acerifolium*
34	Kaladudura	*Datura metel*
35	Anatamula	*Hemidesmus indicus*
36	Annapurna	*Pandanus amaryllifolius*
37	Arsha	*Crinum asiaticum*
38	Aswagandha	*Withania somnifera*
39	Bacha	*Acorus calamus*
40	Bajramuli	*Sida cordifolia*
41	Bhrungaraj	*Wedelia chinensis*
42	Brudhadaraka	*Argyreia nervosa*
43	Dhala arakha	*Calotropis procera*
44	Durlava	*Ocimum basillicum*
45	Golamaricha	*Piper nigrum*
46	Guluchi	*Tinospora cordifolia*
47	Hadajoda	*Cissus quandrangularis*
48	Hemasagar	*Kalanchoe lanceolate*
49	Keukeua	*Costus specious*
50	Sarpagandha	*Rauwolfia serpentina*
51	Pipermint	*Mentha arvensis*
52	Raktakhai	*Ventilago madrasapatana*
53	Sadabihari(Dhala)	*Catharanthus pusillus*
54	Patalagaruda	*Rauwolfia tetraphylla*
55	Stevia	*Stevia rebaudiana*
56	Akarakara	*Spilanthes calva*
57	Amba ada	*Curcuma amda*
58	Bisalyakarani	*Tridax procumbens*
59	Ayapan	*Eupatorium ayapana*
60	Koilikhia	*Hygrophylla auriculata*
61	Lajakuli	*Mimosa pudica*
62	Madaranga	*Alternanthera sessilis*
63	Pitasaga	*Glinus oppositifolius*
64	Antamula	*Hemidesmus indicus*
65	Antamuli	*Tylophora indica*
66	Aparajita(Dhala)	*Clitoria ternatea*
67	Aparajita(Kala)	*Clitoria pusilis*
68	Dahadahia	*Ipomoea reniformis*
69	Gudumari	*Gymnema sylvestre*
70	Multivitamin green	*Sauropus androgynus*
71	Loni	*Morinda citrifolia*
72	Kalama	*Ipomoea aquatica*
73	Sadabihari(violet)	*Catharanthus roseus*
74	Apamaranga	*Achyranthes aspera*

75	Kala arakha	*Calotropis gigantea*
76	Brahmajasti	*Clerodendrum serratum*
77	Gayasa	*Leucas aspera*
78	Raktachita	*Plumbago indica*
79	Swetachita	*Plumbago zeylanica*
80	Pauinsia	*Aerva lanata*
81	Talamuli	*Curculigo orchioides*
82	Bena	*Vetiveria zizanioides*
83	Gada	*Diospyros sylvatica*
84	Krushna parni	*Uraria picta*
85	Gandhasunthi	*Kaempferia galanga*
86	Sunusunia	*Marsilea quadrifolia*
87	Swetachandana	*Santalum album*
88	Raktachandana	*Pterocarpus santalinus*
89	Nagachampa	*Couroupita guianensis*
90	Bhadraksya	*Gauzuma ulmifolia*
91	Banapiaja	*Urginea dubius*
92	Biribiri	*Spilanthes paniculata*
93	Kalahaladi	*Curcuma caesia*
94	Methi	*Trigonella foenum-graecum*
95	Bathua	*Chinopodium album*
96	Bhuinamla	*Phyllanthus niruri*
97	Ambiliti	*Oxalis pes-caprae*
98	Mashaparni	*Teramnus labialis*
99	Sankhapushpi	*Evolvulus alsinoides*
100	Olatakamala	*Abroma augustum*
101	Kaincha	*Mucuna radians*
102	Podina	*Mentha arvensis*
103	Kala tulasi	*Ocimum tenuiflorum*
104	Queen Pineapple	*Ananas comosus*
105	Brajamalli	*Clerodendron chinense*
106	Gobinda garuda	*Trewia nudifloraa*
107	Akadia	-
108	Akalmundi	-
109	-	*Aclema radicans*

Herbal Garden

Routine Green Practices: Celebration of important days

The institution celebrated the following important days during each year to aware, observe and perform the activities by the different stakeholders.

Sl. No.	Important days	Activities
1	National Youth Day	Awareness
2	Republic Day	Campus Cleaning and Awareness
3	World Sustainable Energy Day	Energy Saving Awareness
4	World Wildlife Day	Plantations and Awareness
5	Gopabandhu Jayanti	Campus Cleaning and Awareness
6	World Water Day	Water Conservation Awareness
7	World Earth Day	Campus Cleaning

8	World Red Cross Day	Blood Donation
9	Netaji Jayanti	Observation & Awareness
10	NSS Day	Campus Cleaning and Social work
11	World Environment Day	Plantations and Awareness
12	International Yoga Day	Yoga Camp & Seminar
13	NCC Day	Parade, Campus Cleaning and Awareness
14	Gandhi Jayanti	Campus Cleaning and Awareness
15	World Aids Day	Observation and Awareness
16	Human Right Day	Observation and Awareness
17	Kargil Vijay Diwas	Observation and Awareness

Carbon footprint analysis

Burning of fossil fuels such as petrol has an impact on the environment through the emission of greenhouse gases into the atmosphere; of these carbon dioxide is the most prominent greenhouse gas, comprising 402 PPM of the Earth's atmosphere. The release of carbon dioxide gas into the Earth's atmosphere through human activities is commonly known as carbon emissions in which the vehicular emission and burning of natural gas are the main sources in the campus. As this is a rural based institution, maximum stakeholders use public transport as well as own cycle through which realise of green house gases is minimised. A very few numbers of two wheelers and cars are used by students, staff members and other stakeholders coming to the college. The natural gas used by different laboratories, hostels and canteen are very less which contribute very less green house gas for environment pollution. As there are around 4000 of trees are present in the campus this not only balances the green house gases but also supplies a huge amount of oxygen to the atmosphere to make an eco-friendly environment.

