



OFFICE OF THE PRINCIPAL, B.J.B. (AUTONOMOUS) COLLEGE, BHUBANESWAR

No 260 / Date 20.01.23

To

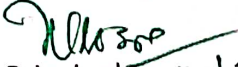
All H.O.Ds (Regular and Self-Financing Courses)

As per the guidelines of NAAC, and as advised by OSHEC from time to time in different fora, it is desirable for this college to offer various **Add-on Courses**, including **Value Added Courses** to its students in addition to normal courses specified in the curricula. Our desire to offer Value-added courses to students demonstrates our intention of enhancing the academic competitiveness and competence of our students beyond the confines of the degree curriculum. **Not only does it substantially strengthen the academic profile of the concerned departments, but also demonstrates the institutional commitment to excellence in academic pursuits.**

**GUIDELINES FOR DEPARTMENTS FOR CONDUCTING VALUE-ADDED COURSES**


1. The Value-added Courses will be offered at the level of the college itself. The affiliating University will in no way be concerned with the course. The certification will be done by the Principal, B.J.B Autonomous College, Bhubaneswar. No fees, whatsoever, will be collected from the students by the college.
2. No grades or credits will be awarded to successful participants. Only **successful participation certificate** will be given, bearing the signature of the Course Coordinator, H.O.D. and the Principal. No mention of the course will be incorporated in the final degree certificate awarded by the college.
3. Departments will have the freedom to decide the Value-Added Course to be offered. The course will be chosen in such a manner that the content of the course should supplement and enhance the knowledge and skills of the learners beyond the prescribed courses being taught to them under the normal degree programmes. For guidance and inspiration in this regard, faculty members may browse online through the lists of Value-added courses being offered by well-known academic institutions.
4. The department will choose the title of the course to be offered, and design the course consisting of **4 units**.
5. Departments may design the course so as to contain a suitable combination of lectures and supervised activities.
6. The course will be covered in duration of **not less than 30hrs**.
7. Primarily, courses should be designed in such a manner that they should cater to the needs of the students of their own programme, but departments are also encouraged to offer Value Added Courses in which students from other departments may also join.


8. For passing the course participants have to participate in a minimum of 75% of the classes and to secure minimum of 40% of the marks in the concluding test to be conducted at the end of the course.
9. Every department will designate a coordinator to conduct the course. Teaching of the course will be distributed by the H.O.D. among all the members of the teaching staff of the department. Departments may invite academicians/subject experts from outside the institution to engage some of the classes.
10. No extra remuneration will be paid to the course coordinators, H.O.D.s and the faculty members for conducting the value-added course.
11. Since the Courses to be offered are envisaged to be launched as soon as possible, departments are requested to submit the details of the course/s designed by them to the undersigned by 31/01/2023 to be placed before the Staff Council, or other appropriate body, of the college at the earliest for approval.
12. H.O.Ds of the Self-Financing courses will submit their proposed courses through their respective Coordinators to the undersigned.

  
Principal 20.1.23  
B.J.B.(Autonomous) College,  
Bhubaneswar

Memo No. 261 / Date 20.01.23

Copy to Person concerned/ Coordinator, IQAC/ Academic Bursar/ Legal Bursar/Coordinator, NAAC/ Principal's Guard File/ Head Clerk for information and necessary action.

  
Principal 20.1.23  
B.J.B.(Autonomous) College,  
Bhubaneswar



## DEPARTMENT OF CHEMISTRY

### VALUE-ADDED COURSE

## TOPIC-TECHNIQUES OF CHEMICAL ANALYSIS

### ▪ OBJECTIVES OF THE COURSE:

1. To make our students well versed about the basic chemical techniques.
2. It also aims at learning of principles to deal with operation of modern instrumental techniques.
3. To equip our students with cutting-edge research ideas.
4. It will improve their acquaintance with better problem solving methodologies.

### ▪ COURSE OUTCOME:

1. Completion of this course will supplement and enhance the boundaries of knowledge our students.
2. It will also help in skill-development of students enabling them to become better researchers, scientists and analysts etc.
3. They can analyze the quality of soil and water which will help in determining the extent of environmental pollution and usefulness of soil and water.
4. On completion of this course our students will be better equipped and encouraged to work at different reputed State and National level organizations like DRDO, BARC, NTPC, IISc. Bangalore, IITs, NISER and IISERs etc. They can also get placement

opportunities in Pharmaceutical Industries and Industries dealing with paints and pigments, Fertilizer Industries etc.