Sl No	**Particulars**	**Numbers**
1	No of cycles used in college by stakeholders	345
2	No of two wheelers used Average Distance Travelled : Quantity of Fuel Amount used per day	50 5 K.M 5 L Rs 400/-
3	No of cars used Average Distance Travelled : Quantity of Fuel Amount used per day	06 15 K.M 6 L Rs 480/-

4	No of persons using public transportation	920
5	No of persons using college conveyance	-
6	No of generators used per day	Rarely used as institution has invertor systems in different parts.
7	Amount of fuel used for generators per day	-
8	No of LPG cylinders used in canteen/ labs	07 Canteen – 01 Hostel - 02 Lab- 04
9	Use of any other fossil fuels in the college	-
10	Any suggestions/ planning to reduce the use of fuel	

MAJOR AUDIT OBSERVATIONS

- The college has developed its own environmental policy
- The college has developed very good greenery in the campus. Almost all the available spaces have been planted with trees.
- Gardens are well maintained. It is good to have a herbal garden which would boost the knowledge of staff, students and visitors on medicinal plants.
- Purchase policy should be developed to procure environment friendly items.
- Programmes on green initiatives have to be increased.

Water Management

- The water sources are safe in terms of contamination.
- The college at present does not have waste water treatment for waste water generated from laboratories and other sources.
- Per day consumption of water is high.
- Measurement of quantity of water obtained from rain water harvesting should be done.

Energy Management

- Monthly use of electricity in the college is very high. As expansion is going on, the consumption would further increase.
- The communication process for awareness in relation to energy conservation is inadequate.

Waste Management

- The college has proper communication with the local body for regular collection of solid waste from the college.
- E-waste disposal has been done properly as per procedure.
- Hazardous waste management need to be re-visited and local municipal body be consulted for its proper disposal.

Carbon Foot Print Audit

- Motorized vehicles are not more in number in comparison to the strength of staff and students.
- Use of inverters has reduced consumption of fossil fuel for functioning of college.
- Use of gas cylinder is moderate.

Green Campus

- Tree cover in the campus is adequate.
- Regular planting of trees is found adequate.
- Display boards for medicinal plants in the herbal garden have been placed with required information.

SUGGESTIONS AND RECOMMENDATIONS

Water

- Students can be advised to take back the food waste which would help in reducing the consumption of water for washing.
- The wells can be recharged with rainwater from rooftops of buildings.

- Construction of rainwater harvesting structures for each building can be thought of.
- Awareness programmes for water conservation can be arranged with local NGOs/ Municipal Body. Water quality monitoring should be done periodically.
- Water consumption monitoring system for the entire college should be developed.
- Display boards against the misuse of water need to be developed.

Energy

- It is recommended to avoid using of more energy consuming older electrical appliances and to replace with more environment friendly and energy efficient appliances eg. Five star rating appliances in the college.
- Potential for renewable energy sources have to be explored. The advantage of large roof areas of the college can be taken for installing solar grid.
- It is recommended to use solar powered water heater and cooker in the canteens of college/ hostels and solar powered street lights.
- The plan to establish 7.5 KVA solar greed should be materialized soon to reduce electricity consumption.
- Regular monitoring of equipment and immediate rectification of any problem should be done.

Green Campus

- In order to increase the carbon credit and greenery of the campus more indigenous and evergreen trees should be planted in the spaces available and spaces created/ likely to be created due to damage and uprooting of old trees.
- Registry of flora and fauna of the college should be developed.
- Display boards for tree with scientific names in the campus need to be developed for identification and learning.
- Possibility of drip watering system for the gardens can be thought of.

Waste

- Use of plastic should be avoided as far as possible and biodegradable materials should be encouraged as alternatives. The management should try to achieve the goal of plastic free campus.
- Leaf litter from the campus can be effectively used for aerobic/ vermi composting, so that the composted material can also be used as good manure.
- Paper waste can be recycled instead of incineration or burning.
- The canteen waste from college/ hostels can be subjected to aerobic composting by setting-up of few composting yards in the campus. This will provide a chance for the students to learn by seeing and operating such compost yards by themselves. Also a good practice of managing their own waste (from lunch box) instead of carrying them back home they can be trained in operating the compost yard, by using their lunch time waste to produce good organic manure.
- Establishment of a bio-gas plant can be thought of.
- Waste bins should be placed more in number at desired places.
- Green chemistry laboratory practice should be developed.

Carbon Footprint

- College should take initiative for carbon accounting.
- Students should be encouraged to use cycle.
- Efficient cooking system should be established to save cooking gas.

TEAM MEMBERS

Green Audit

PRINCIPAL

Pattamundai College

Principal
Pattamundai College
(PROF. ALN DASH)

AUDITOR

Green Audit

Divisional Forest Officer
Mangrove Forest Division (WL)
Rajnagar

TO WHOM IT MAY CONCERN

This is to certify that the energy audit of Pattamundai College, Pattamundai is conducted by me with the help of the audit members of that institution. The data reflected in the report is completely authentic to the best of my knowledge and belief.

on Request

22/3/21.

SDO
TPCODL
PATTAMUNDAI DIVISION

S.D.O (Elect.) TPCODL
PATTAMUNDAI

ENERGY AUDIT REPORT

SESSIONS : 2017-18 TO 2020-21

PATTAMUNDAI COLLEGE

PATTAMUNDAI

PREFACE

The energy audit of Pattamundai College was undertaken from the session 2017-18 to access the quantitative and qualitative aspect of energy data collection for energy audit of Pattamundai College, campus was conceded by the team for the period 2017-18 to 2019-20. This audit was over sighted to inquire about convenience to progress the energy competence of the campus. To drop of energy utilization whilst cultivate or humanizing comfort, health and safety were of prime interest of audit team. This audit required to recognize the mainly energy proficient appliances. Besides, several each day processes concerning common appliances have been provided which facilitate reducing the energy expenditure. The energy audit survey was completed by help of Physics department of the institution. All data collected from each classroom, laboratory, office, auditorium etc for the audit work. The work is completed by considering, how much tubes, fan, A. C.s, electronic instruments, etc are used in each room and part of the campus.

Brief introduction of the College

The genesis of Pattamudai College dates back to the sixties of the last century when its foundation was laid on 1st June, 1967, though it started functioning since 5th July of 1970. This locality, a breadbasket of the district turned proverbially backward both socially and economically as it became the continual haunt of natural calamities like cyclone, flood and drought, as it is even now, and there was no scope at all for higher education, the obvious catalyst for socio-economic transformation. The only college at Kendrapara, some 20 kms away and logistically disadvantageous for access then, had limited scope to cater to the academic need of the aspiring young college-goers of this vast locality. At this crucial juncture, a team of education lovers and activists starting with some college students of this land in Cuttack city, to the local activists and enthusiasts from the social gentry, came forward for establishment of a college for the benefit of all concerned.

Launched as an Arts college with only 128 students, it has grown to its present premier position with two other streams of science and commerce and 1475 students on its rolls with 14 programs at UG level.

With an eventful history of 50 years and a picturesque sprawling campus of 14.6 acres, it is indeed a testimony to the dream and sacrifice of our predecessors. Its alumni, globally positioned today are its identity markers and this institution has been playing a pivotal role in development of its satellite localities. Affiliated permanently to Utkal University, this college has been listed under 2(F) and 12(B) of the UGC Act vouchsafing its academic standard and administrative acumen. The addition of new buildings, hostels, library, laboratories and playground over the years has not only given a new dimension to its infrastructure but also has facilitated the expansion of curricular and extra-curricular horizons. Quite ahead of its contemporaries, it has adopted new technology of ICT facilities, library automation, Wi-Fi campus, online classes, green initiatives, etc by adopting the modern change to meet the expectation of its stakeholders.

Location of Pattamundai College

Objective of Energy Audit

The objective is to acquire and analyse the data to find the possible ways of energy Conservation.

It will be useful to calculate the amount of power consumed and wasted in a network of specified location.

To find and implement the solutions that is acceptable and feasible.

Scope:

✓ Data Collection - walk through audit.

✓ Facility Description - characterize building usage, occupancy, size and construction.

✓ Component Inventory - detailed components list including utility, life and efficiency.

✓ Energy Conservation Measures – identify and evaluate opportunities for cost savings and economic returns.

✓ Renewable /Distributed Energy Measures – evaluate economic viability of various renewable/distributed energy technologies.

✓ Energy Purchasing and Procurement Strategies – perform utility tariff analysis and assess potential for savings from energy procurement strategies.

✓ Awareness – to create awareness regarding efficient energy consumption and to provide with deserving rewards.

Vision of the College

- To make higher education qualitative and value based for the socio-economic transformation of the nation.
- To instill a sense of discipline and morality among the student's community for the making the students socially responsible citizens.

Mission of the College

- To grow into an institution of excellence and exemplary at the university level
- To provide literary, scientific, professional and technical education to the aspiring rural youth at a minimum cost.
- To be recognized as an institution with proven capacity to provide quality education in Science, Commerce & Humanities.
- To create symbiotic relationship with the society to meet the changing needs
- To introduce self-financing courses in multidisciplinary area.
- To adopt continues measures to improve the quality of the programme.
- To provide need-based career-oriented courses to the needs of the society
- To involve the Alumni for all round development of the college

NAAC Accredition

Year: 2006

Grade: B+

Courses offered:

The institution offers following programmes which include the different courses as given in the table below.

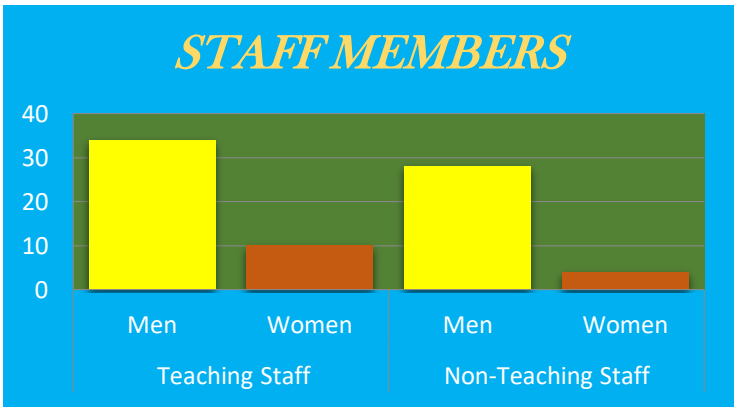
PROGRAMME OFFERED	COURSES OFFERED
Bachelor of Arts	Economics
	Education
	English
	History
	Odia
	Philosophy
	Political science
	Sociology
Bachelor of Science	Botany
	Chemistry

	Mathematics
	Physics
	Zoology
Bachelor of Commerce	Commerce

Strength of Staff (Teaching/ Non-teaching):

Presently this institution runs with 76 Nos of both teaching and non teaching staff members whose continuous effort makes this institution a glorious one. Among the total staff, detailed analysis of men and women of both the categories are given.

Teaching Staff		**Non-Teaching Staff**	
Men	Women	Men	Women
34	10	28	4



Strength of Students:

Year	**Stream**	**General**		**SC**		**ST**		**OBC**		**PWD**		**Minority**		**Total**		**Total**
		Boys	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	
2017-18	Arts	124	352	88	126	0	0	24	105	0	0	0	5	236	588	824
	Commerce	185	103	34	22	0	0	43	36	0	0	2	3	264	164	428
	Science	97	109	25	16	0	0	26	42	0	0	3	0	151	167	318
	Total	406	564	147	164	0	0	93	183	0	0	5	8	651	919	1570

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Arts	140	392	56	107	0	0	12	61	0	0	0	3	208	563	771
	Commerce	213	120	30	13	0	0	9	13	0	0	4	2	256	148	404
	Science	114	126	22	11	0	0	3	21	0	0	3	0	142	158	300
	Total	467	638	108	131	0	0	24	95	0	0	7	5	606	869	1475

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Arts	93	329	47	114	0	0	23	120	0	0	0	3	163	566	729
	Commerce	159	100	39	12	0	0	49	26	0	0	2	0	249	138	387
	Science	90	102	21	18	0	0	34	21	0	0	2	0	147	141	288
	Total	342	531	107	144	0	0	106	167	0	0	4	3	559	845	1404

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2017-18	Commerce	185	103	34	22	0	0	43	36	0	0	2	3	264	164	428

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2017-18	Science	97	109	25	16	0	0	26	42	0	0	3	0	151	167	318