- **Course Duration: Minimum 30 hours.**
- **Eligibility Criteria: +3 Final Year Students**
- **Seats: 48**
- **Mode of Selection: Compulsory for all third year students.**
- **Tentative Commencement of the course: 15-02-23**

▪ **UNIT-1: TECHNIQUES IN INORGANIC ANALYSIS**

1. Determination of Biological Oxygen Demand (BOD) of the supplied water sample.
2. Determination of Chemical Oxygen Demand (COD) of the supplied water sample.
3. Determination of Total Hardness of water by complexometric titration.
4. Estimation of Ca by Substitution titration using EDTA.
5. Determination of Aluminium as Aluminium 8-Hydroxy quinolate.

▪ **UNIT-2: TECHNIQUES IN ORGANIC ANALYSIS**

1. Vitamin C Clock reaction.
2. Diels-Alder reaction in water and reaction between Furan and Maleic Acid in water at room temperature.
3. Extraction of DNA from mashed onion.
4. Photo-reduction of Benzophenone.

5. Extraction of Caffeine from Tea leaves.
6. Preparation and use of Methyl Orange- An Azo dye.

▪ **UNIT-3: TECHNIQUES IN PHYSICAL ANALYSIS**

1. Separation of a mixture of o- and p-nitro phenol or o- and p- amino phenol by thin layer chromatography.
2. Basic principles and techniques of Column and Paper Chromatography.
3. To determine the partition co-efficient of benzoic acid in between water & benzene and to show that it dimerizes in benzene.
4. Estimation of Glycine by pH metry.
5. Determination of  $\text{PO}_4^{-3}$  in natural water by colorimetry.

▪ **UNIT-4: TECHNIQUES IN POLYMER ANALYSIS**

1. Determination of molecular mass  $M_v$  of polyvinyl alcohol viscometrically.
2. Redox-polymerisation of acryloamide in homogeneous aqueous method.

**Reference Books:**

1. University Practical Chemistry by P.C. Kamboj- Vishal Publishing Company.
2. Polymer Chemistry by Viswanathan and Gowarikar.
3. Practical Books of Indira Gandhi National Open University-CHE-03- L, CHE-12 L.

VALUE ADDED COURSE IN CHEMISTRY

Topic:- Techniques of chemical Analysis

Speaker:- Dr. Renuka Sahu

Today's Topic:- Estimation of Total Hardness of Water by



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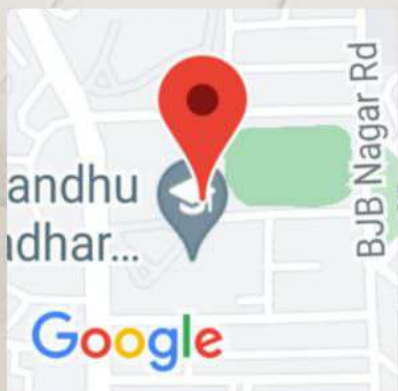
Bhubaneswar, Odisha, India

7R3R+FRP, BJB Nagar, Bhubaneswar, Odisha 751014, India

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10-  
VALUE ADDED COURSE

TOPIC :- TECHNIQUES  
OF  
CHEMICAL ANALYSIS

Commencement from - 01-09-2023

COURSE  
CO-ORDINATOR :- Dr. Renuka Sahu.





-50-

Sl. No.	Class Roll No	Name of student	Signature of student
01.	BS(P)-20-090	Kalpi Agrawal	Kalpi Agrawal
02.	BSCP-20-113	Neevika Dalita	Neevika Dalita
03.	Bs(P)-20-080	Saanya Suagatac Behera	Saanya Suagatac Behera
04.	Bs(P)-20-085	Apshita Mahapatra	Apshita Mahapatra
05.	BS(P)20-108	Jyotirmayee Lenka	Jyotirmayee Lenka
06.	BSP-20-077	Ashutosh Behera	Ashutosh Behera
07	BSP-20-105	Hemulakesh Ray	Hemulakesh Ray
08	BSP-20-117	Sujankanta Senapati	Sujankanta Senapati
09	BSP-20-116	Ashutosh Pani	Ashutosh Pani
10.	BSP-20-117	Susanta Jani	Susanta Jani
11.	BSP-20-012	Sapna Sinden	Sapna Sinden
12.	BSP-20-064	Ashweta Sahu	Ashweta Sahu
13	BSP-20-018	Amisha Pradhan	Amisha Pradhan
14	BSP-20-057	Adyasa Rath	Adyasa Rath
15	BSP-20-124	Pantoshi Sahu	Pantoshi Sahu