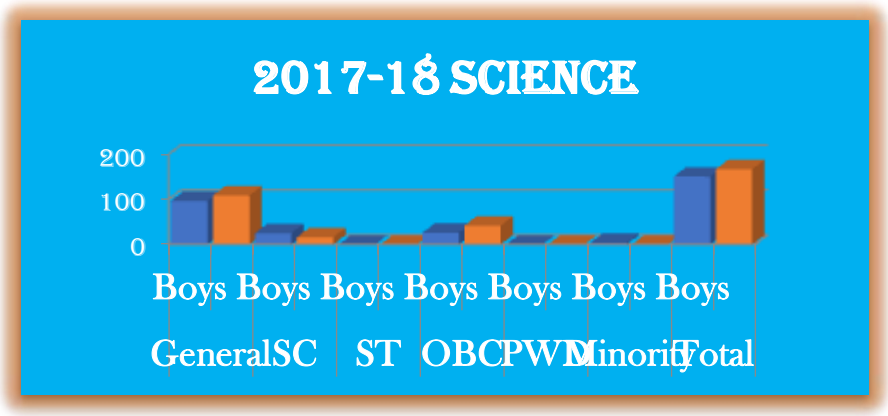
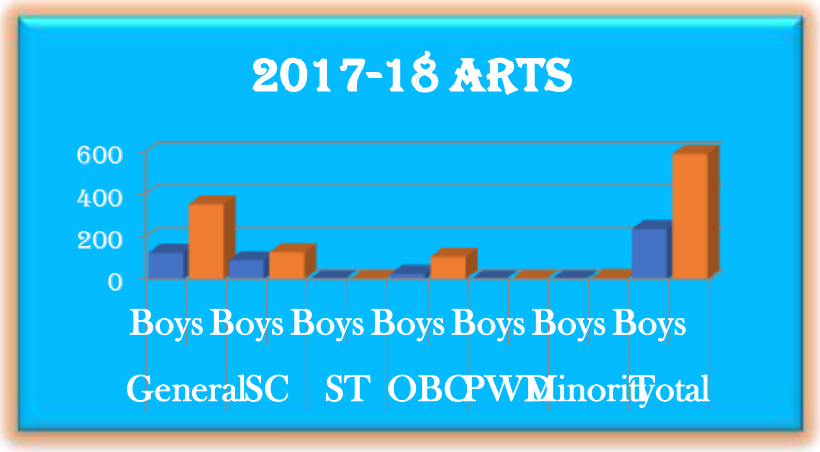
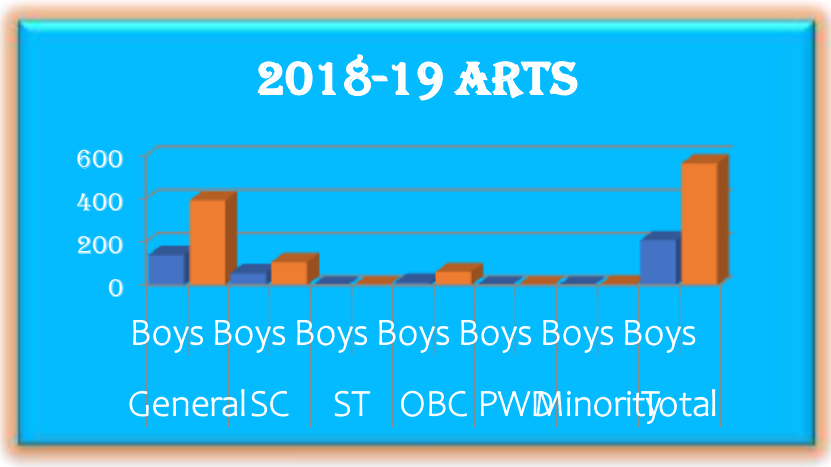


Table -7

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2017-18	Arts	124	352	88	126	0	0	24	105	0	0	0	5	236	588	824

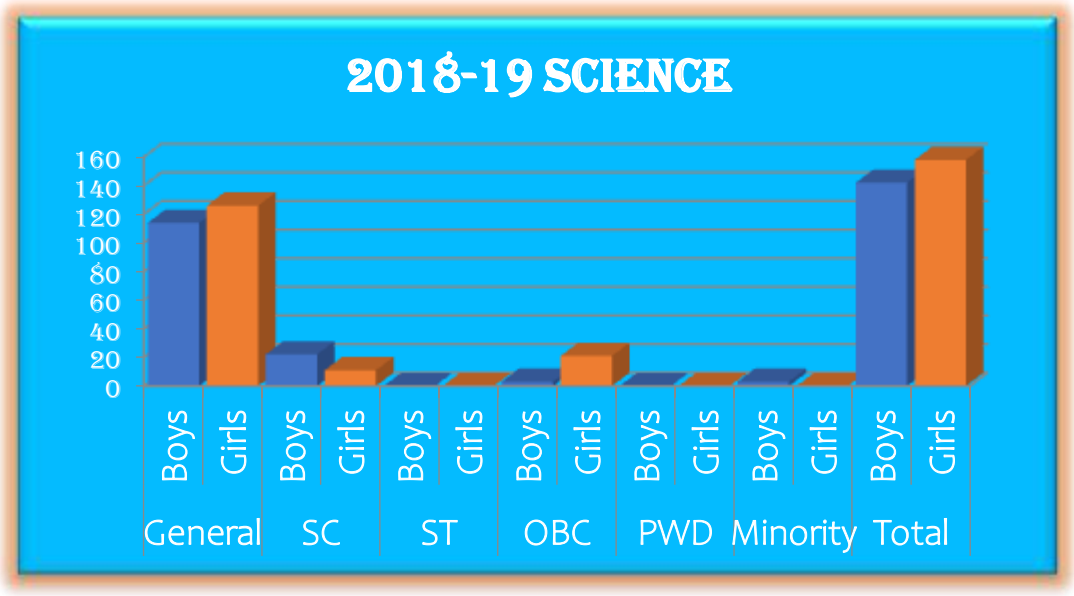


Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Arts	140	392	56	107	0	0	12	61	0	0	0	3	208	563	771

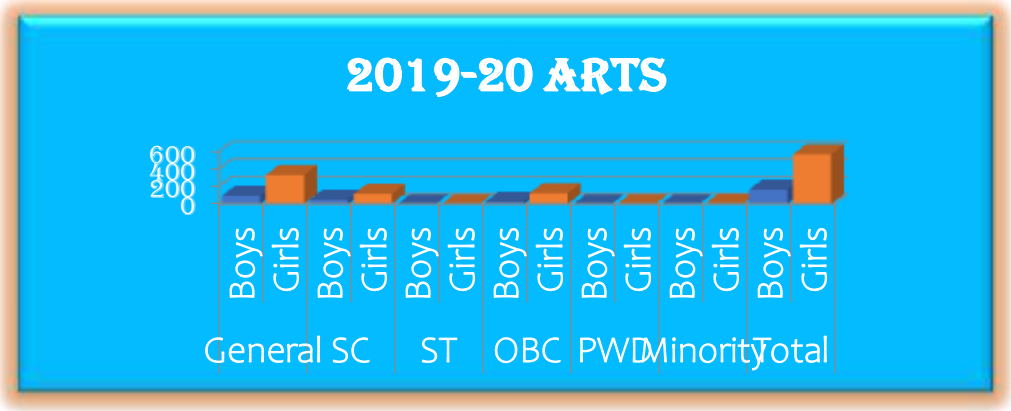


Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Commerce	213	120	30	13	0	0	9	13	0	0	4	2	256	148	404

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2018-19	Science	114	126	22	11	0	0	3	21	0	0	3	0	142	158	300

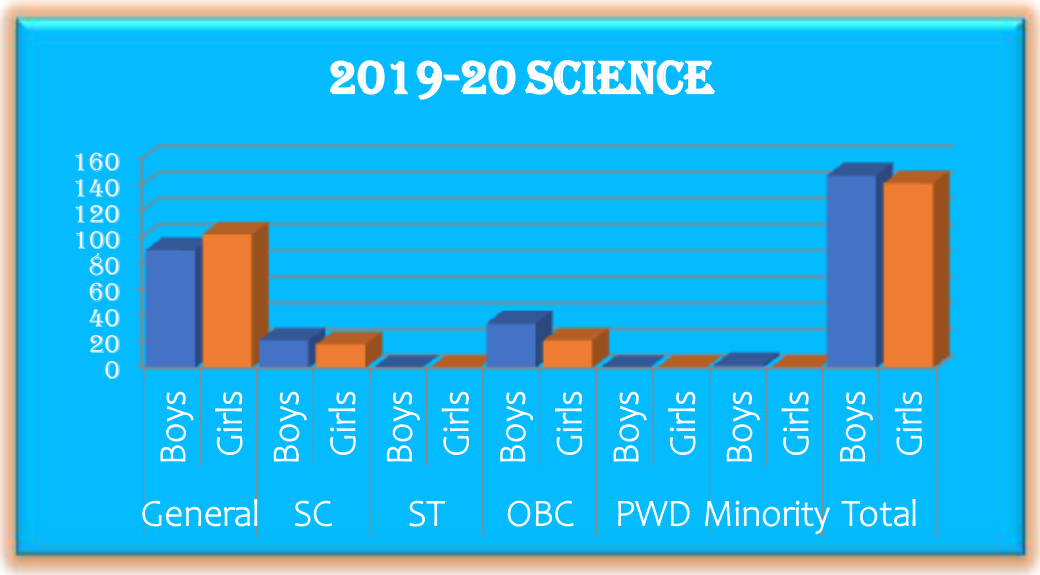


Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Arts	93	329	47	114	0	0	23	120	0	0	0	3	163	566	729

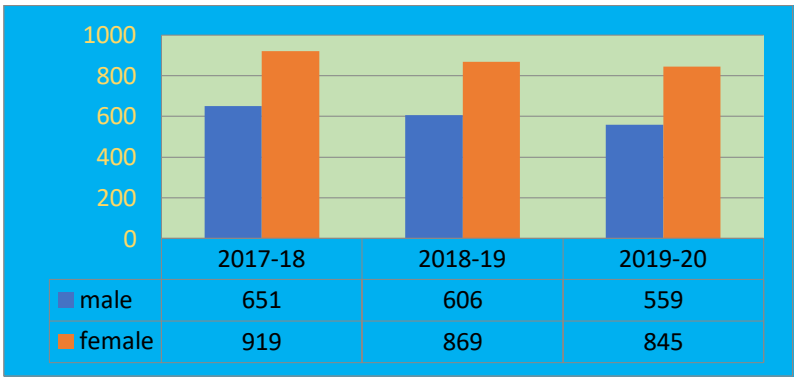


Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Commerce	159	100	39	12	0	0	49	26	0	0	2	0	249	138	387

Year	Stream	General		SC		ST		OBC		PWD		Minority		Total		Total
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
2019-20	Science	90	102	21	18	0	0	34	21	0	0	2	0	147	141	288



Year	Male	Female	Total
2017-18	651	919	1570
2018-19	606	869	1475
2019-20	559	845	1404



Physical structure (Area/ Built up area/ No. of class rooms/ libraries/ administrative rooms/ laboratories/ auditoriums/ conference rooms/ staff common rooms/ students common rooms/ hostels/ canteens/ others)

The institution has a land area of 14.6 acres of its own which is surrounded with pucca boundary fully to check the free access of the trespassers to overcome any kind of huddles in its academic atmosphere. Out of this, the built up area covers 10299.23m^2 which includes the physical structures given in the list below to cater the need of the students as well as all other stakeholders. The rest part of the total area covers a huge playground with full of green lands of different plants. Different gardens inside the campus add to its beautification in many folds.