Sl. No.	Class Roll No.	Name of student	Signature of student
16	BSP-20-114	Ananya Basnabi Mohanty	Ananya B. Mohanty
17	BSP-20-084	Chinmaya Barik	Chinmaya Barik
18	BSP-20-111	Rajesh Kumar Samantaray	Rajesh Kumar Samantaray
19	BSP-20-109	Saham Tripathy	Saham Tripathy
20	BSP-20-123	Manasi Nayak	Manasi Nayak
21	BSP-20-042	Sunita Mohalik	Sunita Mohalik
22	BSP-20-067	Nashrin Farhad	Nashrin Farhad
23	BSP-20-121	Babu Jally.	Babu Jally.
24	BSP-20-135	Bhimaya Bn. Nayak	Bhimaya Bn. Nayak
25	BSP-20-030	Bikas M. Mellick	Bikas M. Mellick
26	BSP-20-20	Pravat K. Patra	Pravat K. Patra
27	BSP-20-05	Shiv Shankar Dash	Shiv Shankar Dash
28	BSP-20-140	Bijayang Behera	Bijayang Behera
29	BSP-20-093	Keshab Narayana Nayak	Keshab Nayak
30	BSP-20-092	Gururajjan Nayak	Gururajjan Nayak
31	BSP-20-101	Anirudha Pradhan	Anirudha Pradhan
32	BSP-20-137	Kantik Saneja	Kantik Saneja
33	BSP-20-011	Laxman Prapaka	Laxman Prapaka
34	BSP-20-071	Ramakanta Mantri	Ramakanta Mantri
35	BSP-20-017	Rohul Setty	Rohul Setty

Sl. No.	Roll No.	Name	Signature
36	BS(1)-20-127	Ananta Kumar Soren	Ananta Kumar Soren



**B.J.B. (AUTONOMOUS) COLLEGE  
DEPARTMENT OF CHEMISTRY**



**CERTIFICATE OF COMPLETION**

**This is to certify that Shri/Miss Amisha Pradhan bearing Roll No. BS(P)-20-018 of +3 3rd year science Chemistry (Hons.) has completed the Value Added Course in Chemistry (Topic- Techniques in Chemical Analysis ) from 01.03.23 to 31.03.23 in the session 2022-2023.**

**Prof.(Dr.) Renuka Sahu**

**H.O.D., CHEMISTRY**

**Prof.(Dr.) G.M. Khan**

**PRINCIPAL**



**B.J.B. (AUTONOMOUS) COLLEGE  
DEPARTMENT OF CHEMISTRY**



**CERTIFICATE OF COMPLETION**

**This is to certify that Shri/Miss Bikash Mallick bearing Roll No. BS(P)-20-030 of +3 3rd year science Chemistry (Hons.) has completed the Value Added Course in Chemistry (Topic- Techniques in Chemical Analysis ) from 01.03.23 to 31.03.23 in the session 2022-2023.**

**Prof.(Dr.) Renuka Sahu**

**H.O.D., CHEMISTRY**

**Prof.(Dr.) G.M. Khan**

**PRINCIPAL**





**B.J.B. (AUTONOMOUS) COLLEGE  
DEPARTMENT OF CHEMISTRY**



**CERTIFICATE OF COMPLETION**

**This is to certify that Shri/Miss Pravat Kumar Patra bearing Roll No. BS(P)-20-120 of +3 3rd year science Chemistry (Hons.) has completed the Value Added Course in Chemistry (Topic- Techniques in Chemical Analysis ) from 01.03.23 to 31.03.23 in the session 2022-2023.**

**Prof.(Dr.) Renuka Sahu**

**H.O.D., CHEMISTRY**

**Prof.(Dr.) G.M. Khan**

**PRINCIPAL**