. Details of physical structures	
Physical Structure	**Area/No**
Total Area	14.6 Acre
Built Up Area	10299.23 m^2
Class Rooms	32
Libraries	01
Administrative rooms	05
Laboratories	04
Auditoriums	01
Conference rooms	01
Staff common rooms	01
Students common rooms	02
Hostels	03
Canteens	01
Guest House	01
Post Office	01
Staff Quarter	02
Stadium	01
Security Rooms	03
Principal Quarter	01
Cycle Stand	01
Examination Hall	01
Lavatories	14

Construction Area in Sqft.		
Specific area	**Size in ft**	**Total area in ft^2.**
Staff Common Room to Boys Lavatories	2(200 X 28)	11200
Administrative Block	2(125 X 28)	7000
Zoology Department	89 X 37	3293
Examination Hall	2(115 X 25)	5750
Room No-01 to 06	145 X 26	37770
Room No-26 & 27	64 X 27	1727
Library Hall	2(137 X 38)	10412
Chemistry, Botany & Math Laboratory	100 X 68	6800
Boys Hostel	92 X 67	6164
Principal Quarter	51 X 34	1734
Guest House	62 X 56	3472
Canteen	34 X 23	782
Old Chemistry Block	87 X 42	3650
Post Office	36 X 46	1656
New OBC Hostel	3(94 X 52)	14664
Ladies Hostel	2 (112 X 90)	20160
Staff Quarter	79 X 35	2765
Cycle Stand	35 X 18	630
Stadium	72 X 31	2232
Security 3 Nos. Room	10 X 12.5	125
	25 X 10	250
	10 X 12.5	125
Total		**110860 ft^2 =10,299.23 m^2**

Auditing for Energy Management

Energy conservation is an important aspect of campus sustainability which is also linked with carbon foot print of the campus. Energy auditing deals with the conservation and methods to reduce its consumption related to environmental degradation. It is therefore essential that any environmentally responsible institution examine its energy use practices.

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METHODOLOGY ADOPTED

The methodology adopted to conduct the Energy Audit of the college had the following components

Onsite Visit

Three day field visit was conducted by the Energy Audit Team. The key focus of the visit was on assessing the status of the energy consumption of the college and energy conservation strategies etc.

Group Discussion

The Group discussions were held with the staff members, students and the management focusing various aspects of Energy Audit. The discussion was focused on identifying the attitudes and awareness towards environmental issues at the institutional and local level.

Energy management

With the help of teachers and students, the audit team assessed the energy consumption pattern and waste generation, disposal and treatment facilities of the college. The monitoring was conducted with a detailed questionnaire survey method.

AUDIT STAGE

The Energy auditing began and energy conservation strategies etc. Different facilities at the college were monitored, different types of appliances and utilities (lights, taps, toilets, fridges, etc.) were determined as well as measuring the usage per item (Watts indicated on the appliance or measuring water from a tap) and identifying the relevant consumption patterns (such as how often an appliance is used) and their impacts. The staff were interacted to get details of usage, frequency or general characteristics of certain appliances.

Energy Audit

A detailed data of consumption of electricity of the institution for the sessions 2017-18, 2018-19 and 2019-20 are given elaborately in table separately. The consumption of electricity is varied with the addition / modification of different items/ instruments. The institution is equipped with modern / updated electric appliances such as 5star rated instruments LED tube and bulbs to reduce the energy consumption. It also tried to add solar energy system to further save and use of green energy.

Data Sheet for Energy Audit of the Session: 2017-18

Room No./ Name	Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)	Number	Power In watt	Usage Time (Hr/Day)
NAAC	Fan	2	140	5
	CFL	2	36	5
	Desktop	8	440	5
	Laptop	1	150	5
	AC	1	1500	2
Principal's Office	Fan	3	210	7
	CFL	3	36	7
	Laptop	1	150	7
Principal's Rest Room	Fan	1	70	5
	CFL	1	36	5
	CCTV DVR	1	220	24
	AC	1	1500	2
	Refrigerator	1	125	24
Account Section	Fan	2	140	7
	CFL	2	48	7
	Desktop	1	220	7
	Printer	2	220	5
Administrative Office	Fan	2	140	7
	CFL	3	96	7
	Printer	1	220	5
Office Veranda	Tube Light	4	48	5
Staff Common Room	Fan	8	560	7
	CFL	6	240	7
	AC	3	4500	3
	Water Purifier	1	30	24
Examination Section	Fan	8	560	5
	Tube Light	9	360	5
	Desktop	1	220	5
SAMS	Fan	1	70	5
	Tube Light	2	80	5
	Desktop	3	220	5
	Xerox	1	350	5
Education Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
Economics Seminar	Fan	3	210	5
	Tube Light	3	120	5
Sociology Seminar	Fan	2	140	5
	Tube Light	2	80	5
English Seminar	Fan	1	70	5
	Tube Light	1	40	5

	Laptop	1	150	5
	Printer	1	220	5
Philosophy Seminar	Fan	2	140	5
	Tube Light	1	40	5
Vocational Office	Fan	1	70	5
	Tube Light	2	80	5
Odia Seminar	Fan	3	210	5
	Tube Light	2	80	5
History Seminar	Fan	3	210	5
	Tube Light	3	120	5
Political Sc Seminar	Fan	3	210	5
	Tube Light	3	120	5
Commerce Seminar	Fan	3	210	5
	Tube Light	4	160	5
Ladies Common Room	Fan	2	14	5
	Tube Light	6	240	5
	Water Purifier	1	30	24
Zoology Department	Fan	9	630	5
	Tube Light	10	400	5
	CFL	3	72	5
Motor Room	Motor	1	1492	4
	Bulb	1	40	4
Class Room No 08	Fan	8	560	5
	CFL	3	60	5
Class Room No 10	Fan	4	280	5
	CFL	2	45	5
Class Room No 09	Fan	1	70	5
	CFL	1	15	5
Class Room No 07	Fan	2	140	5
	CFL	1	30	5
Class Room No 14	Fan	1	70	5
	CFL	1	15	5
Class Room No 15	Fan	1	70	5
	CFL	1	15	5
Class Room No 16	Fan	6	210	5
	CFL	2	45	5
Class Room No 17	Fan	1	70	5
	CFL	1	15	5
Class Room No 18	Fan	1	70	5
	CFL	1	15	5
Class Room No 19	Fan	1	70	5
	CFL	1	15	5
Class Room No 20	Fan	6	420	5
	CFL	2	45	5
Class Room No 21	Fan	8	560	5
	CFL	2	60	5
Class Room No 23	Fan	6	420	5
	CFL	2	45	5
Class Room No 24	Fan	2	140	5
	CFL	2	30	5

Class Room No 25	Fan	10	700	5
	CFL	2	75	5
Physics Department	Fan	9	630	5
	CFL	10	295	5
	Desktop	1	220	5
	Water Purifier	1	30	24
	Refrigerator	1	125	24
	Printer	1	220	5
Botany Department	Fan	11	770	5
	CFL	7	140	5
	Desktop	1	220	5
	Printer	1	220	5
	Refrigerator	1	125	24
Mathematics Department	Fan	4	280	5
	CFL	6	90	5
	Desktop	1	1320	5
	Printer	1	220	5
Chemistry Department	Fan	12	840	5
	CFL	3	45	5
	Refrigerator	1	125	24
	Tube light	7	280	5
Library	Fan	25	1750	5
	Tube Light	13	520	5
	CFL	20	300	5
	Desktop	3	660	5
	Water Purifier	1	30	24
	Printer	1	220	5
	Xerox	1	350	5
Boys Hostel	Fan	12	840	5
	Tube Light	16	192	5
	Water Purifier	1	30	24
	CFL	3	132	5
Ladies Hostel	Fan	24	1680	5
	Water Purifier	1	30	24
	Tube Light	25	1000	5

Data Sheet for Energy Audit of the Session: 2018-19

Room No./ Name	**Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)**	**Number**	**Power In watt**	**Usage Time (Hr/Day)**
NAAC	Fan	2	140	5
	LED	2	18	5
	Desktop	8	440	5
	Laptop	1	150	5

	AC	1	1500	2
Principal's Office	Fan	5	210	7
	LED	3	27	7
	Laptop	1	150	7
Principal's Rest Room	Fan	1	70	5
	LED	2	18	5
	CCTV DVR	1	220	24
	AC	1	1500	2
	Refrigerator	1	125	24
Account Section	Fan	2	140	7
	LED	3	27	7
	Desktop	1	220	7
	Printer	2	220	5
Administrative Office	Fan	2	140	7
	LED	5	45	7
	Printer	1	220	5
Office Veranda	Tube Light	4	48	5
Staff Common Room	Fan	8	560	7
	LED	8	72	7
	AC	3	4500	3
	Water Purifier	1	30	24
Examination Section	Fan	8	560	5
	Tube Light	9	360	5
	Desktop	1	220	5
	LED	3	27	7
SAMS	Fan	1	70	5
	Tube Light	2	80	5
	Desktop	3	220	5
	Xerox	1	350	5
Education Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
Economics Seminar	Fan	3	210	5
	Tube Light	3	120	5
Sociology Seminar	Fan	2	140	5
	Tube Light	2	80	5
English Seminar	Fan	1	70	5
	Tube Light	1	40	5
	Laptop	1	150	5
	Printer	1	220	5
Philosophy Seminar	Fan	2	140	5
	Tube Light	1	40	5
Vocational Office	Fan	1	70	5
	Tube Light	2	80	5

Odia Seminar	Fan	3	210	5
	Tube Light	2	80	5
History Seminar	Fan	3	210	5
	Tube Light	3	120	5
Political Sc Seminar	Fan	3	210	5
	Tube Light	3	120	5
Commerce Seminar	Fan	3	210	5
	Tube Light	4	160	5
Ladies Common Room	Fan	2	14	5
	Tube Light	6	240	5
	Water Purifier	1	30	24
Zoology Department	Fan	9	630	5
	Tube Light	10	400	5
	LED	5	45	5
Motor Room	Motor	1	1492	4
	LED	1	9	6
Class Room No 08	Fan	8	560	5
	LED	5	45	5
Class Room No 10	Fan	4	280	5
	LED	3	27	5
Class Room No 09	Fan	1	70	5
	LED	1	9	5
Class Room No 07	Fan	2	140	5
	LED	1	9	5
Class Room No 14	Fan	1	70	5
	LED	1	9	5
Class Room No 15	Fan	1	70	5
	LED	1	9	5
Class Room No 16	Fan	6	210	5
	LED	4	36	5
Class Room No 17	Fan	1	70	5
	LED	1	9	5
Class Room No 18	Fan	1	70	5
	LED	1	9	5
Class Room No 19	Fan	1	70	5
	LED	1	9	5
Class Room No 20	Fan	6	420	5
	LED	4	36	5
Class Room No 21	Fan	8	560	5
	LED	4	36	5
Class Room No 23	Fan	6	420	5
	LED	4	36	5
Class Room No 24	Fan	2	140	5
	LED	2	18	5

Class Room No 25	Fan	10	700	5
	LED	4	36	5
Physics Department	Fan	9	630	5
	LED	10	90	5
	Desktop	1	220	5
	Water Purifier	1	30	24
	Refrigerator	1	125	24
	Printer	1	220	5
Botany Department	Fan	11	770	5
	LED	7	63	5
	Desktop	1	220	5
	Printer	1	220	5
	Refrigerator	1	125	24
Mathematics Department	Fan	4	280	5
	LED	6	54	5
	Desktop	1	1320	5
	Printer	1	220	5
Chemistry Department	Fan	12	840	5
	LED	8	72	5
	Refrigerator	1	125	24
	Tube light	7	280	5
Library	Fan	25	1750	5
	Tube Light	13	520	5
	LED	20	180	5
	Desktop	3	660	5
	Water Purifier	1	30	24
	Printer	1	220	5
	Xerox	1	350	5
Boys Hostel	Fan	12	840	5
	Tube Light	16	192	5
	Water Purifier	1	30	24
	LED	3	27	5
Ladies Hostel	Fan	24	1680	5
	Water Purifier	1	30	24
	Tube Light	25	1000	5

Data Sheet for Energy Audit of the Session: 2019-20

Room No./ Name	Electrical device/ Items (Bulbs: CFL/ Incandescent/ CFL; AC, Fan/ Computer, Instruments, Other appliances)	Number	Power	Usage Time (Hr/Day)
NAAC	Fan	2	140	5
	LED	3	36	5
	Desktop	2	440	5
	Laptop	1	150	5
	AC	1	1500	2
	Printer	2	440	5
Principal's Office	Fan	3	210	7
	LED	3	36	7
	Laptop	1	150	7
Principal's Rest Room	Fan	1	70	5
	LED	3	36	5
	Desktop	1	220	5
	CCTV DVR	1	220	24
	AC	1	1500	2
	Printer	1	220	5
	Refrigerator	1	125	24
Account Section	Fan	2	140	7
	LED	4	48	7
	Desktop	1	220	7
	Printer	2	220	5
Administrative Office	Fan	2	140	7
	LED	8	96	7
	Desktop	1	220	7
	Printer	1	220	5
Office Veranda	Tube Light	4	48	5
Staff Common Room	Fan	8	560	7
	LED	16	240	7
	AC	3	4500	3
	Water Purifier	1	30	24
Examination Section	Fan	8	560	5
	Tube Light	9	360	5
	Desktop	1	220	5
SAMS	Fan	1	70	5
	Tube Light	2	80	5
	Desktop	3	220	5
	Xerox	1	350	5

Education Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
Economics Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
	Printer	1	220	5
Sociology Seminar	Fan	2	140	5
	Tube Light	2	80	5
	Laptop	1	150	5
English Seminar	Fan	1	70	5
	Tube Light	1	40	5
	Laptop	1	150	5
	Printer	1	220	5
Philosophy Seminar	Fan	2	140	5
	Tube Light	1	40	5
	Laptop	1	150	5
Vocational Office	Fan	1	70	5
	Tube Light	2	80	5
Odia Seminar	Fan	3	210	5
	Tube Light	2	80	5
History Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Desktop	1	220	5
Political Sc Seminar	Fan	3	210	5
	Tube Light	3	120	5
	Laptop	1	150	5
Commerce Seminar	Fan	3	210	5
	Tube Light	4	160	5
	Laptop	1	150	5
Ladies Common Room	Fan	2	14	5
	Tube Light	6	240	5
	Fan	9	630	5
Zoology Department	Tube Light	10	400	5
	Laptop	1	150	5
	LED	6	72	5
Motor Room	Motor	1	1492	4
	Bulb	1	40	4
Class Room No 08	Fan	8	560	5
	LED	4	60	5
Class Room No 10	Fan	4	280	5
	LED	3	45	5
Class Room No 09	Fan	1	70	5
	LED	1	15	5

Class Room No 07	Fan	2	140	5
	LED	2	30	5
Class Room No 14	Fan	1	70	5
	LED	1	15	5
Class Room No 15	Fan	1	70	5
	LED	1	15	5
Class Room No 16	Fan	6	210	5
	LED	3	45	5
Class Room No 17	Fan	1	70	5
	LED	1	15	5
Class Room No 18	Fan	1	70	5
	LED	1	15	5
Class Room No 19	Fan	1	70	5
	LED	1	15	5
Class Room No 20	Fan	6	420	5
	LED	3	45	5
Class Room No 21	Fan	8	560	5
	LED	4	60	5
Class Room No 23	Fan	6	420	5
	LED	3	45	5
Class Room No 24	Fan	2	140	5
	LED	2	30	5
Class Room No 25	Fan	10	700	5
	LED	5	75	5
Physics Department	Fan	9	630	5
	LED	13	295	5
	Desktop	1	220	5
	Water Purifier	1	30	24
	Refrigerator	1	125	24
	Printer	1	220	5
Botany Department	Fan	11	770	5
	LED	7	140	5
	Desktop	1	220	5
	Water Purifier	1	30	24
	Refrigerator	1	125	24
Mathematics Department	Fan	4	280	5
	LED	6	9	5
	Desktop	6	1320	5
	Printer	1	220	5
Chemistry Department	Fan	12	840	5
	LED	3	45	5
	Tube light	7	280	5
Library	Fan	25	1750	5
	Tube Light	13	520	5

	LED	20	300	5
	Desktop	3	660	5
	Printer	1	220	5
Boys Hostel	Fan	12	840	5
	Tube Light	16	192	5
	LED	11	132	5
Ladies Hostel	Fan	24	1680	5
	Tube Light	25	1000	5

Annual Electricity Bill: 2017-18: Rs 93,844/-

2018-19: Rs 77,582/-

2019-20: Rs 81,681/-

The total energy utilization of the college for different purposes is approximately **17856.97 units/month**. Increased production of solar energy a type of nonconventional category of energy will be a good energy management system for the college. Electricity charges per month are **Rs.100000/month**. Energy saving through the replacement of incandescent bulbs, CFL lamps and tube lights to LED light could be a good option. Energy efficient electrical equipment especially fans and pump sets can be replaced against old ones. Awareness programs for the stakeholders to save energy may also increase sustainability in the utilization of various energy sources.

Availability of solar power with details:

The college has a installed luminous PCU 7.5 KVA solar power system in view of conserving conventional energy and switched over to green energy to create not only eco-friendly campus but also generate revenue for the institution. Since beginning of this session with an agreement with M/s Swarna Tyres to supply electric energy to the main building where main drain of current is carried out.

Solar Power Panels installed in the college campus

Control unit of electric energy

MAJOR AUDIT OBSERVATIONS

Energy Management

- Monthly use of electricity in the college is high. As expansion is going on, the consumption would further increase.
- The communication process for awareness in relation to energy conservation is inadequate.

SUGGESTIONS AND RECOMMENDATIONS

- It is recommended to avoid using of more energy consuming older electrical appliances and to replace with more environment friendly and energy efficient appliances like five star rating appliances in the college.
- Potential for renewable energy sources have to be explored. The advantage of large roof areas of the college can be taken for installing solar grid.
- It is recommended to use solar powered water heater and cooker in the canteens of college/ hostels and solar powered street lights.
- Regular monitoring of equipment and immediate rectification of any problem should be done.
- Switch off the electrical appliances used in different rooms immediately after the completion of classes/seminars.

On Request

22/9/21

Ramesh Kumar Sahu
Dushasan Pan

TEAM MEMBERS

Energy Audit

Sunil Kumar Radhan
Satyakanta Nayak
Subhasis Mishra

PRINCIPAL

Pattamundai College

Principal
Pattamundai College

S.D.O (Elect.) TPCODL
AUDITOR
PATTAMUNDAI

Energy Audit